

CAPACITY ENHANCEMENT NEEDS ASSESSMENT (CENA) OF NEPAL LIVESTOCK SECTOR INNOVATION PROJECT

FINAL REPORT – VOLUME I



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

PREPARED BY
Gorakhkali Manakamana Study and
Research Center (GMSRC) JV with
National Environment and Health
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Prepared for
Ministry of Agriculture and Livestock Development,
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Harihar Bhawan, Lalitpur
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Prepared by
Gorakhakali Manakamana Study and Research Center (GMSRC) JV with National Environment and Health Study Center (NSCEH)
Sanothimi, Bhaktapur, Nepal

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Madhab Adhikari, Ph.D.

Founder and Chairman

GMSRC JV with NSCEH

Sanothimi, Bhaktapur

Study Team Members responsible for completion of this study¹

SN	Name ²	Roles and Specific Responsibility
1	Dr. Madhusudan Bhattarai	Study Advisor, overall study coordinator, and CENA based analysis and capacity development planning
2	Mr. Narayan Prasad Kaphle	Team Leader and Component Manager
3	Dr. Sudarshan Prasad Regmi	Deputy Team Leader and Expert on Human Resources Planning
4	Dr. Dinesh Prasad Parajuli	Thematic Leader on Veterinary Science and Capacity Development Planning
5	Dr. Chet Raj Upreti	Animal Science Technical Expert
6	Dr. Madhab Adhikari	Desk Coordinator and Field Survey Manager
7	Mr. Ishwor Prasad Neupane	Financial Management Expert
8	Mr. Pravin Ojha	Food Quality Management Expert
9	Dr. Upendra Man Singh	Technical Expert on Animal Health and Lab Science
10	Mr. Dharmendra Lekhak	Statistician and Data Management
11	Mr. Netra Prasad Osti	Livestock Expert
12	Mr. Ram Kumar Kunwar	Sociologist
13	Dr. Niranjana Devkota	Data Analyst
14	Mr. Prakash Raj Pandey	Researcher
15	Mr. Krishna Adhikari	Research Officer
16	Mr. Roshan Ugrakoti	Research Assistant

¹ The draft report has also been reviewed thoroughly and provided feedbacks by various officials of the project (NLSIP) and other senior officials from PMU/NLSIP, DLS, and MoALD. Specially, to Mr. Shyam Pd. Poudel, Dr. Prabhakar Pathak, Dr. Chandra Dhakal, Dr. Amar Shah and Dr. Bhim Nath Chaulagai.

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ACRONYMS AND ABBREVIATIONS

AEC	:	Agro Enterprise Center
ADS	:	Agriculture Development Strategy
AFU	:	Agriculture and Forestry University
AI	:	Artificial Insemination
AMR	:	Anti-microbial Resistance
BFI	:	Banks and Financial Institutions
BSL	:	Biological Safety Level
CDP	:	Capacity Development Plan
CDP	:	Central Dialogue Platform
CENA	:	Capacity Enhancement Needs Assessment
CLBC	:	Community Livestock Breeding Center
CPS	:	Country Partnership Strategy
CTCC	:	Central Project Coordination Committee
CVL	:	Central Veterinary Laboratory
DCC	:	District Coordination Committee
DDP	:	District Dialogue Platform
DGHC	:	District Grievance Handling Committee
DFTQC	:	Department of Food Technology and Quality Control
DLS	:	Department of Livestock Services
DLSU	:	Decentralized Level Support Units
DP	:	Dialogue Platform
ECOP	:	Environmental Code of Practices
FBS	:	Farmer Business School
FCGO	:	Finance Comptroller General Office
FFC	:	Farmer Field School
FGD	:	Focus Group Discussion
FMD	:	Foot-and-mouth disease
FNCCI	:	Federation of Nepalese Chamber of Commerce and Industry
GAHP	:	Goat Animal Husbandry Practices
GDP	:	Gross Domestic Product
GESI	:	Gender Equality and Social Inclusion
GMSRC	:	Gorakhakali Manakamana Study and Research Center
GMP	:	Good Manufacturing Practices
GoN	:	Government of Nepal
GRS	:	Goat Research Station
GTV	:	Goat Tissue Vaccine
HPAI	:	Highly Pathogenic Influenza
HPEID	:	Highly Pathogenic Emerging and Reemerging Infectious Disease
HR	:	Human Resource
HQ	:	Head-quarters
ICO	:	Immediate Capacity Outcomes
ICT	:	Information and Communication Technology
IDI	:	In-Depth Interview
IDA	:	International Development Association
IEC	:	Information, Education and Communication

INDC	:	Intended Nationally Determined Contributions
JT	:	Junior Technician
JTA	:	Junior Technical Assistant
KIS	:	Key Informants Survey
LIM	:	Livestock Information Management
LMIS	:	Livestock Management Information System
LMBIS	:	Line Ministry Budgetary Information System
LN ₂	:	Liquid Nitrogen
LS	:	Livestock Sector
LSCs	:	Livestock Service Centers
M & E	:	Monitoring and Evaluation
MLSC	:	Municipal Livestock Service Center
MoALD	:	Ministry of Agriculture and Livestock Development
MoF	:	Ministry of Finance
MoFA & GA	:	Ministry of Federal Affairs & General Administration
MoLMA & C	:	Ministry of Land Management, Agriculture and & Co-operatives
MoU	:	Memorandum of Understanding
MToT	:	Master Trainers of Training
NABIC	:	Nepal Agribusiness Incubation Centre
NADIL	:	National Avian Disease Investigation Laboratory
NARC	:	Nepal Agricultural Research Council
NCPS	:	Nepal Country Partnership Strategy
NLBO	:	National Livestock Breeding Office
NGO	:	Non-Governmental Office
NLSIP	:	Nepal Livestock Sector Innovation Project
NPC	:	Nepal Planning Commission
NPTP	:	National Progeny Testing Program
NSCEH	:	National Environmental and Health Study Center
NVPL	:	Nepal Vaccine Production Laboratory
OIE	:	World Organization for Animal Health
PACT	:	Project for Agriculture Commercialization and Trade
PAD	:	Project Appraisal Document
PCN	:	Project Concept Note
PDO	:	Project Development Objective
PIM	:	Project Implementation Manual
PMU	:	Project Management Unit
POs	:	Producer Organizations
PPRS	:	Pedigree and Performance Recording Scheme
PPR	:	Peste des Petits Ruminants
PSC	:	Project Steering Committee
PTCC	:	Provincial Technical Coordination Committee
RBP	:	Ration Balance Program
SDG	:	Sustainable Development Goal
SOEs	:	Statement of Expenditures
SOP	:	Standard Operating Procedures
SPs	:	Sub- Projects
TA	:	Technical Assistance
TADs	:	Trans-boundary Animal Disease

TDG	:	Tole Development Group
THR	:	Technical Human Resource
TMR	:	Total Mixed Ration
ToR	:	Terms of Reference
ToT	:	Training of Trainers
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
VPH	:	Veterinary Public Health
VSDRL	:	Veterinary Standard and Drug Regulation Laboratory
WB	:	World Bank

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EXECUTIVE SUMMARY

“Capacity Enhancement and Need Assessment (CENA)” of Nepal Livestock Sector Innovation Project (NLSIP) has been done as per the objectives and scope of assignment commissioned by the NLSIP in late 2019. The project³ is implemented through the Project Management Unit (PMU) at the center, and through “Decentralized Level Support Unit (DLSUs)” at the cluster level field sites. This study on CENA of the NLSIP is prepared as per the objectives and scope of the assignment TOR provided to the study team.

Using the CENA framework, capacity constraints, and capacity gaps associated with the NLSIP are analyzed at three dimensions, they are at the institutions and enabling environment level, at the organizational level, and individual level in terms of the functioning of the project activities. A comprehensive review of international literature on CENA has been done to derive specific components and thematic issues that are linked with the study objectives on hand.

A mixed-method of assessment is used for compiling data and information across different structures and functional layers of the project, and across the selected stakeholders of the project. The data and information have been compiled from both the project target-sites and the project non-target sites (in province 6 and 7) across the seven provinces of the country. The study uses various survey tools such as individual and institutional level survey were done using tools and techniques of Key Informant Survey (KIS) and focused group discussion (FGD). Large numbers of national experts and regional experts in livestock sectors are identified using snow bowl sampling methods for doing KIS. Over 31 national level livestock experts and over 60 sub-national level livestock service experts were consulted for their inputs, feedback, and suggestions, using semi-structured checklists. In addition, secondary data were also compiled from various publications of MoALD and reports related to the project activities, other project documents, and literature published on the subjects in Nepal and outside.

Qualitative and quantitative data and information were compiled using the semi-structured questionnaire. Besides doing a limited extent of fieldwork, due to the global pandemic and lockdown in the economy, the survey work was supplemented by the electronic survey (e-survey, virtual meeting) to get more information on specialized topics, with the respected prominent experts and stakeholders in the country to compile their feedback and suggestions.

As per the discussions and agreed by all participants of the project inception workshop organized between the officials of NLSIP and the study team, we have prepared two-volume of the study report. This is a volume 1 report, which documents the findings of the CENA study of NLSIP. More specifically, the scope of this volume of the report includes the findings out of NLSIP stakeholders’ consultation meetings, KII with selected national experts, and the capacity gaps that hinder the implementation of the project (NLSIP) activities across its four clusters.

Then, another study report on “CENA study of the livestock institutions of Nepal”, a parallel study developed along with this report (i.e., volume II) provides findings on Capacity Gaps and constraints

³ In this study, here after, the “project” means “Nepal Livestock Sector Innovation Project (NLSIP)”, and so the project and NLSIP terms are used interchangeably in the text.

related to the functioning of livestock sector agencies within the Ministry of Agricultural and Livestock Development (MoALD)⁴ and all other public sector livestock institutions and entities in Nepal.

Hence, in this study, various dimensions of capacity belonging to the project (NLSIP) performances within the framework of CENA methodology were assessed. They include: institutions and policy related factors, organizational factors, and characteristics belong to individual skills and knowledge. The capacity assessment also includes technology being used, infrastructure, and motivation of staff in their job assignments for delivery of the outputs and outcome of the project. The capacity assessment of the NLSIP has been done also taking into consideration the activities proposed in the Project Implementation Manual (PIM) of NLSIP. The status of linkages of stakeholders with project planned activities are analyzed and the results are summarized in terms of capacity development activities to be done by the project (NLSIP) in the future, which is also key aims of this study.

Subsequently, capacity development plans for NLSIP have been developed after thoroughly analyzing capacity gaps in the functioning of institutions, organizations, and individual level technical professionals working for the project. The Capacity Development Plans (CPD) includes a) short-term and medium terms non-degree training and skill development programs (and its schedule) to farmers, project staffs (technicians and officers) and others; and b) academic degree program: MS degree training programs (MS degree) as a part of the objective of long-term capacity development in livestock institutions in the country. Besides, the CPD also includes a listing of critical tools and equipment (and machinery equipment, lab components) to be set up by the project, as they are also noted in the Project Implementation Manual (PIM) of the project (NLSIP), prepared in 2018.

Some of the major focused areas and highlighted capacity development plans proposed in this report are summarized below. Item-wise details of all capacity development plans are provided in Summary Table 1.

- a) Strengthening ICT systems of livestock organization right from the local municipality level offices both in rural and urban areas, across DLSU offices, and in the PMU offices for the flow of data and information timely across the vertical scale of organizations and horizontally across the various entities of livestock institutions. The more use of ICT systems is also for efficient management, monitoring the project activities across the country in a timely fashion, and effectively. This is more important now also in the aftermath of the COVID 19 pandemic.
- b) The technical capacity of the project staff and its key partners (stakeholders) should be strengthened, with a focus on improving knowledge and skills in each of the major functioning of the livestock sector development activities. This includes more for urgent supporting the project officials in revising the sectoral policies and strategies of the livestock sector for enhancing production and productivity and value chain of dairy, meat, and Chyangra pashmina.
- c) Consolidation of livestock information management (LIM) of the project, along with the core thematic activities (or pillars) of the MoALD such as livestock breeding, animal nutrition, animal health, and production management system.
- d) Strengthening the status of disease prevalence through enhancing laboratory operation and information management systems (online systems) across the labs and sharing the information instantly with various related agencies in the provinces, and nationwide.

⁴ Another parallel study includes CENA related findings of DLS, provincial level LS sector entities, district level Veterinary Hospitals (VH&LEC), municipality level Livestock Sector Institutions (LSCs), and so on.

- e) The plan for training and study visits is proposed to project staff as well as others from MoALD, and the farmer groups. Short-term trainings are proposed for farmers and livestock producers' groups (or entrepreneurs' groups) to enhance their exposures and know-how on best technology and management of livestock agribusiness in different parts of the country and in India, as observation and study tours.
- f) Trainings are proposed to enhance the capacity of the project staff by providing academic degree (M.Sc. in Animal Science, M.Sc. in Veterinary Science, and other degrees) to enhance their effectiveness in work for a long time, and to provide positive incentives to the livestock sector professionals of MoALD for the project work, and as a part of the long-term sustainable use of the professional capacity within MoALD institutions.
- g) A total of USD 4.8 million is suggested for capacity enhancement of the project staff and other key stakeholders, which include short-term training and academic trainings, and in both high and medium priority categories. Out of this, about 40% of the total cost will be spent for the capacity enhancement of the farmers; and about 50% of the cost is suggested to spend for capacity enhancement of technicians (JT & JTA). Details are in Summary Tables 1 and 2.
- h) Under the high priority category, about USD 3.9 million (which is over 55% of the total cost for capacity development plan) are proposed to complete the training courses as well as the academic degree by the project staff and other officials of MoALD. The major academic degree related training proposed are in subject areas such as (1) Animal Health (2) Animal Production and Management (3) Animal breeding, (4) Animal Nutrition and Fodder Production and (5) Agricultural Economics/Agribusiness, and so on. Details in Annex Table 1.
- i) The Capacity Development Plan (CDP) and related training plans are proposed benefiting a total of 13,785 persons in total (or, 11,304 persons under the high priority category). They comprise of officials, technicians, lead livestock farmers, livestock entrepreneurs) of the project and the MoALD and from various institutions/organizations under MoALD. Over 45% of these participants of the trainings are livestock farmers and livestock entrepreneurs, and 29% of the participants proposed are junior technicians (JT/JTA) would be directly providing services to the livestock farmers at the ground level (Summary Table 1).

Summary Table 1. Summary of Approximate cost of Capacity Development Plan during 2020-2023

Total of all Capacity Development Activities by Major Types	Grand Total		Total of High Priority		Total of Medium Priority	
	Nepali Rs. (in 1000)	USD (in 1000)	Nepali Rs. (in 1000)	USD (in 1000)	Nepali Rs. (in 1000)	USD (in 1000)
Total of Training Courses (short-term)	470,800	4,280	394,100	3,582.7	76,700	697.3
Total of Academic Courses	60,000	545.5	40,000	363.6	20,000	181.8
Total of Machinery & Equipment	767,300	6,975.5	362,300	3,293.6	405,000	3,681.8
Total Expenditure	1,298,100	11,801	796,400	7,240	501,700	4,561
Value in NRs. and USD (@NRs. 110=1USD) as in 2019						

- j. At present, the available laboratory facilities and equipment (as well as animal health clinic facility) at the execution level is far below adequate, the available facilities are also far below adequate. But

there is an increasing demand from various stakeholders (Livestock farmers as well as Livestock entrepreneurs) for the provision of these services from the public entities of MoALD/DLS, with the latest equipment and latest techniques in testing and analysis, even charging of modest service fees from the service seekers. Hence, a tentative cost for a basic set of machinery and equipment are also included in the CPD developed here, as part of the capacity development plan developed in **Summary Table 1**. This is to ensure effective and enhanced Livestock and Veterinary Service availability to the farmers (producers) across the country.

- k. The training and capacity development plans have been organized and analyzed by the participant categories (likely participant groups), as well as separate items that have been grouped for on-the-job training, academic degree (training), and required costs for basic equipment and machinery, as illustrated in Summary Table 1. This is done by hoping that the project management and other stakeholders can implement the capacity development plan easily. Later on, the PMU can easily do any modification on the line-items of CDP, as per the changing dynamics on availability of funding, timing, and availability of other resources, and so on.
- l. In summary, for the short-term training and academic degree program, USD 3.95 million is proposed as the total cost, under the high priority category. Out of that, only USD 0.36 million (10%) is proposed for academic degree courses, and the rest USD 3.58 (90%) is for short-term training courses to enhance the capacity of the project staff till the end of 2023. Besides, over 30 % of the total short-training costs are proposed to be spent for enhancing the capacity of farmers and livestock entrepreneurs, 50% of the cost for enhancing the capacity of technicians (JT/JTA), and the rest (9% of the cost) for enhancing the capacity of officials and senior management (details in Summary Table 2). Annual capacity development plan is provided in chapter VII, and then a detailed item-wise and year-wise break-down of the capacity development plans are presented in Annex Table 1.

Summary Table 2: Distribution of Costs and participation numbers of Training by participants' category

Categories	Total Cost (In NRs. Lakh)	Percentage of Costs by participant's category	Total No of Participants	Percentage of Number by participant's category
A. Training (short term)				
1. Farmers level	1,845	39	5,895	45
2. JT/ JTA level	2,359	50	3,755	29
3. Officers level	424	9	3,099	24
4. Senior Officer & Sr. management	80	2	210	2
Sub total	4,708	100	12,959	100

Some emerging interventions needed in livestock sectors in response to the COVID-19 pandemic

To minimize the possible negative effect of pandemic COVID-19 in the value chain of dairy, goat, and pashmina-Chyangra, some activities like infrastructure development for milk and meat processing, establishment/strengthening of powder milk plant, support to existing dairy processing plants can be done to improve their efficiency in the processing of the milk and milk products at the locally and within the regional market.

In addition, considering the farmers' pressing needs, the interventions can be done also through supplying various equipment and facilities like milk tanker, cold room, cream separator, homogenizer, pasteurizer, chilling VAT, etc. Likewise, the project can also support to increase the number of milk collection centers in the country (and collection center of live animal of goat, and strengthening cold chain supply of goat meat) through the construction of building in public-private partnership (PPP) model. These interventions are important also in terms of generating more employment opportunities in rural/peri-urban areas and sustaining the income and livelihoods of the rural population in the time of global pandemic and difficult economic situations.

CHAPTER I

INTRODUCTION

1.1 Background

The study on “Capacity Enhancement and Need Assessment (CENA) of Nepal Livestock Sector Innovation Project (NLSIP)” is done to develop a detailed Capacity Development Plan of the project (NLSIP). This study is done as per the objectives, scope of work, the overall CENA framework of the study as specified in the study TOR provided by the project (NLSIP).

Livestock is an integral part of the agricultural production system in Nepal, which is increasingly getting more valued for food security and more employment provision to the mass population of Nepal. The livestock sector contributes not only about 13% of the annual national economic activity (GDP), but it also contributes substantially to generation of employment and job security for a large section of the population, including its huge contribution to food and nutrition security in the economy. Since, most of the Nepali farmers keep one or two live animals in their back yards for foods, nutrition, and for regular cash income, which makes livestock economy quite different than that of the crop-based economic activities.

In this context, the MoALD/Govt. of Nepal has implemented the NLSIP project from 2017, with support from the World Bank, which is going to be completed by the end of 2023. The total project cost estimated is USD 115 million spreads over the six years; out of that about USD 80 million is a loan from the World Bank group, and the rest contributions are from the livestock farmers and entrepreneurs participating in the project, loan components of the Bank and Financial Institutions (BFIs), and the government grants and matching component of the project activities.

At present, NLSIP is one of the large projects of the MoALD/GoN in terms of improving the production and productivity of smallholding livestock farmers by providing direct benefits to over 200,000 livestock farmers during the project period of six years. In addition, the project has a plan to provide improved technical and management supports, and other tangible supports in terms of value chain development, to over 500 agro-enterprises located across 28 districts (nearly across 300 urban and rural municipalities) in the selected five provinces of the country.

Moreover, after adjustment and realignment of the government officials (in MoALD) across the three layers of the federal governments (federal-provincial, and local governments), the technical manpower of the ministry has created high-level of confusion in the smooth implementation of the livestock sector activities under MoALD as well implementation of the stated activities of the NLSIP, and in delivering livestock services to the farmers. Within this context, the planned capacity enhancement and needs assessment (CENA) study is done with the objectives of preparing a business plan for capacity development initiatives of the NLSIP in Volume I); and CENA of livestock sector entities across three layers of the MoALD in Volume II of the study.

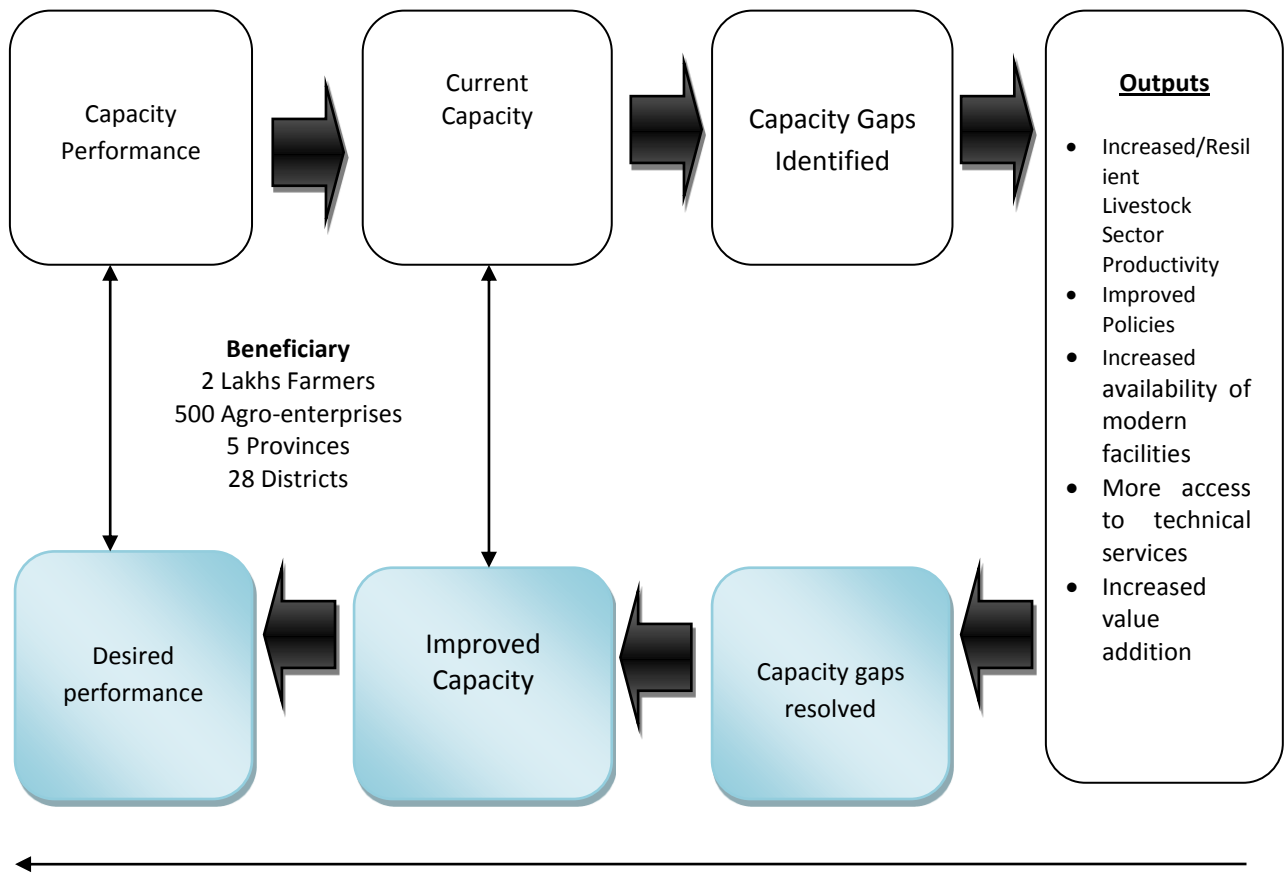
This study report adopts the CENA framework of the assessment for completion of the analysis and for needs assessment (details are in Kay et al. 2008, ILRI, and UNDP 2008) for analyzing existing capacity as well as capacity needs assessment to designs capacity development plans for NLSIP.

Strengthening Capacity

Capacity strengthening is defined as the process by which individuals, groups, organizations, and societies increase their ability to perform core functions, solve problems, define and achieve objectives, understand, and deal with their development in a broader context and sustainable manner (UNDP 2008, Key et al., 2008). In a development process, capacity strengthening in agriculture is a dynamic phenomenon, and it presents and reflects the changing conditions and on-going transformations in the agricultural sector. To make capacity strengthening activities more relevant to the needs of the livestock innovation system, the following dimensions of capacity are usually addressed in a typical CD strategy (UNDP 2008), which is also used in this study as well.

- a) **Technical capacity:** i.e., the ability to provide tools/services to beneficiaries;
- b) **Implementation capacity:** (i.e., ability to plan, implement, and evaluate programs and policies),
- c) **Human resources:** i.e., current and future potential for adequate staffing with appropriate training), and
- d) **Coordination ability:** i.e., the ability of the organizations to manage cooperation, coordination, and transparency.

Capacity is more related to the ability to deliver a certain level of performance. Therefore, the capacity development solutions are specially designed to address the root causes to improve the performance of an entity (UNDP 2008). If the analyses on the current state and root causes are correctly done, then information on the improvement in capacity is generated. Once, the capacity gap is filled adequately and promptly, then it ultimately leads to improvement in capacity, which would lead to improvement in the performance of the entity as well (see, Figure1).

Figure 1: Linkage of capacity change to performance improvement

Adapted from: Measuring changes in performance and capacity (UNDP 2008; and WB 2012)

1.2 Country Context- Livestock Sector Development in Nepal

Government of Nepal (GoN) has promulgated the Agriculture Development Strategy (ADS) in 2015 to develop and modernize agriculture rapidly and in sustainable, which is supposed to guide agriculture development pathways of Nepal from 2015 to 2035 (MoAD, 2015). The ADS reinforces the vital role of livestock for sustained agricultural and economic growth, poverty reduction, improving food and nutrition security (MoALD, 2015). Key elements envisaged as livestock development strategies in the ADS are productivity enhancement, strengthening extension and outreach services, and various reforms in the institutional arrangement and market value chains of agricultural sectors in the country.

Moreover, there is a widespread shortage of professional staffs in the grass-root level activities (at the municipality and community level services) due to the restructuring and reallocation of livestock professionals across the three tiers of the governments (federal, provinces and across local governments (Municipalities) to implement the 2015 federal constitutions. As a result, there is a huge gap exists between the livestock rearing practices followed by farmers than that of the practices recommended by extension agents/experts centers, and what are the services demanded by the livestock producers.

In addition, large numbers of the Livestock Service Centers (LSCs) across the municipalities in Nepal have been facing difficulty in meeting the demand for technical services due to inadequate basic diagnostic facilities, inadequate budget, and trained human resources. However, with the creation of 753 municipalities, the new arrangement is expected to improve service delivery to farmers in significant ways, especially at the grassroots level. In parallel, the opportunities provided by cooperatives, producer groups, and private businesses in providing extension services to the targeted groups of farmers remain largely unexplored subject-areas.

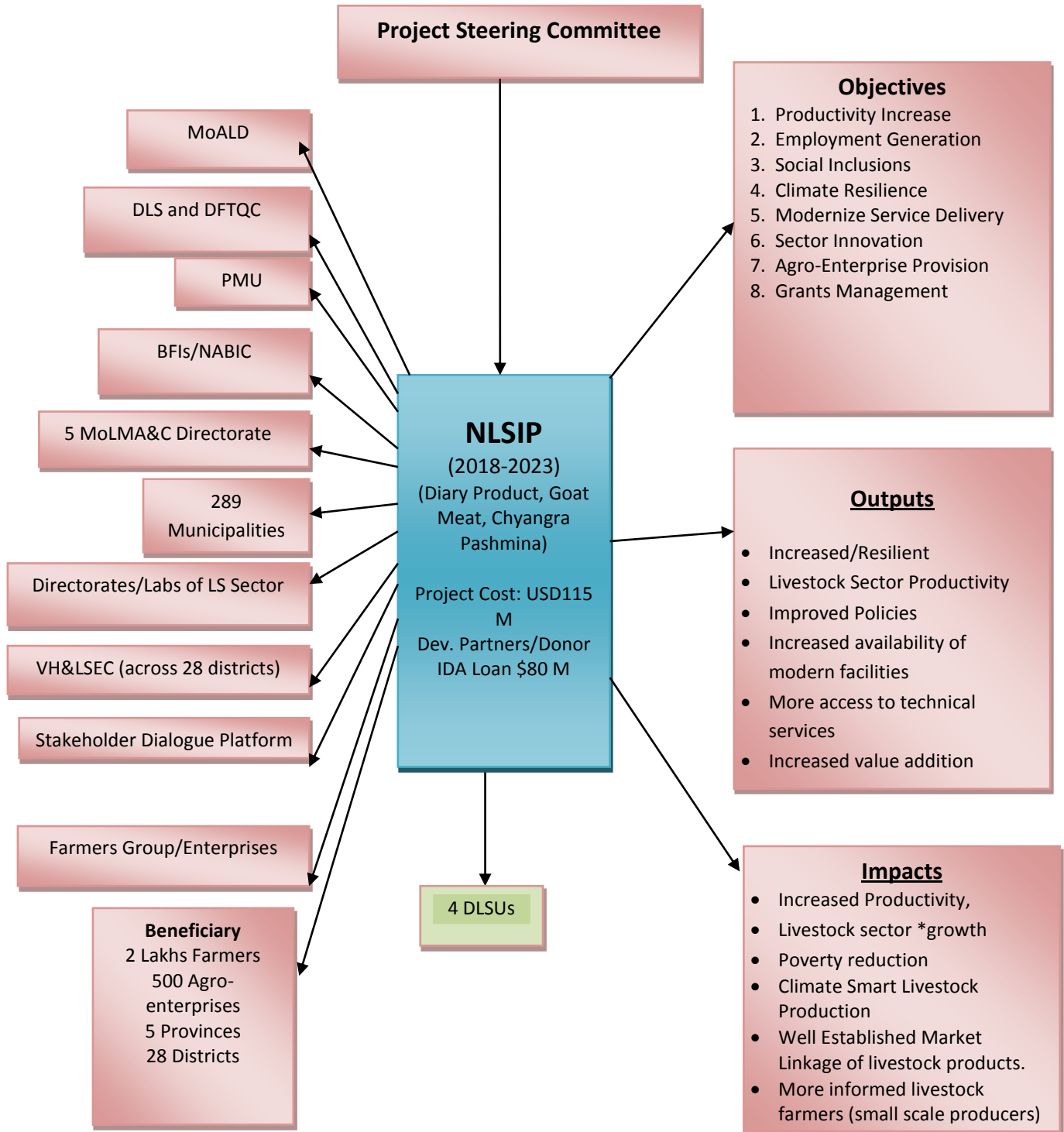
NLSIP – a Brief Overview

Through the NLSIP activities, the Government of Nepal would like to shift the agriculture sectors from low-value food crops towards higher-value agricultural innovations that have higher potential to raise farmer incomes by integrating smallholders in the profitable value chain of non-traditional higher value commodities (especially livestock commodities such as dairy, goats and sheep and Chyangra related commodities). The NLSIP in this sense contributes to achieving the overall objective of the CPS. The project is also consistent with the World Bank's twin goals of ending extreme poverty and promoting shared prosperity.

Furthermore, the NLSIP contributes to the objectives of the Agriculture Development Strategy (ADS 2015-2035). Throughout this period, the structure of the sector in Nepal is expected to change considerably, agribusiness and nonfarm rural activities will gain relative importance concerning primary production. The development of non-farm activities based on agriculture will be fundamental for the growth of an overall robust economy, a more balanced rural economy, and employment generation. The project is well aligned with four strategic pillars for the development of LS in the country, as mentioned in the ADS plan; they are; (1). governance, (2) productivity, (3) commercialization, and (4) competitiveness, thus properly aligned with the country's plans and priorities. The project will also contribute to achieving Nepal's commitment to meeting the targets and goals of SDGs.

The stakeholders of NLSIP several stakeholders are associated with NLSIP, both public sectors, and private sectors, as shown in Figure 2.

Figure 2: NLSIP at a glance with its stakeholders



1.3 Study Objectives

The overall objectives of this study are:

- (i) to undertake a Capacity Enhancement Needs Assessment (CENA) of the NLSIP project⁵ (at a central level and its cluster level) and the key activities and technical studies planned by the project, and evaluate the activities as per the changing context in the country,
- (ii) to propose appropriate capacity development plan with a budget of the NLSIP. The assessment and development plan will include human resources development, and for effective coordination across the with the line agencies and livestock institutions (MoALD and DLS and their affiliated entities and other livestock entities), and
- (iii) to recommend policy measures, institutional arrangements, and way forwards for effective use of the acquired capacities and/or skills.

Within the framework of these broad objectives, the specific objectives of the study (for volume 1 of the report) are summarized below.

- a) **At Project (NLSIP) Operation Level:** To identify the capacity of the NLSIP team (PMU and DLSU) to undertake all tasks related to project management and implementation.
- b) **At Provincial and District/Local Level:** To identify the capacity of the livestock sector service providers at the provincial and district/local level (municipalities) in relation to the functioning of DLSU in each cluster of the project.
- c) **At Stakeholder Level:** To identify capacity, willingness, readiness, and access to financing to sub-projects of major stakeholders associated with NLSIP with regard to contribution in achieving project development objectives in a limited context. They include Bank and Financial Institutions (BFIs), Insurance companies, and of Nepal Agribusiness Incubation Centre (NABIC), AEC, etc.
- d) **To suggest recommendations** regarding enabling environment and institutional arrangements for the utilization of acquired skills and knowledge
- e) **To identify the barriers** that prohibit or limit the participation of the above-mentioned stakeholders in NLSIP implementations and to provide alternate suggestions for improvement.
- f) **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 the NLSIP.

⁵ In TOR, the objectives of the CENA study both the project (NLSIP) and that of MoALD and DLS were clubbed together. For practical and useful in implementing capacity building activities by the project and by the MoALD, the inception report of this study has proposed two separate volumes of the reports have been planned. In this respect, this is the first volume that deals on CENA of the NLSIP. The findings of CENA of MoALD (and DLS) are in another separate volume, as planned in the project inception report.

1.4 Scope of Assessment

The study focuses on assessing the existing capacity and capacity gaps PMU, DLSU, and other key stakeholders of the project, and develops training plans for developing the capacity of each of the stakeholders. They include:

- a) **NLSIP team:** capacity to undertake all tasks related to project management and implementation to deliver the stated outputs and outcomes of the projects; they are as follow:
 - i. Project management and monitoring;
 - ii. Implementation of safeguard measures;
 - iii. Operation of the information management system;
 - iv. Communication; and
 - v. Value chain development.
- b) **Organizations:** The associated with the implementation of NLSIP, concerning their capacity in achieving the stated project objectives, e.g. BFIs, NABIC, DFTQC, Dialogue platforms, etc.
- c) **VH&LSEC:** 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.
- d) **Municipality level LSC:** Livestock service center (offices) established at municipalities (both urban and rural municipalities) concerning their capacity to deliver stated services to livestock farmers and LS entrepreneurs.

The capacity enhancement needs assessment (CENA) of the project (NLSIP) is done with the following major outputs and outcomes.

- Development of existing technical and functional capacities of the stakeholders concerned with the project. Analyzed Gaps in the existing capacities and analyzed training needs to effectively undertake the functions and roles of each stakeholder within the scope of NLSIP.
- Development of a capacity needs assessment plan at two levels (NLSIP and overall Livestock sector (MoALD and DLS) based on the gap analysis.

1.5 Report Outlines

The report (Volume I-CENA for NLSIP) is organized by splitting into eight chapters. The first chapter deals mostly with introductory and background parts of livestock and capacity development issues in Nepal, and the objectives of this study report. Chapter II presents the study framework and the methodology of the assessment used in the study. Chapter III presents the Capacity status and needs of NLSIP (PMU and DLSU) and the level of its Services Delivery. Chapter IV presents the capacity status and capacity gaps at the four DLSUs, whereas Chapter V describes the Project Functional Status in the project targeted areas. Chapter VII presents Capacity Development Plan, with various training and capacity development activities along with the budget for such of the component activities and that of the budget, in totality. Then the last chapter describes the conclusion, policy recommendations, and the lesson learnt. Likewise, the annex section of the report presents detailed information and item-wise details on a capacity development plan with budget (ranking the priority) for all professional groups and all stakeholders; and a summary of major findings on capacity development of the study using CENA framework (in matrix framework).

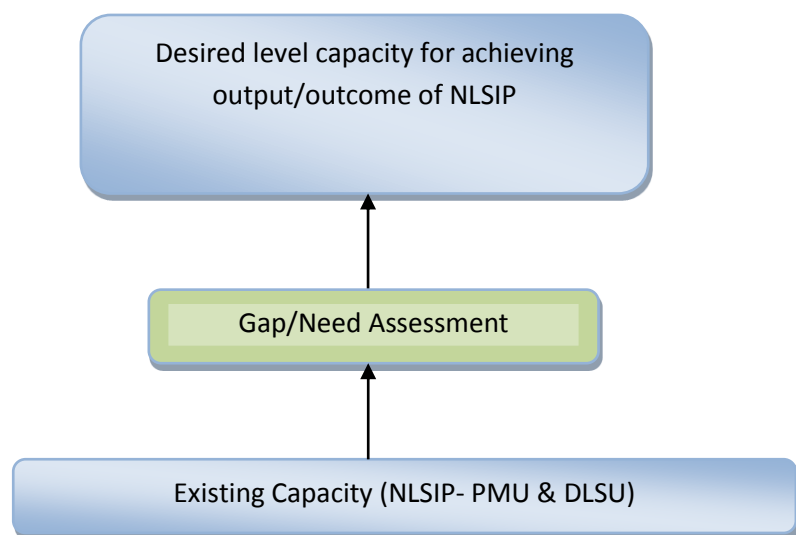
CHAPTER II

STUDY FRAMEWORK AND THE ASSESSMENT METHODOLOGY

2.1 Conceptual Framework of the Study

Considering the diversified institutional arrangement and livestock service delivery mechanism under MoALD from federal, provincial to a local level and specific role in achieving the overall goal of Agriculture Development Strategy (ADS) and project-specific role of NLSIP to ensure the project development objectives (PDO), this capacity needs assessment conceptualizes following two separate broader frameworks (Figure 3).

Figure 3: Conceptual Framework of Capacity Enhancement Needs Assessment



Major components of the planned capacity need assessment and capacity enhancement needs assessment framework are described in this section.

Based on the review of key international literature on capacity development, particularly, the study on “capacity development guidelines by the world bank (World Bank 2012), we have summarized key components relevant to intermediate changes of institutional capacity development (ICD) process in Table 1. In summary, various components of the Intermediate Capacity Development (ICD) presented in Table 1 guide us to diagnose individual capacity change objectives, identify the targeted change processes and assign indicators to measure Intermediate Capacity Outcome (ICOs) and institutional capacity changes (ICC), and for making a comprehensive capacity development results story. They are also two major components of the overall framework of the CENA approach of capacity need assessment, as summarized below in Table 1.

Table 1: Major Components of a capacity development results story of the CENA study-

Story Element	Description
Development Goal	To increase productivity, enhance value addition, and improve the climate resilience of smallholder farms and agro-enterprises in the selected livestock value chain (dairy, goats' meat, and Chyangra pashmina).
I. Institutional Capacity Areas (These serve as the change objectives)	<p>The most common challenges to achieve the development goal fall into one of three areas: They are:</p> <ol style="list-style-type: none"> Strength of stakeholder ownership: Low or divergent priority is attached to the development goal by key stakeholders Efficiency of policy instruments: There are deficiencies in the policy instruments guiding the pursuit of the development goal by different stakeholders Effectiveness of organizational arrangements: Organizations charged with the achievement of the development goal have weak performance <p>Effective success stories and results explain how interventions helped to enhance one or more characteristics within these institutional capacity areas to remove or minimize the identified challenge(s).</p>
Change Agents	The critical individuals or groups of the project (or livestock sector) who could play effective roles in managing or initiating the needed changes
II. Intermediate Capacity Outcomes (ICOs)	<p>Improvements in the ability or disposition of the local change agents to take actions that will affect institutional changes toward the development goals are listed. There are six common types of ICOs as following:</p> <ol style="list-style-type: none"> Raised awareness Enhanced knowledge or skills Improved consensus and teamwork Strengthened coalitions Enhanced networks New implementation know-how
Capacity Development Interventions	The knowledge provided to address priority reforms and achieve the targeted changes in the institutional constraints. Interventions typically include a combination of learning programs, technical assistance, knowledge and experiences exchange, or other services and resources.

Source: Adapted from *Guide to Evaluating Capacity Development Results*, World Bank Institute, 2012

2.2 Analytical and Operational Framework of CENA

Based on the conceptual and theoretical framework as mentioned above, a broader operational framework has been adapted for conducting the capacity need assessment of the project (i.e., NLSIP)⁶. Major dimensions of capacity need assessments at three scales and the dimension-specific major Indicators and sub-indicators summarized in Table 2. Study tools and techniques to capture the required information across the institutions/organizations and the scales (tiers of the projects) are developed to capture the present situation and changes to be done on these indicators presented in Table 2 below.

⁶ Similarly, CENA of livestock institutions (i.e., of MoALD/DLS) related to institutional capacity development of livestock sectors for enhanced livestock service delivery at a central, provincial, and local level are done in a separate volume (Volume II) of the study assignment.

Table 2: Three broad dimensions for capacity needs assessment

Dimension of Capacity I. Enabling Environment-Level I	Existing Capacity Situation	Capacity Gaps
1.1 Policy and Strategy Context		
1.2 Management accountability		
1.3 Human Resources (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 and flow mechanism		
2.6 Existing Infrastructure		
III. Individual-Level III		
3.1 Job-specific skills and experience		
3.2 Professional development and opportunity		
3.3 Use (and ability) of ICT at workplace		
3.4 Motivational/Incentive at workplace		

[Note: This is an overall framework of the CENA study showing number of dimensions of capacity to be assessed at each level of the analysis. The fieldwork and consultations with various stakeholders at different scales (both horizontally and vertically) were done by the study team to compiled information on these indicators listed in Table 2. Accordingly, the study checklist and the questionnaire are developed to spell out these issues in detail. Detailed explanations and key findings of the framework of CENA components are also summarized in a tabular format and are in the annex section (i.e., in Annex Table 2)

2.3 Data collection tools and techniques⁷

The study adopts a mixed methodology of research approaches survey approach and compiled data and information using both qualitative and quantitative. The primary assessment was carried out by a quantitative approach involving a perception survey with senior livestock officials, representatives of various livestock organizations, local government officials, and other stakeholders. The sample survey was based on the semi-structured questionnaires and the qualitative FGD, KIS was used as a guiding tool. Apart from questionnaires, discussion, meetings, interactions, and dialogues were also held as per needs to collect information. The major tools used for the qualitative surveys were FGDs and Key Informant Survey (KIS).

Key Information Survey (KIS) was conducted to collect primary data from sample organizations and stakeholders, as mentioned earlier. Focus Group Discussions (FGDs) were carried out at each discussion

⁷ The two study teams were at the field for the field survey and stakeholders' consultations, when the lock down and complete halt of air travel was announced in the late March 2020 due to the COVID 19 pandemic worldwide. Considering the pandemic related lock down the tools and techniques used for the collection of data and information were adapted and modified as per the changed context. Considering the long period of lock down, more online tools (webinar, social media, and e-mail communications) were used to complete the survey checklists and to collect the data and information from other field sites where the study teams could not visit because of the pandemic related travel restrictions and other factors.

platform at the project district level, with the district coordination committee (DCC), and at each DLSU. A series of groups' discussions was held at the institution level with several entities under DLS and MoALD.

Likewise, secondary information was generated using desk study, review of the literature (international and national) and review of publications developed from the project (NLSIP) and other livestock sector institutions/ organizations (MoALD). The important study tools and survey techniques used are briefly described below.

Both structured and semi-structured questionnaires/checklists were finalized, which was further refined after pilot testing on these checklists in Dhulikhel (Kavrepalanchok district) and in Hetauda site (Makawanpur district) The study checklists and survey forms were developed as per the objectives and scope of the assessment, as specified in the study ToR, and as discussed in the series of the consultation meeting with the officials of the project (NLSIP). They are also summarized below.

- a) Semi-structured questionnaire for the key informant survey
- b) Structured tools for institutional assessment
- c) Semi- structure checklist for Focus Group Discussions at selected sites (dialogue meetings, and other group-level meetings)
- d) Semi-structured format (checklist) for dialogue platforms and discussions with other stakeholders

Desk Study

The desk study involved a review of relevant literature related to the livestock sector and project documents. They include the project financing agreement, project appraisal document (PAD), project LOG frame, annual work plan and budget, annual project reports, project implementation manual (PIM), monitoring and evaluation guidelines including field verification guidelines, etc. Likewise, we also reviewed the related government's policies, relevant acts and regulations, budgetary process and provisions, the project HR policies and programs, a guideline on FMD, PPR, meat, milk, pashmina along with Livestock Master Plan, Agricultural Development Strategy (ADS), 15th National Plan of the Government of Nepal, SDG, MoALD Road Map, and other papers. The relevant information, best practices on capacity development activities, and lessons learned from other projects/programs of MoALD were also reviewed for making capacity development plan, and/or, training plans.

Additionally, a comparative analysis of major activities of NLSIP, including review of the performance of matching grant of other projects and schemes of livestock sector institutions in Nepal was used to draw recommendations based on learning from success/process in other schemes. Present Nepal's federal constitutional and legal provisions, including the structural and functional arrangement of each tier of government, have also been reviewed.

Key Informant Survey (KIS)

The study team consulted with senior officials and subject matter experts of the major themes (divisions) of MoALD and DLS to gather the required information as mentioned in the operational framework. The organization's annual reports were also reviewed and analyzed for deriving capacity gaps on selected issues. In particularly, KIS was conducted with officials of various entities of livestock sector belong to (i) Central level organizations of the project (PMU and related other stakeholders) (ii) Cluster/Province level organization (DLSU and other provincial-level LS institutions) (iii) Local-level organizations – livestock sector officials working at the selected municipalities. Feedback was taken also

from senior officials of PMU for validation of the tools and techniques and some of the results obtained from the fields-sites survey.

Focus group discussion (FGD)

Focus Group Discussions (FGDs) were conducted across the members of the district dialogue platform to collect data from selected stakeholders related to the project from selected 16 districts (within and outside the project command districts).

2.4 Sample Study Sites and Survey Activities

The study sites (districts) were selected to best represent the ecological belts viz. Terai, Hills, and Mountain region, and with proper representation to the provincial and administrative units of the country. This was done within the scope of the study TOR provided from the project. The survey-sites include all seven provinces of Nepal that is, the project included five provinces and this is supplemented by the addition of survey sites in provinces 6 and 7 as well, -both provinces do not belong to the project (NLSIP) command areas. The field site study focuses more on assessing capacity needs at the DLSU project office, livestock service organizations at a provincial and local government level institutions that are closely linked with the project implementations.

Selection of Study Districts

The sample districts covering three agro-ecological zones (Terai, Hills, and Mountain), and for representation to the seven provinces of Nepal have been used for conducting the field study and visit the local sites for assessing local capacity are summarized in Table 3 and Figure 4. This also includes discussions on major criteria used for selecting the district and local government unit (Municipalities), and the sample size used for the field assessment.

In brief, a total of 16 study districts were used for the field study and interactions with the local officials and agencies. Out of these 16 districts proposed for fieldwork, 11 districts are covered belonging in the coverage area of the project NLSIP (Figure 4). The rest two districts belong to non-project coverage areas that is, from Provinces 6 and 7 (such as Dolakha from Bagmati province, and two district Surkhet and Dailekh from Karnali province. Likewise, the study team also consulted and surveyed in Kailali and Dadeldhura districts from Sudurpaschim province (Figure 4).

Figure 4: Map of the study districts

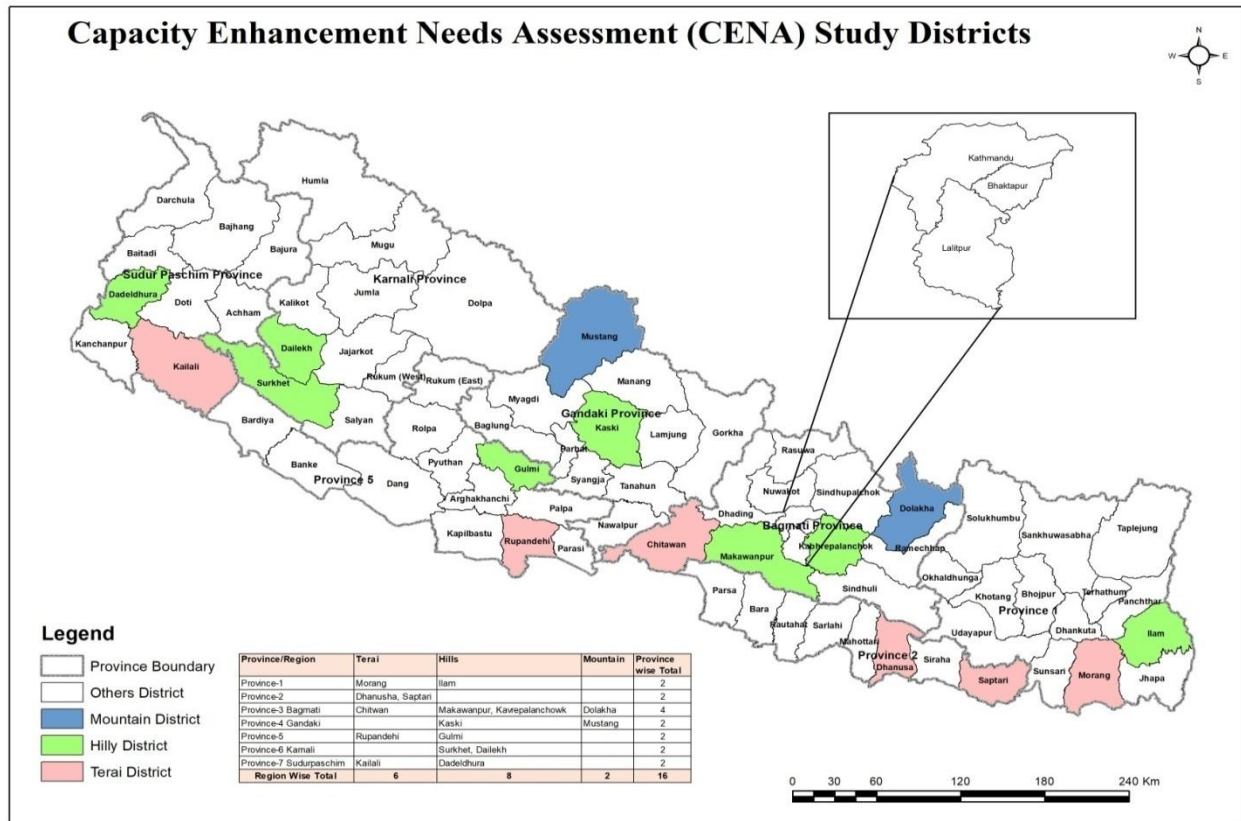


Table 3: Sample districts with geographical locations

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

Selection of Municipalities

A total of 32 urban and rural municipalities (Table 4) were selected for the fieldwork and to get the representative situation of capacity available and the functioning of livestock sector institutions on the ground. The study team has thoroughly studied institutional arrangements of livestock services at the field site, including capacity available at veterinary hospitals and livestock specialized service centers (LSSC) located in the survey sites. The in-depth study includes livestock service unit/section of the respective municipalities (Table 4).

Table 4: 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

(NB: There were some changes in survey sites concerning the availability of the respondent, and due to the lock done in the economy during the survey period)

Moreover, due to the outbreak of the COVID 19 Pandemic related lockdown in the country, even in early March of 2020, very few individual experts were there in the field site to provide us the needed information. For this reason, after one month of the lockdown, and in consultation with the project officials (PMU), the study team adapted the study methodology and collected the necessary data and information across the field sites using an electronic survey with the relevant officials of the DLSU of the NLSIP, officials of the municipalities in questionnaires. The e-mail-based survey was carried out by providing detailed procedures for filling the form/checklists, and by constant follow up by a dedicated member of a study team. Lists and E-copy of the study checklists and survey forms were shared with even more numbers of officials across the targeted municipalities (details are in Table 4).

CHAPTER III:

CAPACITY NEED OF NLSIP: SERVICES DELIVERY

3.1 Capacity of the NLSIP - PMU (organization)

3.1.1 Project Management Structures

The NLSIP is operating at three levels i.e. Central- PMU, Provincial/clusters (DLSU), and at district/municipality level livestock service centers. The management structure of the project has been set up at all three levels for effective coordination, technical supports, and the smooth functioning of the project at all tiers of the government. That is, the PMU at the central level and four DLSUs at the cluster level have the overall responsibilities of NLSIP to implement the project activities

At the central level, there are three coordination committees of the project for its effective functioning. They are (1) Project Steering Committee (PSC), (2) Central Technical Coordination Committee (CTCC), and (3) Central Dialogue Platform (CDP) Committee. These committees are represented by officials from national level livestock sector agencies and livestock sector entities. They support policy implication and providing a directive for achieving the outcomes.

At the provincial / state level functioning, provincial/state level technical coordination committees and provincial dialogue platforms have been set up, which represent officials from provincial-level agencies, and which support for policy implication and coordination of functioning across the key livestock sector at the provincial level. These committees also provide directives for maximizing the project outputs and outcomes.

Similarly, at the district level, the District Dialogue Platform (DDP) (and District LS Coordination Committees) have been set up which play a guiding role to accelerate the project activities and also monitor the executed programs at the district level and across the municipalities to achieve the project targeted outputs and outcomes.

The Project Management Unit (PMU) coordinating with PSC, CDP, and CTCC implements the planned activities annually and monitors all activities of the DLSUs. Then, Decentralized Level Support Unit (DLSUs) is set up at the provincial level to execute programs and activities of the project and to achieve the targeted objective. These units are guided by PMU directives and DDP feedback and technical backup from Provincial Technical Coordination Committee (PTCC).

There are three layers of Committee to handle the grievance against the project and its activities, as approved by the grievance redress mechanism (GRM). The lowest level is District Grievance Handling Committee (DGHC) led by Veterinary Hospital and Livestock Service Expert Center (VHLSEC); at the cluster level. There is a cluster level grievance handling committee (CLGHC), chaired by Provincial Directorate from respective Livestock and Fisheries Development Provincial Directorate, and in the apex, there is a central grievance handling committee (CGHC) headed by Joint Secretary, Ministry of Agriculture and Livestock Development (MoALD. They have to respond to any of the complaints within 15 to 30 days of receiving of the complaints and communicate the decision to the lower level. The PMU management also functions with good coordination with the respective officials located in MoALD, MoF, and The World Bank.

3.1.2 Institutional Linkage - Stakeholders Relations

The functional linkages of the project are established to achieve the maximum extent of the outputs and outcomes of the project. The PSC at the central level, three layers of DP (central, provincial, and district) and the Project Coordination Technical Committee (PCTC) at the provincial level have been established to facilitate project implementations effectively. The institutions' arrangement mentioned above is the stakeholders of agricultural committees at their respective districts.

The grass-root or the local level institutions are rural municipalities and the farmers' groups, producers and trading organizations, and service providers are directly linked with the cluster DLSUs in the project districts.

Likewise, several institutions/organizations are affiliated under DLS, as its affiliated organization. They are Livestock and Fodder Production related organizations such as (1) National Animal Breeding Office: at Lahan (Siraha), Pokhara (Kaski) and Gaughat (Banke) (2) Livestock related Genetic Resource Centers in different Provinces (3) Fodder Genetic Resource Centers: at Janakpur, and Ranjitpur.

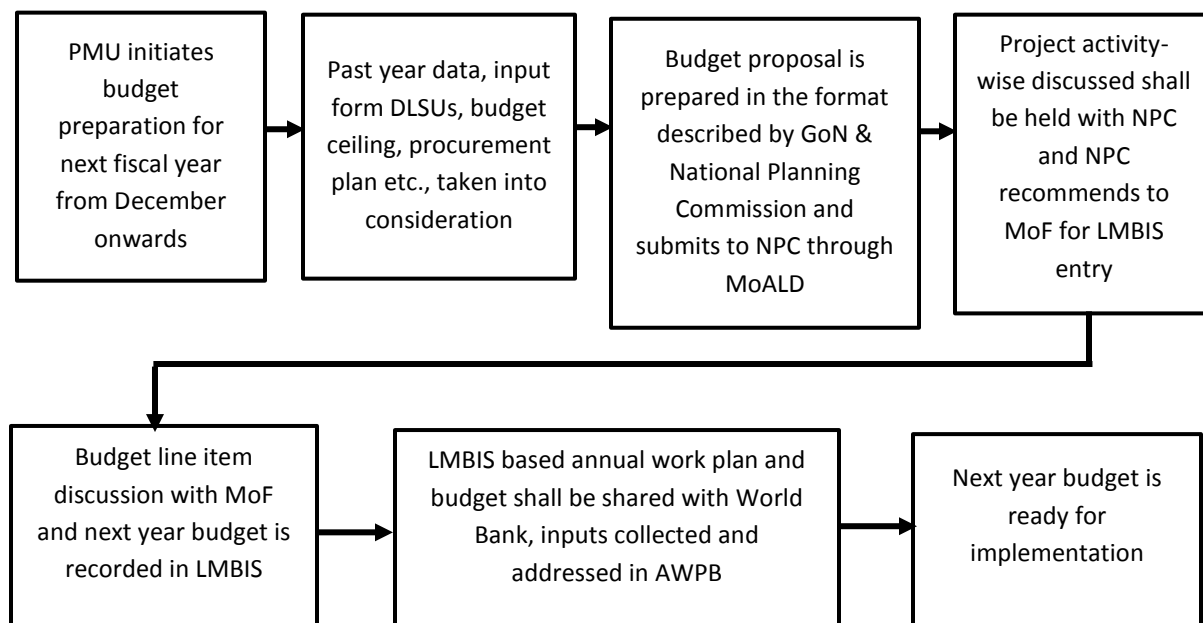
Similarly, Major Animal health-related laboratories also come as critical stakeholders of the project, they are: (1) Animal Disease Diagnostic laboratories at Central, Provincial, and Municipalities level institutions, that are also closely linked with PMU of the project to get support from each other and for implementation of the project activities across the countries in over 290 municipalities spread over 28 districts. Thus, the relationships of PMU are multi-sectoral and multi-stakeholders 'levels to achieve a common goal of achieving increased production and productivity of dairy, goat meat, and Chyangra Pashmina production in the country.

3.1.3 Process/ Implementation

The project performed various processes to comply for h performing its activities. For implementing the project activities, the project management team worked with its support units at provinces and coordinate with other different stakeholders at cluster levels.

The PMU is responsible for the day-to-day project management, implementation, fiduciary management, environmental and social safeguards management, grievance management (at central level), overall communication, monitoring, evaluation, and reporting with various stakeholders. The PMU prepares the work plans, which are approved by the GoN, and shared it with the World Bank. PMU is also responsible for monitoring and reporting of the overall performance of the project and approves the list of grantees submitted by the DLSU/BFIs and timely disbursement of grant installments. PMU also guides the management and operation of four DLSUs located in Biratnagar, Hetauda, Butwal, and Pokhara.

The DLSU is responsible for planning, implementing, supervising, and monitoring the project activities within its command areas, i.e., at the cluster level, and it reports the work progress and monitoring data to PMU. The DLSU is responsible also for mobilizing the project activities across municipal LSCs, across veterinary hospitals, and livestock specialist service centers for implementation and monitoring of NLSIP activities. It also coordinates with regional veterinary laboratories located in its command area. The annual planning process of the project is summarized in Figure 5.

Figure 5: The process of preparation of annual work plan and budget (AWPB) of the NLSIP

3.2 Technical Capacity of the Project

Eight officials are working in PMU who have been deputed from MoALD and DLS. The core staff includes; a Project Director, a Senior Planning Officer, a Senior M& E Officer, a Finance Officer, a Planning Officer, a Livestock Officer, a Veterinary Officer, and two JTs (Table 5).

Some additional experts are also kept at PMU for technical backup to the project activities facilitated by the World Bank. Some specialized experts have been hired on an individual basis and other experts and specialists (or consultants) have been hired from the local markets for the project period, and are designated as Project Technical Experts (or Technical Assistants). They include Financial Management Specialist, Procurement Specialist, M& E specialist, Senior Veterinary Specialist, Senior Livestock Specialist, Social Safeguards Specialist, Agri-business Specialist, and so on. The consultants and other officials working in PMU in June 2020 are summarized in Table 5. The Technical specialist hired from the local markets are highly qualified and experienced to perform the job as assigned by the project.

Table 5: Technical and non-technical staffing of PMU (Kathmandu)

Category of HR	Position	Kathmandu	Status
Seconded Staffs from Government			
G I Joint secretary	Project Director	1	All positions are fulfilled and diploid
G II (Livestock)	Senior Planning Officer	1	
G II (Veterinary)	Senior M and E Officer	1	
G II (Account)	Finance Officer	1	
G III (Economist)	Planning Officer	1	
G III (Livestock/Veterinary)	Livestock and Veterinary Officer	2	
NG I Technician	JT	2	
NG I Non-Technical	Admin	1	
Total Seconded Technical staffs		8	

TA-supported Experts		
Consultant- Lead	Project Technical Expert	1
Consultant	Financial Management Specialist	1
Consultant	Procurement Specialist	1
Consultant	M& E specialist	1
Consultant	Senior Veterinary Specialist	1
Consultant	Senior Livestock Specialist	1
Consultant	Social Safeguards Specialist	1
Consultant	Agri-business Specialist	1
Consultant	Cooperative Development Specialist	1
Consultant	ICT Specialist	1
Consultant	IEC Specialist	1
Consultant	Data Management Assistants	3
Total Technical TA-staff only		15

Source: Project Implementation Manual, NLSIP, 2019, and Implementation Progress Report (annual) 2018/19, NLSIP.

The technical and non-technical staffing of DLSUs, at four different clusters, is presented in Table 6. Until mid-2020, the project has already organized numbers of trainings to enhance the technical skills and know-how of the staff of PMU, DLSUs, veterinary officers of different laboratories; livestock officers, and technicians of municipalities. Technically they are capable of doing all technical performance to bring timely outputs of the project. The technical backup at the grass-root level and the innovative interventions of new technologies applicable to farmer's organization and livestock traders are needed.

In particular, the project staff have received trainings on thematic topics such as in PCR training (9 Vet. Officers), Master Trainers of Training (MTotT on Farmers Field School (FFS) on Dairy (17 Officers) and MTotT- FFS on goats (15 Technicians).

Table 6: Technical and non-technical staffing of DLSUs, at a different location

Category of HR	Position/Clusters	Biratnagar	Hetauda	Pokhara	Butwal	Total	Status
Seconded from Government							All positions are fulfilled and diploid
G II (Livestock/Veterinary)	Coordinator	1	1	1	1	4	
G III (Livestock/Veterinary)	Officer	2	2	2	2	8	
NG I Technician	JT	2	2	2	2	8	
NG II Technician	JTA	1	1	1	1	4	
NG I Non-Technical	Accountant	1	1	1	1	4	
NG I Non-Technical	Admin	1	1	1	1	4	
Total Seconded Technical staffs only		6	6	6	6	24	
TA –supported staff at DLSU							
Consultant- Specialist	M& E specialist	1		1		2	
Consultant- Specialist	Dairy value chain specialist	1		1		2	
Consultant- Specialist	Meat value chain specialist	1		1		2	
Consultant- service	Data Management Assistant	1		1		2	
Consultant- Specialist	Fodder and Pasture Development	1		1		2	

	Specialist					
Consultant- Specialist	Infrastructure Development Specialist	1		1		2
Consultant- Specialist	Environment and Social Safeguard Specialist	1		1		2
Total Technical Staff Including TA –support		6+7	6	6+7	6	14+24
JT/JTAs level	Social Mobilizers (4 per district, supporting Rural Municipals)	32	24	24	32	112

Source: Project Implementation Manual, NLSIP, 2019, and Implementation Progress report (Annual) 2018/19, NLSIP.

Moreover, for the Chyangra pashmina case, less extent of project work activities have so far been Hence, the project may need to hire (or depute from the other program of MoLD) and arrange a set of dedicated technical staffs to work exclusively on intensive production and value chain development of Chyangra pashmina in Mustang and Manang districts, which are also far located districts from Kathmandu, and are in the upper Himalayan region. . The minimum set of technical staffs for enhanced project activities on Chyangra and pashmina include experts on Mountain Pasture Management, veterinary/livestock services and set of four-five local social mobilizers. These technical staff needed to be posted in the Mustang and Manang Districts, so that the work on Chyangra and Pashmina does not get lost in shadow and even the farmers of upper Himalayan regions would also get benefits out of the project activities.

3.3 Financial Management

The project has a plan to spend USD 115 million during the project period for increasing livestock sector productivity and enhancing its value chain systems. In the country. Of the total budget, USD 80 million is IDA credit, then, USD 15 million will be a loan taken from partner bank and financial institutions, and remaining USD 10 million to be provided by the Government of Nepal and the contribution from concerned beneficiaries involved in the implementation of the selected projects.

The project expenditures during the previous three years are considerably lower as compared to the allocated budget during the past three years of the project operation (the project annual reports 2016/17-2018/19). The reasons for low spending of the allocated fund are delay in the project setting up related activities that took place in the fiscal year 2016/17 and 2017/18. The long years of extended project preparation phase have resulted in slow in spending in the project activities during the initial years, and a large part of the unspent amount in these years was transferred through fervent by the Ministry of Finance. All of these have brought down the budget allocation for the year 2018/19. The program grants to livestock entrepreneurs, particularly of individual livestock sector entrepreneurs' level grants, are yet to be initiated by the project, which is due to the absence of grant distribution directives and guidelines in the MoALD. Moreover, recently the project has announced a call to provide a grant to farmers groups (cooperatives), and those groups that have been registered with the local government. All of these institutional ambiguities and even frequent transfer and changes on senior decision-making officials in the project (NLSIP), in MoALD (and also changes on ministerial level portfolio) in MoALD have led to shift on the ministerial level directives in grant distribution across the livestock entrepreneurs (farmers and enterprises), and also slow in the disbursement of the project planned activities.

The component-wise cost and financing pattern of the project are shown in two Tables below (i.e., in Tables 7 and 8).

Table 7: Component-wise cost and financing pattern

Project Components	Costs and Financing		
	Total Project Cost (US\$ Million)	IDA Financing	
		(US\$ Million)	% of IDA
A. Strengthening Critical Regulatory and Institutional Capacity	7.00	5.00	71
B. Promoting Sector Innovation and Modernizing Service Delivery	45.00	40.00	89
C. Promoting Inclusive Value Chains for Selected Livestock Commodities	54.50	30.00	55
D. Project Management and Knowledge Generation	8.00	4.50	56
PPA	0.5	0.5	100
Total Cost	115.00	80	70

Source: Project Implementation Manual, NLSIP, 2019.

Table 8: IDA financing by cost category

Category	Amount of the Credit allocated (SDR)	Percentage of Expenditures to be financed (inclusive of taxes)
Goods and works under components A, B, C (other than grants), and D of the project.	23,000,000	85%
Non-consulting services, consultants' services, training, and workshops under components A, B, C (other than grant), and D of the project.	13,450,000	85%
Incremental operating costs under components A, B, C (other than grant), and D of the project.	2,150,000	72%
Matching grants under component C of the project	17,700,000	50% of amounts disbursed
Refund preparation advance	400,000	Amount payable pursuant to Section 2.07 of the General Conditions.
Total	56,700,000	

Source: Project Implementation Manual, NLSIP, 2019.

The officials responsible for administrating and managing financial resources also need to be clearly communicated that their annual performance evaluation may also to be tied up with the progress on effective and efficient management of the project budget as per the agreed plan, and may also be made accountable for their individual performance for less than satisfactory level.

As like that of other technical training, the financial management officers (account officers, mid-level managers, etc.) also to be provided adequate training and capacity building opportunities on financial management and procurement management to enhance their capacity in terms of management of the project fund as per planned activities, and in effectively dealing with the procurement management related issues.

Financial Accountability

Authority for project expenditures is given in Nepal, largely is done adopting top to down approach. The director of NLSIP is responsible for the overall financial management of the project. He is assisted by a finance controller (undersecretary level) at PMU who comes from the office of the financial comptroller general.

At DLSUs level, financial activities are carried out based on a delegated authorization of PMU chief. In each DLSU, there are account officers to assist the office in charge of executing financial transactions required for project implementation.

Accounting professionals who come from FCGO provide financier level advice independently and jointly involved with project officials in financial transactions. They also help to prepare a budget summary, making expenditures, reporting them, and getting the books of accounts audited timely by the office of the auditor general of Nepal. From this scenario, the financial accountability mechanism of the project seems to be functioning effectively and is also more transparent.

Financial Planning

The project financing agreement with IDA works as the basis for annual planning and budgeting for the project (NLSIP). PMU, with inputs from DLSU, is responsible for preparing annual programs and budget of the project. These tasks are initiated every year from December and are completed within mid-Jun. Following the Nepal government's planning process, the budget proposal is forwarded to the National Planning Commission through MoALD. The line-item budgets are further jointly discussed in the Ministry of Finance and finalized considering the yearly financing plan set before by the MOF and NPC. Once the program budget is approved, it comes in the red book of the Ministry of Finance, and then included in the Line Ministry Budget Information System (LMBIS) for next fiscal year's program implementation.

Accounting and Reporting System

The project is following the accounting system of the Government of Nepal Books of accounts are maintained based on the double-entry bookkeeping prescribed by the government, and the prevailing treasury single account payment system is adopted. Some additional formats prescribed by the World Bank are used to fulfill the donor's financial reporting requirement.

Most of the project's financial information is generated through the prevailing accounting system, based on which various financial statements are produced and sent to concerned entities. PMU may like to require DLSUs to prepare category-wise monthly statements for the next year. and cumulative statement of expenditures (SOEs). After accumulating and including the accounts in project financial statements, the whole project account of the previous fiscal year is submitted for audit within the 6 months of the current fiscal year.

3.4 Monitoring, Evaluation, and Learning

Monitoring of the programs and activities is the main task to track the project progress on a real-time basis. The project (NLSIP) has set up its resulting framework showing results-t-indicators to be achieved in the project period (2018 to 2023). The annual progress report of DLSUs and PMU are also documenting indicators relate to the targeted physical and financial progress.

However, the project commissioned a study for documenting the baseline situation in 2019/2020, based on the database of the 2017/18-year cycle, wherein, clearly measurable indicators are developed, part of them are also summarized in the PIM and Annual Implementation Progress Report (2018/19) of the project.

Under the present federal structure of governance, municipalities are the key entities of the government (local government unit) responsible to facilitate project planning, implementing, monitoring, evaluating, and reporting of local development activities in its jurisdiction for ground-level implementations of development activities. In this context of post-pandemic (COVID 19) era, all the

districts and municipalities under the coverage area of the project may need to be provided with good ICT technologies (infrastructure, facilities) and internet-based communication infrastructure systems (data transfer mechanisms, webinar, online meeting seminar, etc.). This is also properly linking the project activities at the ground level with the DLSU and with the project MIS system across the municipal levels.

3.5 Infrastructures

Physical, organizational, technological, human-related, and financial aspects are basic elements for improving organizational performances. Likewise, a suitable building with reasonable space, and equipped with adequate lighting, clean water, a dependable supply of electricity, etc., are important elements to run office activities smoothly. These basic facilities are lacking in large numbers of Livestock Service Centers (offices) operated by municipalities, more critical cases in rural municipalities, with lower revenue bases.

To enhance the effectiveness of the project activities, basic office facilities, basic infrastructures (hardware and software) such as office work building, internet services, and basic equipment, staff transportation services, communication systems, regular operation, and maintenance budget, and supporting systems, etc. to be ensured, at least at the basic level, in all of the LSCs under the jurisdiction of the project cluster sites (DLSU). In sum, there are two broad types of infrastructures are important in this regard:

a) Technology and Equipment

A checklist was used to collect information on basic technology and equipment needs for ensuring the basic level of livestock services to the farmers, both from PMU and DLSUs. Brief information on necessary infrastructural supports need have been briefly illustrated in this section. Details are also separately discussed in the thematic component of issues in the next chapter.

b) Project Infrastructures

The PMU of the project is located in the existing building of the Department of Livestock Service (DLS), Harihar Bhawan, Lalitpur (Kathmandu). Currently, the project occupies less than half of the office area of this building, where the ground floor and most of the first-floor spaces are also shared with the Employee's Record Office of the MoFAGA. The meeting hall of the PMU is equipped with basic facilities within the office premises. The PMU team, national and international level consultants, various experts, support staff at a central level, etc. are working on the same premise and sharing a facility, which has provided fast-paced communication among all key project staffs on the same premise. A well ICT equipped meeting hall, with video conference facility, across the DLSUs, provincial government offices (of LS entities) can further enhance sharing of data and information across and the shared decision making on critical issues.

Moreover, some of the DLSU offices at the province level are facing problems with office space, which is affecting their performance. Over time, this needs to be improved, as the new office buildings are built in the provincial HQs.

The project has planned to procure machinery, equipment, vehicle, and similar other goods for its use. Construction works for infrastructure development, construction of biological pits, and Forage seed processing unit at livestock sector farm and other works have already been initiated. The establishment of slaughterhouse and livestock markets, and strengthening quarantine labs at targeted sites are some

of the highlighted activities (outputs) under the infrastructural development component of the project. As per the PIM document of the project, the project has also plan to do construction, and renovation, of some of the office buildings, community infrastructures, such as chilling centers, milk collection centers, training halls, etc., across the project sites so that the Livestock farmers would get services from these livestock sector public entities.

The project has contracted out to construct buildings of (1) Nepal Veterinary Council at Tripureshwor, Kathmandu, (2) Forage Seed Processing at Ranjitpur, Sarlahi, and (3) Bull Mother Shed at Pokhara. The construction of nine livestock service centers has also been initiated at different locations from Ilam to Pokhara. (Annual Progress Report 2018/19 of NLSIP). Approximate costing for the modest sets of these infrastructures and equipment is included in the CDP developed in this study, which is in the last section of this report.

3.6 Grant Management

The project is working across 289 municipalities (both rural and urban municipalities) and 28 districts, where more than 12 million people are residing now. Out of them, 0.02 million smallholding livestock producers and 500 small and medium-size agro-entrepreneurs are the main targeted beneficiaries of the project. The project has a plan to support them by providing grants to the traders, processors, livestock farmers, livestock sector producer's organizations, and other stakeholders of LS. There are two types of grants: 40 % to small scale (up to 35,000 USD) and a maximum of 60% grants for medium scale grant (i.e., targeting to medium-scale LS farmers).

One of the distinct features of the NLSIP is to develop (strengthen) the value chain on dairy, goat meat, and Chyangra pashmina in the project targeted sites by providing financial support (grants) to the project participants (LS producers, LS trader groups) involved in pre-production and post-production activities of the targeted sectors.

Some of the activities to be done to enhance the capacity of the project in the grant making process by the project and in improving efficacy in managing these small grants to large numbers of livestock producers are summarized below. The justification of underlying assumptions of almost all of these recommendations and suggestions are straight forward and also self-explanatory, in nature⁸.

- (a) Support to LS producers in preparing a business plan, concept notes, etc., along with a financing plan of the proposed project schemes. The project staff (and TAs) at the cluster level needs to have adequate manpower to advise/support the farmers in making business plans and proposals for their business activities.
- (b) Preparing clear formats for "receiving grant applications with a business proposal" by the project and display these formats on the project websites so that large numbers of the farmers' co-operative and livestock trading organizations located across the project targeted district can be able to use the common format for preparing their business plan for the project grants, as per standard norms and regulations and criteria for evaluation of a grant proposal.
- (c) Proper format and proposal evaluation procedures (with clear criteria) to be developed by the project team for the screening of the grant applications
- (d) Appraisal and field verification of the grant applicants to be done by the project team based on the standard Grant Operating Manual approved by all stakeholders.

⁸ Rationality and underlying assumptions of almost all of the recommendations and suggestions forwarded in these sections are straight forward and also self-explanatory, hence, a separate justification for each issue are not provided in this report to save the space and for brevity in summarizing the study findings.

- (e) Providing training to the pre-selected applicants for making a full proposal. That is, training to LS farmers and entrepreneurs whose concept notes are approved for the next stage of proposal submissions (competition).
- (f) Development (strengthening capacity) of BDS providing training and CD supports to project staffs at each of the DLSU. This can be also done even by developing the capacity of the pre-selected civil societies in each district and for developing proposals and related business supports related activities.
- (g) Mobilize professional and competent organizations for impartial examining and verification of the full proposals based on technical, financial, and business viability and sustainability.
- (h) Assurance of the adequate local bank financing, and greater involvement of banking systems in the project approval and project monitoring and evaluation, and in risk analysis in the grant-making process as well as regular monitoring of the grant-funded project activities.
- (i) Processing of the grant applications on time, and in releasing installment of a fund to farmers and entrepreneurs within a specific time frame. This is because delay in the release of grant-installment on such a grant-supported project is usually a major disincentive to the small-scale producers for running the farm business as seen in other similar partially grant-funded projects in Nepal.
- (j) Timely monitoring and evaluating of the grantmaking and utilization activities on the ground by the project staff and/or TA staff of the projects. LS officials at the municipality level also need to be capacitated to ensure proper M&E of the activities.

3.7 Project Management, Knowledge Management

There are various entities set up from federal to local levels of the project that together form the project management team. A Project Steering Committee is set up at the federal level work activities, as an apex body providing guidelines for implementing the project. It is chaired by the Secretary of MoALD, and, various members of the committee representatives from different line agencies of the government, civil societies, and farmers' organizations, and so on. The project director of PMU is the member secretary of the committee. In the PMU, the project director is supported by the qualified and experienced staff of government and also by a technical assistance team involving senior and accomplished livestock sector experts (professionals) of Nepal.

At the province level, four Decentralized Level Support Units (DLSU) are set up that are working in a cluster approach to facilitate the implementation of the project activities that are spread over five provinces of Nepal. The organizational structure of NLSIP is depicted in the diagram (Figure 2) in the previous chapters.

Knowledge Management

The Livestock sector not only provides meat and milk, but it also helps to provide regular cash income to the farmers (livestock producers) and enabling them to buy necessary food and other items.

To take maximum advantage of this sector, significant improvement in knowledge transfer mechanisms (software and hardware) is needed. This also needs reforms in the livestock extension systems being practices in the country, which is, at the moment, more focused on substance level production of livestock products. This reform is required in livestock production systems also to ensure safe and healthy products for human consumption.

Many challenges restrict for development of efficient livestock production. For example, the widespread presence of highly infectious animal diseases impedes the safe production, marketing, and consumption of livestock products. Farmers have limited know-how or the capacity to cope with all of these challenges ahead in safe production and delivery of the livestock products. The NLSIP (and the regular extension services of the government) may need to improve its knowledge management and communication systems and with ensuring to reach its know-how to mass-scale of livestock producers. In reality, an average farmer may not have direct access to information to participate in the competitive markets, in such circumstance, any outbreak of an epidemic may result in heavy losses to smallholding livestock producers if basic hygienic and safety procedures are not ensured properly in production, transportation, and marketing of livestock and livestock products.

Towards Smart Livestock

One of the key objectives of the NLSIP is to enhance the knowledge of new technologies in livestock farming and management. The aim is also to bring innovations from transferring new knowledge in this sector. Project-related studies, seminars, workshops, awareness campaigns are to be conducted during the project executions. The benefit of new and innovative knowledge to be shared among all stakeholders across the project clusters, ultimately increasing livestock productivity and income to the livestock farmers.

In recent days, a large set of new forms of technology and information is used in the livestock production system, and in consumers' supply chain, including the use of sensors, artificial intelligence, and blockchain are also to be used in the livestock farming and management. Animal surveillance and monitoring are widely used in other countries through the introduction of information technology. Attempts to be done by the project also to adapt these sets of new innovative knowledge to be integrated well in the Livestock production and value chain systems in the country, as well. New technology and knowledge play significant roles also in the livelihoods of farmers in Nepal.

Identified Capacity Gap

The project has been implemented for the benefit of farmers living across the five provinces and large numbers of local government units (municipalities). But, coordinating of knowledge transfer and M&E across each level of the governments is very weak, which led to difficulty in the implementation of the project in Nepal. Similarly, project processes are still a bit longer to perform. There has been a little delay in service delivery in the initial stage of the project implementation, especially for announcing the project grants to livestock farmers and entrepreneurs. Still, knowledge of smart livestock management has not been properly adapted, disseminated, and implemented properly at the project sites. Execution of Livestock Management Information Systems (LMIS) for both laboratory and livestock service has been delayed due to various reasons, also noted in earlier sections.

Likewise, the policy required for the delivery of various kinds of loans and grant services is still waiting for a pertinent signal from the higher authorities in MoALD to get operated and delivered the effective services to the livestock producers (entrepreneurs).

The LMIS should be executed soon for information flow from the grass-root level officials to top-level officials in MoALD as a result better plan in the value chain and national disease control program can be achieved. The formal sector bank (and related BFIs) should also be encouraged to join the initiatives to provide the same paths of the services.

3.8 Linkage with B&FIs, Insurance, and Others

Bank and Financial Institutions

One of the components of NLSIP implementation is to promote an inclusive value chain for selected commodities, which include: dairy, goat meat, and Chyangra pashmina. To achieve these objectives, the project has got a plan to enhance partnerships with different stakeholder organizations including banks, financial institutions, and insurance companies.

The project's productive partners are supported through establishing the matching grants financing scheme. These schemes will facilitate accessing risk, financing, and providing insurance facilities to sub-projects. There is a compulsion that each grant recipient should open the accounts in a bank where installments of grant amount are deposited. The project (NLSIP) provides a list of participating banks where grant applicants may approach for a loan. However, applicants are free to choose their banks among the listed shared by the project.

The selection criteria for key banking and financial institutions should be developed as soon as mentioned in the implementation progress report (2019 Aug). However, these criteria have not been finalized yet, as a result, all expected BFIs have not shown a very keen interest in co-financing, especially when large numbers of small-scale producers are involved. Only four out of ten attended BFIs submitted their information as requested by the project, suggesting that the informal sector banks. The project is seriously taking this matter and developing a way out with a possible alternative to solve the problem.

The less interest to participate in the program of NLSIP by the BFIs is largely due to high transaction costs to the BFIs in dealing with the grant-schemes towards large-numbers of livestock farmers spread over across the districts rather than lack of capacity (human resources) with the available BFIs in the country.

Insurance Companies

The livestock sector is a profitable activity, but it is also a risky business activity than other farming activities. These challenges cause heavy economic losses to farmers and agro-businesses. Insurance is regarded as the best way to cope with the risk associated with such losses.

The government of Nepal has initiated a livestock insurance policy since 2013 AD. Livestock farmers are provided subsidies up to 75 percent of the payable premium through the Insurance Board of Nepal. Twenty non-life insurance companies are dealing with agriculture and livestock insurance in Nepal. For value chain development and agricultural-related high-value businesses, the role of the insurance sector is very important. The risk arising in grant financing is minimized through timely done insurance. Therefore, the roles of insurance companies are also significant for the overall livestock development in Nepal. The project needs to discuss and consults various options with the BFIs in terms of making various insurance products and incentivized schemes suitable to the need of the small-scale producers, which, then, will also ultimately reduce pressure on a high level of dependency on government subsidy in agricultural insurance and allowing domestic markets of insurance to be developed at an optimum level.

At a local level, the financing institution and bank should get tied up with the allocated insurance company-contracting through a formal MOU - so that each grantee be assured in getting the loan as well as insurance on the investment done on the livestock enterprises. The practice of livestock insurance is

new to a large proportionate of small-scale LS farmers; hence the project may need to do special efforts to increase the farmers' level of awareness on the benefits of insurance and related services.

Beema Samiti (Insurance Board)

NLSIP has got a plan to enhance the insurance activities and engaging the producers' organizations as facilitators for providing insurance services. In Nepal, under the umbrella of Beema Samiti, different insurance companies are selling their insurance products for livestock sectors. But the insurance products cover only live animals. They do not cover the farm infrastructures, as a subsidy premium. Similarly, the insurance coverage is not adequate to the needs of all LS farmers, as per the need of their live animals and LS business infrastructures. NLSIP has a plan not only to facilitate the project beneficiaries to get their products insured, but it has plans to encourage the insurance companies to expand their activities as well in the project area too.

The project (PMU) and MoALD should engage communication with Beema Samiti and change the Livestock Insurance Directives of Beema Samiti so that both kinds of farm assets (physical structure and related infrastructure), as well as live animals, are betiding up and included under the existing insurable products. The intersectoral coordination and communication, and even advocacy roles, need to be done by the PMU to change the insurance products managed in Nepal so that large numbers of small-holding livestock producers would get benefit out of the insurance scheme.

FNCCI (Federation of Nepal Chamber of Commerce & Industries)

FNCCI is an apex body of private sector business organizations working to promote business activities for economic and social development in Nepal. The Federation is playing a key/ lead role representing private sector business interests in Nepal. Since the objective of NLSIP is to develop livestock sectors in alliance with private enterprises, a partnership with such federation would be fruitful in boosting private sector contributions to the economic activities of the country.

One of the objectives of the project is to boost up private sector business activities by increasing investment both from the government side and the private side.

Therefore, to strengthen activities of livestock sector dialogue platforms set up at the districts and at the municipality level, FNCCI (or through AEC) can provide more active roles and valuable functions in terms of engaging marketing and agro- enterprise sector actors. This is also important for better articulating private sector concerns and constraints in terms of the development of livestock sector industries in each of the districts/municipalities.

Agro Enterprise Center (AEC)

Agro Enterprise Center (AEC), the agricultural sector wing of the Federation of Nepalese Chambers of Commerce and Industry (FNCCI), is established in September 1991 under the cooperative agreement between FNCCI and USAID/Nepal. In the last 25 years, the FNCCI/AEC has made valuable contributions in Agro Business Development and Promotion in the country. Since 01 October 2002, FNCCI/AEC has been re-shaped with a more focused mission and vision and is taking a renewed role in representing the private sector agribusiness community in the development of agriculture and agribusiness in Nepal. This organization has the main office in Kathmandu with branches in major cities. (Source: AEC website dated 13 Chaitra 2076). AEC has got long years of experience and capacity in dealing with Business Development Services and Value Chain Development Services in the Agriculture sector, including in the livestock sector. Hence, the project (NLSIP) may also take advantage of the capacity of AEC and use its services across the cluster office (DLSU) for value chain development and Business Development

Service-related thematic areas across the districts and local municipalities level activities, and through active engagement of district level of office of FNCCI in the project sites.

Business Consultancy Providers - NABIC

Nepal Agribusiness Incubation Centre (NABIC) has been established as a non-profit making company from the PACT project fund to expedite the agro- enterprises development and startup services during the implementation of PACT about three years ago. This entity provides agro-business consultancy services to proposed subprojects on a need basis, and also facilitates for handholding supports to the start-up agri-business entities and agro-entrepreneurs.

As per the PIM of the NLSIP, the project has to mobilize professional organizations in the country to assist in preparing sub-projects plans, providing soft skills to farmers and livestock entrepreneurs in managing the business, and to analyze options for reducing the risk for livestock farming and agro-enterprises. Accordingly, in mid-June 2020, the project announced a competitive bid, and one of the entities has been in the process of selection for providing Business Development Services (and handholding support in business planning) to the project targeted (granted) farmers and small-scale livestock entrepreneurs for preparing business plan, and for business-management sector-related capacity development of the farmers. Till the mid of July 2020, the project has initiated procurement of business consultancy services for providing hand-holding supports to the grant receiving sub-project preparation and evaluation-related activities.

Identified Gap

During our consultations with the BFIs, it was noticed that all of the listed banks and financial companies are not so much interested to join the financing scheme of the project, and providing the banking services to small-scale farmers, with the presently set up terms and conditions. It was due to high transaction costs associated with handling a large number of small-holding farmers across the 291 municipalities spread over 28 districts and five provinces. These costs include: high administrative and operating costs in meeting the formal requirements of papers and procedures for granting loans in rural sector lending due to low volume of transaction and low density of the would-be applicants in the rural areas. In rural areas, these formal sector banks also incur huge operating costs for monitoring and supervision, as well.

The project developed operating procedures and guidelines (SOP) for assessment of loan to be taken by the project grant applicants (LS value chain) has not yet been formalized and agreed upon by all the Banking and Financing institutions. To speed up the project grant activities, there is an urgent need to have a formal or informal MOU and overall agreement with the BFIs to execute the disbursement of the project grants to the livestock entrepreneurs, which is also the key objective of the project. The human resources and professional capacity available with the BFIs in Nepal are adequate to deal with the loan appraisal activities in farming and in livestock sectors), however, these BFIs may also need to be incentivized it.

At present, insurance companies are a little reluctant for small animal insurance like; meat, goats, and Chyangra pashmina goats, hence several rounds of consultations and some level of incentives (both tangible or intangible) may be also provided to the insurance companies to encourage them to engage more in providing services to scattered rural enterprises and small-scale livestock producers.

3.9 Individual-level Capacity NLSIP- PMU

PMU has a full capacity of technical, financial, and related experts to execute the activities and programs to get optimum outputs. The details on the technical capacity of the professionals available in PMU and its cluster offices are already summarized and illustrated in the earlier section.

While consultations with the project staff and stakeholders across the DLSU, it is revealed that there is a high demand for additional numbers of value chain experts in both dairy and meat at the project cluster sites. A dedicated person to look after and implement the value chain and marketing (including value-added in production practices) of pashmina is also needed to be linked with the project so that the activities on Chayngra pashmina will also be enhanced along with the other two sub-sectors of the livestock (Dairy and goat meat) targeted by the projects.

3.9.1 Professional Skill, Development & Opportunity

The scale ranking method for professional skills for the PMU was worked out. From the survey with the individual experts, it was found that out of 21 knowledge and skills related to the project only 8 knowledge and skills were more than average (60%). Details are presented in Table 9.

Table 9: Priority of skills enhancement training needed for the staffs in PMU

SN	Category	Skills and knowledge gap (in Rank score in index value from 0 to 5)
1.	Project Planning	4
2.	Monitoring and Evaluation	4
3.	Value Chain Development	4
4.	Grant Management	4
5.	Agro-enterprise Development	4
6.	Agro-business Plan Development	4
7.	Program Implementation	3
8.	Business proposal Preparation	3
9.	Finance Management	3
10.	Extension and Communication	3
11.	Post Livestock Management	3
12.	Market Research and Demand& Supply Estimation	3
13.	Resource Matching	3
14.	Climate Smart Technology	3
15.	FFS Trainer	3
16.	Animal Production	3
17.	Animal Health	3

Scoring assumption: Rank index 0= Not needed, to Rank 5= Urgently needed

Source: Based on information compiled on the individual-level survey of staffs in PMU

This revealed that there are lots of opportunities to improve the skills and knowledge of the staffs in PMU, particularly in project planning, M&E, project enterprise development, Value Chain strengthening activities, Grant Management, etc., so that better sectoral process and ensured, and also better performance out of implementation of the project activities is ensured.

3.9.2 Use of ICT at the Workplace

The LMBIS software was used during the planning phase. The software related to disease monitoring, M&E system, etc., is still to be developed and adapted in the regular project M&E and project implementation activities. The commonly used ICT at PMU is email messaging, Video conference calls, etc. All technical staffs of the project are capable of using ICT; however, they need further orientation training, and hand-holding supports to use modern ICT. Given the new era of the post-pandemic phase, a large part of the cross –sites coordination and M&E activities may be done using the ICT tools and techniques, these facilities to be enhanced at DLSU as well as at municipality level LS offices.

3.9.3 Motivation/Incentives

The following are the three suggestions by the survey respondents to enhance their motivation for their more effective engagement in the project activities across the project sites (provinces):

1. Increase some more numbers of government deputed staff for the critical nature of project activities (or even by hiring project consultant basis) at the DLSU to reduce their present workload for the efficient and effective completion of the activities across the project sites.
2. Provide training to the staffs on procurement, monitoring & evaluation, Planning tool, value chain, and in grant management related activities.
3. Provide more numbers of exposure visit to the project staffs and at best operating LS production sites (pockets)⁹ in the country (and also in India, or also third country outside) to observe grant mobilization process followed in the previously implemented projects (programs), and across sites for lesson learning out of livestock sector development grant management related innovation in India.

3.9.4 Institutional Linkages and Co-ordination

Coordination and linkage play a vital role in the execution of activity and programs. The satisfaction level of coordination and linkages is presented in Table 10.

Table 10: Linkage and coordination of PMU with other organizations

Linkages and Coordination	PMU	Level of Satisfaction
PMU & DLS	4	Moderately Satisfactory linkage and coordination
PMU & DLSU	5	Strong Satisfactory linkage and coordination
PMU & Provincial level ministry	3	Satisfactory linkage and coordination
PMU & Provincial level directorates	3	
PMU & VHLEC	2	Fairly satisfactory linkage and coordination

Note: Index: 1= Not Satisfactory linkage/ coordination; 2= Fairly Satisfactory linkage/coordination
3= Moderately Satisfactory linkage/Coordination; 4= Satisfactory linkage/coordination; 5= Strong Satisfactory linkage/coordination.

Source: Field Survey of the study team using the checklist-based survey with the key officials.

It is found that the relationship, linkage, and coordination of DLSU with PMU is very high and strong whereas, the relationship of PMU and DLSU with provincial-level ministries and LS directory is moderately satisfactory, which needs to be strengthened in the coming days. The relation and coordination pattern with other stakeholders at the provincial and local levels are satisfactory to fairly satisfactory, which indicates that for the need to strengthen the relationship and linkage of DLSU with

⁹ There are several pockets of best practices on livestock production and innovative management of value chain (entrepreneurs) within Nepal as well, which can be used for the in-country farmers visit and exposure tours for sharing knowledge and know-how between farmers to farmers.

the respective provincial and local level governments to effectively execute the project activities in the coming days.

3.9.5 National Programs' Linkage Pattern

The NLSIP is also expected to contribute the major long-term vision, planning, and programs that the country has adopted, namely (a) SDG, (b) ADS, and (c) 15th periodic plan five years' National plan. Therefore, few questions on the officials' understanding of the major sectoral strategic document (ADS) and that of SDGs related goals and targets in agriculture were also asked with the project officials across the survey sites. The results are summarized in Table 11. The survey among the officials of the project suggests that the key officials of the project (NLSIP) are moderately satisfied with their understanding and contribution of the projects in meeting the national vision and national long terms goals and targets in agricultural sectors. The results also suggest that the project has to give little more efforts to relate to these national vision and objectives livestock sector services also with the project planned activities, and better communication of the knowledge among the officials across the sites.

Table 11: Relevancy and policy linkage of the projects and programs with SDGs (2015-2030), ADS and 15th National Plan (federal and provincial levels)

Satisfaction level Of Programs with SDG (2015-2030), ADS and 15th National Periodic Plan and Policy linkage (Federal and Provincial)		
Particulars	Rank	Satisfaction level
Satisfaction level of the program with Sustainable Development Goals (2015-2030)	3	Moderately Satisfied
Satisfaction level of the program with the 15 th National Plan of GoN	3	Moderately satisfied
Satisfaction level of the program with ADS of GoN for Livestock development	3	Moderately satisfied
Satisfaction level of the program with Provincial level organization	2	Fairly Satisfied
Total Score	11	
Average Score	2.75	Fairly Satisfied

Scoring Index: 1= Not Satisfactory linkage/ coordination

2= Fairly Satisfactory linkage/coordination

3= Moderately Satisfactory linkage/Coordination

4= Satisfactory linkage/coordination

5= Strong Satisfactory linkage/coordination

CHAPTER IV:

CAPACITY NEED AT DLSU

This chapter analyzes the institutional or organizational capacity of DLSU entity based on the feedback and information compiled from the key informant survey with the project officials and others in the provincial level organizations. The Key Informant Survey (KIS) done across the four DLSUs was also supplemented by the direct observations and group consultations by the study teams across the selected sites to get information in terms of adequacy of the professional staff in the office of DLSU. The results are summarized in Table 12. The results suggest that by and large there are no major gaps in terms of human professionals across the project sites (DLS), except the availability of Junior Technicians in DLSU cluster office in Hetauda and Butwal. Other results in Table 12 are self-explanatory.

Table 12: Additional technical personnel required by different DLSUs to perform its objective (Unit in number)

Technical personnel /DLSUs	Pokhara	Hetauda	Biratnagar	Butwal	Total
Data collector and data processor	1				1
Dairy Value chain expert		1	1		2
Meat value chain expert		1	1	1	3
Junior Technician		2		2	4
Program Officer Technical		1			1
Fodder Pasture Specialist		1		1	2
Agribusiness Specialist			1		1
Financial Expert			1		1
Market Specialist			1		1
Total HR Required	1	6	5	4	16

Source: KIS survey, institutional DLSUs data analysis.

4.1 Individual-level CENA for NLSIP- DLSU

4.1.1 Professional Skill, Development & Opportunity

Seventeen various components of skills were tested among the respondents (project staffs)- excluding the competency of TA experts, and the results are summarized in Table 13. Among the skills, value chain development, business proposal preparation, climate-smart technology, resource matching and FFS is highly prioritized and urgently needed additional skill training in the project.

Table 13: Additional Need of the Skill across the DLSUs based on the Institutional Level

SN	Category	Biratnagar	Pokhara	Butwal	Hetauda	Total Weights	Average Weights
1.	FFS Trainer	5	5	4	5	19	4.75
2.	Value Chain Development	4	5	5	4	18	4.5
3.	Business proposal preparation	4	5	5	4	18	4.5
4.	climate smart technology	5	4	5	4	18	4.5
5.	Resource matching	5	4	5	2	16	4
6.	Grant Management	4	4	4	3	15	3.75
7.	Finance Management	4	4	3	4	15	3.75
8.	Market research and demand & supply estimation	4	3	4	4	15	3.75
9.	Agro-business plan development	4	4	4	3	15	3.75
10.	Project Planning	5	3	5	1	14	3.5
11.	Extension and communication	3	5	4	2	14	3.5
12.	Agro-enterprise development	3	4	4	3	14	3.5
13.	Monitoring and Evaluation	4	3	5	1	13	3.25
14.	Animal health	3	4	5	1	13	3.25
15.	Post Livestock management	3	3	4	3	13	3.25
16.	Animal Production	2	4	5	1	12	3
17.	Program Implementation skill	3	2	5	1	11	2.75
	Total Weights	65	66	76	46		
	Average weights	3.82	3.88	4.47	2.71		

Source: KIS survey data across the four DLSUs. 1= Less needed additional skill; 5 = More urgently needed additional skills and CD training.

The level of understanding of the project staffs with the overall national development goals and development program of the country, and MoALD, were assessed across the officials of the four DLSUs. Basically, the level of understanding of the project officials at the DLSUs on whether key elements of these national strategies concerning the livestock sectoral elements were nicely synchronized with the objective of Agriculture Development Strategy (ADS), Sustainable Development Goals (SDG -2015-2030), and with 15th National Plan of Government of Nepal. It was found that satisfaction levels with these national goals are only moderately satisfied, whereas proper policies linked with policies of the provincial level organization are fairly satisfied. The linkage of Hetauda, Pokhara, and Butwal was satisfactory, while Biratnagar was fairly satisfied. That means policy linked at the provincial level is quite well-linked with all DLSUs. The detailed results are in Table 14.

Table 14: Level of tying of the project planned interventions with the program activities of SDG, ADS, 15th NP and policy linkages across the DLSUs

DLSUs	Biratnagar	Pokhara	Butwal	Hetauda	Total Score	Weights Average
Satisfaction level of Programs with sustainable development goals (2015-2035)	2	4	3	4	13	3.25
Satisfaction level of Programs with the 15 th National plan of GoN?	2	3	4	5	14	3.5
Satisfaction level of Programs with ADS of GoN for livestock development?	2	4	3	5	14	3.5
Proper policy linked with policies of provincial level organization	2	2	2	3	9	2.25
Total Score	8	13	12	17		
Weights Average	2	3.25	3	4.25		

Note: 1-Non satisfied; 2-fairly satisfied; 3-moderately satisfied; 4-satisfied; 5-highly satisfied

Source: The results were obtained from KIS Survey, Institutional DLSUs of the project, s, and as perceived by the officials working across the four project sites.

The suggestions and the comments made by DLSUs for more linkage and coordination with both Provincial and Federal working policies are stated in KIS are tabulated in box 4.1.

Box 4.1: Suggestions for Enhancing more effective linkages and coordination of the project with Provincial and federal working policies

1. Some activities/Problems should be handled from Provincial VH& LSEC.
2. The provincial policy should be in agreement with the central government policy so that the DLSU level activities collaborate well with provincial government level activities.
3. The province-level dialogue platform and province-level project coordination meeting should be chaired by the Secretary of MoLMAC so that there is better coordination.
4. There should be awareness training to the officials on livestock sectoral targets linked with the 15th National Plan of GoN, ADS of GoN, climate-smart technology, grant management, etc.
5. There should be stronger coordination among local level, provincial, and federal agencies in terms of livestock interventions.
6. The project should also provide infrastructural supports and equipment to municipal LSCs so that their work efficiency is enhanced.
7. More support to VH&LSEC to implement the project activities and programs across the 28 districts.

The level (intensity of scale) of linkage and coordination of DLSU with other related organizations at different tiers of the governments is presented in Table 15. The results reveal that the linkage and coordination of activities of DLSU with five other livestock organizations and the concerned are satisfactory.

Table 15: Level of Linkages and scale of coordination of DLSU with different organizations

S. N	Linkage and coordination among:	Biratnagar	Butwal	Hetauda	Pokhara	Grand Total	Avg. Score Index
1.	DLSU & DLS	2	2	5	4	13	3.25
2.	DLSU & PMU	2	2	5	5	14	3.5
3.	DLSU & Provincial Level Ministry	3	4	5	3	15	3.75
4.	DLSU & Provincial level directorates	3	4	5	5	17	4.25
5.	DLSU & VH&LSEC	3	4	3	5	15	3.75
6.	DLSU & Local government (Municipality)	3	4	5	2	14	3.5
Total Score		16	20	28	24	88	22

Note: 1-Non satisfied, 2-fairly satisfied, 3-moderately satisfied, 4-satisfied, 5-highly satisfied

Source: KIS survey, institutional DLSUs data analysis

Good working relation of DLSU with various LS entities working at local, district, provincial, and federal levels is critically important to deliver outputs of better quality. The results in Table 15 suggest that the project cluster offices need to enhance the level of its coordination, linkages, and collaboration with all the above stakeholders that have critical roles and functions in implementing the project across the provinces and local level (or district levels).

4.1.2 Better Policy Linkage Across the Tiers of the Governments

The policy criterion of the Department of Livestock Services and DLSUs of NLSIP to implement all the activities at the grass-root level is of greater importance. All the personnel is deputed from DLS or MoALD. The provincial and local levels are more empowered with the implementation of agricultural and livestock programs and activities. Some of the suggestions to improve policy coordination and policy linkage related factors of DLSU project activities with other agencies, based on responses obtained from the checklist based-survey introduced to the selected project officials are summarized in Box 4.2 below.

Box 4.2. Stakeholders feedbacks, comments, and suggestions improving policy linkages

1. A technical coordination committee is formulated and is to be in place at the central level for dialogue on technical and programs implemented by NLSIP.
2. Coordination activities across the agencies should be in written form.
3. Disease surveillance and reporting activities should have established strong linkage at all level of livestock services.
4. Federalism is a novel practice in Nepal. Province government and local governments are unable to make policies on their own because of inadequate professional staff; inadequate human resources and weak delegation of authority at a lower level.
5. Incentives and attractions (Participation can be realigned and updated as per the incentives)
6. Should have better coordination from top-level to provincial policy
7. Representatives not just for participation but also for knowledge sharing (Not responsible person participated)
8. A more clear-cut TOR (or MOU across all levels of stakeholders to report and linkage establishment.
9. Coordination meeting between different stakeholder in the presence of PMU and DLSUs
10. Joint programming to be implemented between the two tiers of the governments.

Source: KIS survey among LS professionals, institutional DLSUs data analysis

4.1.3 Motivation/Incentives

Suggestions to enhance the capacity of DLSU project staff based on responses obtained from the checklist-based survey introduced to the key project officials are summarized in Box 4.3 below.

Box 4.3. Summary of suggestions to improve the capacity of DLSU project staffs – incentives and *motivations*.

1. Increase the mobility to the field staff (or increased communications), and enhancing work efficiency in reporting and feedback.
2. Introduction of more learning by doing training in real term practice.
3. Hands-on training to improve the capacity of human resources working at a different level.
4. Setting up of appropriate smart work efficiency evaluation system of the officials.
5. Observational tour to key stakeholders to livestock production pockets (Nepal & India)
6. Initiate academic study programs to enhance the academic capacity of the officials.
7. Costly Infrastructure/Equipped may be to share across the agencies.
8. More training to be provided to the project staffs and other officials from provincial agencies and DLS
9. Additional incentives for more motivations in a working environment like MoF do for their staffs at offices concern with taxation.

Source: KIS survey, institutional DLSUs data analysis

Problems and Suggestions for Livestock Development at District Level

During the field visit to different districts of the project and non-project area and some electronic communication, the field response toward the NLSIP with respect to constraints or implementing problems and suggestions to resolve these issues are summarized in Table 16. These issues and suggestions are listed according to the priority felt/expressed by the stakeholders during the consultation meetings. The project (DLSU) should work closely with DDP and DCE for strengthening the livestock value chain and livestock productivity across the districts.

Table 16 Constraints and suggestions with regard to capacity enhancement

Constraints	Suggestions
1) District Coordination Committee (DCC) has not any program and staff in the livestock sector.	a) The role of DCC, especially on monitoring and evaluation activities within its jurisdictions, should be more effective.
2) Lack of chilling centers and tankers to carry milk to market areas from production areas.	b) More project grants to livestock farmer's cooperatives for establishing the chilling plant, a tanker in the dairy pockets areas, and at strategic locations with the potential to expand dairy production.
3) Although milk is processed into Paneer and Chhurpi, there is no significant return due to market constraints.	c) To support individual livestock entrepreneurs, the diversified livestock products and incentivized the production of these selected commodities mentioned in 3 to enhance their production in Nepal.
4) Community-forests are not allowing for grazing pasture land are for goat and cattle.	d) Coordination and linkage among different levels of governments should be increased for allowing grazing as well as forage cultivation in community forestry.
5) There are inadequate numbers of milk processors outside of Kathmandu valley and Chitwan town,	e) There is a need for the establishment of a greater number of milk processing plants across the targeted districts.
6) Banks emphasize more on paper works and formal procedures which are fewer farmers' friendly.	f) Establish more collaboration with the bank for their priority sectors lending to the livestock farmers and MOU with concerned agencies.
7) The interest rate on loan from local co-operative has been a huge burden to the livestock farmers due to the high interest rate on the capitals.	g) Co-operatives should simplify the process of providing loans to farmers. There should be a similar interest rate on priority sector loan borrowed from both banks and cooperatives. Rastra Bank should monitor effectively and MoALD should communicate with NRB, and also do policy advocacy on these issues.
8) Limited manpower, infrastructure, and physical facilities are the problems of veterinary laboratory, and limited laboratory and vehicles, less budget and low priority to the livestock sector are other constraints.	h) Veterinary hospital and lab facilities should be improved in terms of technical human resources, infrastructure, equipment, working producers, and the market-supply chain.
9) Insufficient manpower in technical aspects, different skill training, and exposure visits are other relevant constraints.	i) Short- and long-term trainings to be organized for officials of government, insurance companies, bank entrepreneurs, and farmers (especially on the topics of vet drug management, fodder seed production, multiplication, processing, certification, and marketing are recommended).

4.2 Stakeholder's Dialogue Platform for Profitable Livestock Stock Agribusiness

a) The Context

The dialogue platform is a multi-stakeholder' forum where all the key holders' representatives meet together 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).

b) District Stakeholder Dialogue Platform

The Directive of Stakeholders Dialogue Platform issued 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 Veterinary Hospital and Livestock Service Expert Center is a member of the Platform.

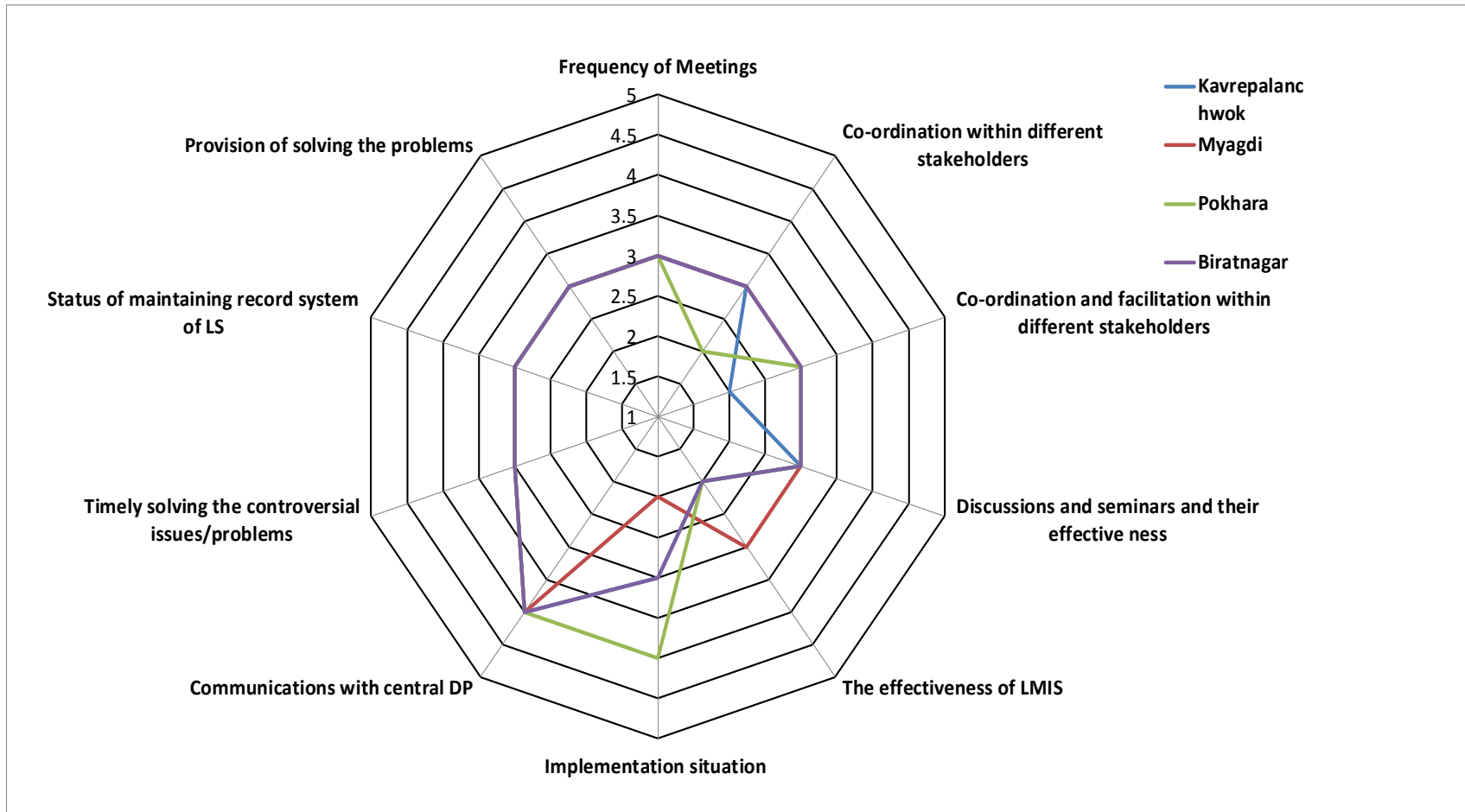
At present, the required budget for the functioning of DP is managed by NLSIP to different dialogue platforms which are now onward, authorized by MoALD through the directives that the dialogue platform will work till the project period only.

We carried out discussions and Key Informant Survey with selected officials of the District Dialogue Platform, and also contacted some of the key officials through the online interviews and the online surveys. Based on these surveys, we have prepared a comparative analysis of the functioning of dialogue platforms at four districts. The results are summarized in Figure 6 below.

Importance/Rationale for Scaling-up of the Dialogue Platform at Regular Program of DLS

- a) The dialogue platform has supported coordination between key stakeholders of livestock services in the district, who are concerned with district-level livestock business and development stakeholders. The improvement in coordination and functioning of the dialogue platform at each district will facilitate the formulation of the better and innovative projects and programs, all will facilitate for effective outputs and outcomes of the project.
- b) The dialogue platform has supported the livestock service management information system (LMIS), including dissemination of the information among the various agencies in the process to make access of information to the stakeholders, as quickly and accurately, as feasible.
- c) The dialogue platform has provided an opportunity to implement the decisions at a faster pace in the districts, which are making from the good formal and informal discussions among various stakeholders in one place.
- d) The dialogue platform has acknowledged the importance of various stakeholders on increasing production and productivity of live animal and livestock products, and their processing and marketing in a place. The stakeholders provided very positive views and their experiences to the study teams in this respect.
- e) It has helped to solve the problems with regard to necessary inputs and services such as feed, pashmina, medicine, milk, meat, grass, etc. which are concerned with livestock business at district level.
- f) The dialogue platform has supported managing/resolving various problems of livestock 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.

Figure 6: Livestock Dialogue Platform Current Status, Functions, and Effectiveness Across the Districts Studied



CHAPTER V:

PROJECT FUNCTIONAL STATUS – LS PRODUCTION**5.1 Background**

Currently, the project is running in the third year. The project was started in early 2018 and to be continued up to 2023. There are two types of project staffs in the NLSIP, (1) staff deputed from the Government (MoALD) and (2) TA support staff hired by the World Bank and national consultants (experts) hired by the project through a competitive process. For a specific assignment, the short term national and international consultants were hired and the job assigned were (i) Preparation of Breeding plan, (ii) Preparation of Feeds and feeding strategies for both (a) Project districts and (b) the country, and (iii) IT preparation for breeding data management.

5.2 Implementation of Acts, Policies, and Regulations

Some of the major policies, plan, and strategies that are to be supported for revision/update by the project are listed below:

- (a) Livestock Sector Master Plan (it is in the process)
- (b) Livestock Breeding Policies
- (c) Animal Health policy and
- (d) Approach on One Health Strategy,
- e) National Strategy on Animal Nutrition and Fodder Production
- f) Livestock Emergency Guidelines and Standards (LEGs) (In process).

The acts to be developed and/or that are already in draft form and are yet to be tabled as bills are (a) Infectious Disease Act (b) Veterinary Drug Act (c) Animal Welfare Acts. There are several other policies and strategies to be developed/ under process to develop as the aim of the projects. For example, the procedural weakness in administration and management in the government agencies to proceed the progress for the formulation and modification of the policies, regulations, guidelines, and directive for the implementation of new schemes and to launch innovative programs and projects are other underlying constraints¹⁰ in the country which are also holding back on moving speedily of the project, and delivery to the farmers as per its objectives and scopes. .

The remaining regulatory Acts, Policies, Strategies, Action plans, and Protocols related to livestock development are in the process to develop and update. These regulatory procedures (and strategies) are in the process to implement in the country supported by the project, which is to speed up to be completed shortly and possibly within the project period. It is necessary to train both (a) policy Implementers and (b) beneficiary groups to make the use of these newly introduced rules and regulations in the field of livestock promotion, marketing hygienic food production, and their uses.

The results from the field study indicate that the policy implementing authorities, traders, and consumer groups are not adequately familiar and trained on the use of these rules and regulations related to livestock production and procedures to follow while transportation and marketing of live animal and

¹⁰ These issues are some of the major bottle neck for implementation of innovative schemes and new initiatives in the present set up of the functioning of the public agencies, and not limited to this particular project (NLSIP) alone,

animal products. The need assessment indicated that only about 40 percent of livestock-related professionals are familiar with the existing rules and regulations.

Therefore, training to strengthen the capacity of the policy implementers, traders, and producer are recommended to implement these activities in the NLSIP project targeted districts as well as in other districts.

The training should cover (1) ways to implement the rule and regulations using guidelines and protocols on animal health, animal breeding, animal feeds and feeding, product processing and management of animal compounded feeds, animal products in the value chain. (2) Make use of rules and regulations in product processing and marketing value chain and (3) quality food production on the farm considering the GMP.

Livestock Management Information System (LMIS) has to be established at MoALD/DLS to maintain information relevant to the livestock sector across the various activities related to enhancing the productivity of livestock. LMIS should have a built-in specific domain related to various aspects of livestock production and animal health. NLSIP is also supporting Information and Communications Technologies (ICT) platform that will support the development of flow and management of information and ideas in the various links in the system of livestock farming namely input/procurement, production, marketing, sales, and health management issues.

5.3 Capacity for Innovation and Modernization Livestock Services Delivery

Results Framework

Among the project development objectives indicators (7) and intermediate results indicators (8), all indicators have been achieved satisfactory outcomes by the project in the previous years (Project Report 2020). This indicates the need for more technical and institutional back up to the project to speed up the activities. Recently, the project has recruited technical experts from outsourcing and is engaged to support field activities. The regular staffs working on the projects are not sufficient to cover the field activities. Further, the data from the fieldwork indicate that the field technicians working in or under DLSU are not updated in specific areas such as (i) AI (ii) Ration Balancing (iii) Chyangra Pashmina Value Chain (iv) Operation of FFS and FBS.

The proposed training activities would help to gear up the existing status of the project outcome. TOT to the project staff to operate FFS has already been completed and most of them are operating FFS on Cattle buffalo and Goats in the project districts. In some cases, FFS (Farmers Field School) activities have been implemented. Likewise, information from the field data also suggests that refresher training is needed for the Para vets, so that they can run FFS on various thematic areas.

5.3.1 Promoting Sector Innovation and Modernizing Service Delivery

This component aims to enhance livestock productivity and climate resilience. This would support the capacity of key stakeholders along with the selected livestock supply chain to develop, disseminate and adopt best practices focused on climate-smart practices and technologies for improved efficiency in animal production through balanced animal nutrition, reduction of disease incidence, and improvement of livestock genetics. These activities would contribute to environmental sustainability and greenhouse gas (GHG) emission reduction. This component would also promote citizen engagement to ensure a

demand-driven approach to livestock service. This component has two sub-components as discussed below:

(i) Support to producer's organizations¹¹ including farmers' groups and cooperatives

From 1988, the government of Nepal has been promoting farmers group (FG) methods of services at the grassroots, which has been widely accepted by the livestock producers in the country. This is a cost-effective system to reach livestock producers, especially where there are a limited number of extension workers stationed at the LSCs. Farmers, on their part, saw the benefit of working together for decision making and accessing public services from a definite location. This has been adopted by the public extension system, which has also led to further popularize the approach of livestock services in the country.

In the Fiscal Year 2015/16, all together 18,317 persons participated at Farmers Group Meetings (FGs) conducted by the project (Male: 2820, Female: 6023 and Mixed: 9474, having a membership of 225,504 members (Male:104,114; Female: 121,390 at the grassroots level (DLS annual report 2016/17). Of the total membership, women constitute about 54 percent in the farmers' groups. Within a farmers' group, smallholders find it particularly important to express their special needs and to negotiate with the extension system to cater to their demands.

FGs have raised about NRs 233.15 million, from members' contributions (Male: 52.99, Female: 57.43 and Mixed: 122.72 million), since their establishments in various years. Under DLS, about 60 percent of the group welfare funds have been mobilized, of which about 80 percent of loans from group funds have been invested for livestock and agricultural purposes, and the rest of the funds have been invested on social purpose.

Experience in Nepal confirms that farmers' organizations need to be developed for the advancement of agriculture (including livestock)¹² and rural development. As of now, the producers' organizations have developed on their product lines as cooperatives of milk producers, goat producers, pig producers, poultry producers, or other commodities. These organizations at the grassroots level is still weak and awaiting developmental initiatives. NLSIP should emphasize the development of producers' organizations in the project area and enable them to demand enterprises of dairy, goat meat, and Chyangra-pashmina and to participate in extension services delivery.

NLSIP has a plan to support the development of the producers' group mainly in the dairy, goat, and pashmina-Chyangra value chains.

Members of POs and cooperatives to be provided orientation training on livestock insurance so that they will be aware of the risks and benefits of insurance policy and government subsidy on the insurance premium. The ultimate aim is to attract them to insure their livestock. Likewise, technical training to the POs will be organized in the area of farm management, housing, breeding, feeds and feeding animal health, and sanitation through Farmer Field School (FFS). Similarly, PO's will also be provided training on group/cooperative management, assessing production costs, basic accounting systems, and so on.

In the mountain districts, the livestock farming system is mostly based on grazing the pasture land. However, the quality of the pasture lands is gradually in degrading stage due to poor management like

¹¹Producer's organizations are farmer's commodity groups registered in the government organization.

¹² Similarly, Project Completion Report of High Value Agriculture Project in Hill and Mountain Areas (HVAP, 2018) have mentioned that the beneficiaries of PO's learnt about record keeping (production, sales, cost of production), account keeping (income and expenditure of group and cooperative), group management (group values, group dynamics, savings and credit), and enterprise development (enterprise selection, production, marketing, profit and loss etc.).

overgrazing, a high stocking rate of animals, growth of unpalatable grassland, bushy plants, etc. Therefore, NLSIP has a program of participatory multi-stakeholder pasture development plans in the mountain districts, such that the pasture land will be developed and utilized sustainably. The Municipal LSC will facilitate to organize the meeting with the support of VH&LSEC.

Different programs to support POs are mentioned in the PIM of the project as well. Following capacity gaps are observed during the survey across the study sites as well as information obtained through focus group discussion (FGD) with the members of Dialogue Platform ((DP) at different locations:

Capacity Gaps:

- Inadequate orientation program to social mobilizers to engage for the project and for their activities as specified in the TOR given to them now.
- Not all POs are aware of biosecurity, and environmental safeguard management, and quality management related issues.
- Member of POs have little knowledge of the technical aspects of the livestock production that needs to be improved through FFS training, but there is inadequate TOT on FFS on cattle and Goats. This is due to the very limited numbers of Master TOT conducted so far.
- The government is emphasizing the promotion of livestock insurance services to the farmers by providing 75% subsidy of the premium, but a large number of farmers are not aware of the livestock insurance program, and its benefits due to lack of communication.
- Farmers' and producers' organizations are important institutions that deliver services to their members, facilitate their access to markets, and empower small farmers to engage in policy dialogue. but not all POs are competent to empower their members
- Capable and competent agricultural leaders of some POs are growing crops and raising livestock, leading agribusinesses, and agricultural cooperatives, and are engaged in policy development at all levels, but all POs do not have the capacity for leadership development
- A business plan helps members of POs to demonstrate that they have fully researched their proposed alternative; they know how to produce their product, how to sell what they produce, and how to manage financial risk, but all POs do not have adequate capacity for business plan preparation of Agribusiness.

5.3.2 Modernizing Livestock Extension Services and Input Provision System

NLSIP will support the modernization of livestock extension services by enhancing the quality of services provided by public extension agents and improving the complementarity of private and public extension providers. NLSIP will also support the delivery of animal health services, feeding, breeding, nutrition, and herd management in the project area for dairy animals, meat goats, and pashmina goats (Chyangra). One of the important activities of this sub-component is the capacity building of the service providers including financing institutions. Important activities are presented in the documents.

5.3.2.1 Animal Health Services

NLSIP activities on animal health and veterinary public health services will focus on reducing economic losses due to livestock mortality as well as morbidity and improving production through:

- a. Prevention and control of FMD, PPR, and parasites;
- b. Preventable management related losses such as udder health and pneumonia in new-born
- c. Enhancing engagement with the private sector for effective farm level service delivery, and improving bio-security and

- d. Enhancing food safety measures related to AMR, aflatoxin, and prevention and control of zoonotic diseases and, building the associated capacity of stakeholders in animal health and VPH.

To obtain these targets, different programs are proposed under animal health services.

i. Strengthening Livestock Service Centers

As mentioned in the PIM, the project has targeted to establish 28 new Municipal Level LSCs, one in each project district. According to a new federal structure, the number of local government and wards belong into the command areas of 28 project districts, and the total number of municipalities and numbers of populations served by the project are summarized in Tables 17.

Table 17: Local Government (Municipalities), population, and beneficiary number under the project command areas

Number of local governments	Population	Beneficiary
Municipality 289	12,400,000	200,000

Each of the local government has a separate Livestock Service Center for providing various types of livestock extension and veterinary services to the farmers. The level of the post and the academic qualification of the office in-charge of the Livestock Service Center and the number of technicians available per municipality greatly vary by the municipality types and various other factors.

Table 18: Local Government (Municipalities) types, numbers, and associated wards under the project command areas:

Level of local government	Number	Number of wards
Metro municipality	3	94
Sub-Metro municipality	6	1,24
Municipality	113	1,349
Rural Municipality	148	1,083
Total		2,650

In Metro-municipality, there is a provision of the Economic Development Division, led by Senior Agriculture or Livestock Development Officer of gazette class II (G2 level). Under this division, there are two sections namely

- a) Agriculture/Livestock and Urban development section, and
- b) Veterinary Public Health and Regulation section. In the Livestock and Urban development section, the four technical staff are allocated: one Livestock Development Officer, Two JTs, and one JTA. Similarly, in Veterinary Public Health and Regulation section, three technical staffs are allocated: one Veterinary Officer and two JTs.

As mentioned in Sub-Metro Municipality and Urban Municipality organization chart, there is a provision of the Livestock Development and Regulation Section, which is led by one Veterinary Officer/Livestock

Development Officer and is supported by JT. The number of JT has not been exactly spelled out. Moreover, there is a provision for setting up Livestock Service Centers. Similarly, in the Rural Municipality, the organizational structure, of the livestock section is the same, but this section is led by one JT only.

Depending upon the geographical area, the coverage of livestock extension services is 18-23 percent in the country, indicating the need for increased coverage with effective extension services. Therefore, it would be better to strengthen 20 percent Livestock Service Center of the municipalities under the project area, if an additional budgetary provision is available to the project.

Some of the Capacity gaps seen in the functioning of livestock service centers as listed below:

- Availability of insufficient technical and under-skilled promoted manpower to provide livestock and veterinary services (large percent of LS officers allocated in LSCs even do not have an undergraduate degree on animal or veterinary sciences; who are at the front line for providing livestock services to the farmers).
- Inadequate physical facilities (building, clinical rooms with Travis) to provide veterinary services.
- Insufficient basic/ Primary Veterinary Laboratory at Municipal Livestock Service Centers
- Inadequate necessary laboratory equipment (like microscope, castrator, incubators
- Insufficient clinical instruments and laboratory reagents and chemicals
- Inadequate Veterinary Medicine/ drugs and vaccines for livestock and poultry
- Monitoring and evaluation of ICT System not well developed
- Poor coordination with related organizations for One Health Approach and food safety.

ii. Capacity Enhancement of Laboratories and Border Quarantine Check Posts

a) Strengthening of Veterinary Standard and Drug Regulation Laboratory (VSDRL)

VSDRL regulates the standard of veterinary drugs, biologicals, feed additives, and growth promoters and also responsible for the effective implementation of veterinary rules and regulations.

Capacity Gaps:

- Insufficient trained human resources to regulates the standard of veterinary drugs, biologicals, feed additives, and growth promoters.
- Inadequate equipment and reagents for VSDRL laboratory.

b) Strengthening of Central Veterinary Laboratory (CVL)

At present, there is one Central Veterinary Laboratory (CVL) for securing healthy national flocks of livestock throughout the nation by mitigating the occurrence of diseases. CVL works with a series of laboratory test procedures through its various laboratory sections; Pathology, Parasitology, Microbiology, Serology, Laboratory management, and teaching lab and Molecular Biology. Enhancing the service of CVL, capacity development of human resources is important,

Capacity Gaps:

- Inadequate human resources on Vet. Pathology, Vet. Parasitology, Vet Microbiology, and Molecular biology
- Insufficient diagnostic instruments including reagents, chemicals, and kits.

c) Strengthening of Foot and Mouth Disease & Trans-boundary Animal Disease Laboratory (FMD & TADs) Laboratory

This lab has been serving as a National Reference Laboratory for the diagnosis of FMD and Classical Swine Fever in the country. This laboratory has also started the diagnosis of Classical Swine Fever by ELISA and PCR technique and sero-surveillance of Blue Tongue disease of sheep.

Capacity Gaps:

- Insufficient trained human resources on FMD & TADs laboratory work
- Inadequate equipment and reagents for FMD & TADs laboratory
- Weak ITC for disease reporting system

d) Establishment of Two Provincial Diseases Diagnostic Laboratory

Provincial Laboratory provides accessible, timely, and accurate diagnostic services to the livestock and poultry farmers. This laboratory also investigates the animal disease epidemics in the province and assist, advice and support District Veterinary Hospital and Specialist Center to control them. There is a need for 7 provincial laboratories in Nepal. At present, there are altogether 5 provincial laboratories in 5 provinces. NLSIP has a provision to establish 2 new provincial laboratories.

The newly established laboratories should have the following requirements:

- Bio-safety II level lab to work as a reference laboratory of a province. This is because this biosafety level covers laboratories that work with agents associated with human diseases (i.e. pathogenic or infectious organisms) that pose a moderate health hazard. Examples of agents typically worked within a BSL-2 include equine encephalitis viruses and HIV, as well as Staphylococcus aureus (staph infections).
- Adequate and trained manpower for laboratory diagnostic testing for Bacteria, Virus, Fungus, Protozoa, Parasites, and other causes of disease in animals and poultry.
- Necessary laboratory equipment
- Molecular diagnostic techniques at all level
- Vehicle facility
- Electricity back up
- Adequate laboratory reagents, chemicals, and diagnostic kits for major important diseases
- Cold room facility
- Components of Vet. Lab (vet. Micro, Vet. Para. and Vet. Path.)
- The facility of PM Room and waste disposal
- Facilities for all bio-security measures.
- Provision of a residential facility for the laboratory staff maintaining bio-security measures.

e) Strengthening Animal Quarantine and Border Check Posts

The animal quarantine has a vital role in inspecting the animals and their products that enters through the border to safeguard the country against infectious animal diseases. Also, the animals that are imported through foreign countries should be sent through the quarantine process for screening against

foreign animal diseases. In such conditions, the border and internal quarantine processes should be managed properly.

The border animal quarantine check posts should be kept on a top watch against the entry of trans-boundary animal diseases (TADS): highly pathogenic influenza (HPAI) along with highly pathogenic emerging and reemerging infectious diseases (HPEID). The pre-border and post border surveillance against these diseases should be in priority. Eight animal quarantine offices are commanding 24 animal quarantine check posts and are safeguarding the country against the entry of infectious animal diseases.

Animal Quarantine and Border Check Posts should have the following facilities:

- The facility of holding yard in quarantine check posts
- The facility of disease investigation and diagnosis at quarantine check posts
- Laboratory equipment, reagents, and chemicals
- Diagnostic kits
- Linkage with Provincial Vet. Laboratories and reference laboratories.
- Transport facility (vehicle) for patrolling

iii. Enhancing Disease Surveillance and Prevention

Surveillance is a continuous and systematic process of collection, consolidation, analysis, interpretation, and dissemination of relevant information on the occurrence of health problems. Data from surveillance is used to calculate the incidence and prevalence of events, to categorize disease distribution, and to guide investigations into the occurrence of an epidemic and endemic disease, Surveillance information would contribute to the design and evaluation of effective disease prevention and control programs. However, animal disease surveillance systems are not well developed in Nepal and do not produce a desirable quality of information on disease status and trends. The following gaps are observed:

Capacity Gaps:

- Inadequate number of epidemiologists
- Inadequately trained manpower for sample collection and dispatch
- Insufficient materials required for sample collection
- Transport and storage facility of samples not enough
- Insufficient availability of vaccines for major important diseases (e.g. PPR and FMD)
- Inadequate vaccine storage facility
- Inadequate recording and reporting of diseases information
- Disease recording is not based on diagnosis
- Inadequate provision of an emergency fund
- Ineffective communication for disease surveillance and prevention

iv. Disease Control Program and Delivery of Input

The biggest impediment to the growth of this livestock sector is the large-scale prevalence of diseases such as Foot and Mouth Disease (FMD in cattle and buffalo) and Peste des Petits Ruminants (PPR) in sheep and goats, which drastically affects the productivity of animals. The presence of these diseases not only affects the domestic economy due to loss in production and mortality of animals but also hamper the export of livestock products to other countries. Despite disease control programs through vaccination that have been introduced by the government nationwide for controlling the FMD and PPR in a planned manner, still, there are some capacity gaps as listed below.

- Inadequate veterinary technicians (Para-vet) in the government sector.
- Inadequate logistic support (e.g. Vehicle, syringe, needle, cool box, etc.)
- Poor coordination with related line agencies
- Inadequate provision of an emergency fund
- Poor coordination with local government
- Insufficient availability of vaccines against major diseases (PPR/ FMD)
- Poor facilities to maintain the cold chain for vaccines
- Poor practice on zero-surveillance of the vaccinated animal
- No effective communication for disease control
- Poor recording and reporting of diseases control information
- Poor adoption of bio-security measures by the livestock farmers

v. Other Support Activities in Disease Control Programs

A significant obstacle for the growth in terms of production from livestock and poultry is the prevalence of diseases of economic importance as these cause huge economic losses for the nation. The mandate of the 'DLS is to curb the spread of the prevalent diseases in livestock and poultry through quarantine measures or vaccination. Although efforts are made towards prevention, control, and containment of animal diseases of economic importance e.g., Foot and Mouth Disease (FMD), Peste des petits ruminants (PPR), and other animal diseases. Periodically there may appear different diseases. To manage such events there are some gaps in the support activities as follows:

- Inadequate budget (only about 45% is covered)
- Poor vehicle facilities (50 % covered)
- Poor communication (No ICT or LMIS operation)

vi. Strengthening National Vaccine Production Laboratory (NVPL)

The history of animal vaccine production in Nepal dates back to 1961, where the veterinary investigation laboratory at Tripureshwor started to produce Goat Tissue Vaccine (GTV) to be used in the Rinder Pest Eradication Program. Then onwards, there have been a lot of developments in the area of vaccine production and the name of the laboratory has also been changed accordingly.

At present, NVPL is the only national laboratory producing livestock and poultry vaccines according to the standard set out by OIE. This laboratory produces 14 different types of vaccines including PPR homologous vaccine using tissue culture technology. To produce adequate vaccines required for national requirement, the following gaps has to be considered

Capacity Gaps:

- Insufficient trained human resources on vaccine production
- Inadequate marketing skills to compete in the market for better supply
- Low volume of quality vaccine production as per the need of the farmer
- Inadequate adoption of Good Manufacture Practice (GMP)
- Insufficient fund to repair and maintenance of machinery and equipment
- Inadequate trained human resource to manage the laboratory animal
- Poor harmonization and standardization of vaccine production protocol in coordination with national and international laboratory

vii. Human Capacity Development

DLS has a provision of human capacity development in the veterinary service. A large number of veterinarians and para-veterinarians are nominated for higher study as well as in technical training every year. Due to ever-developing technology in the field of veterinary and livestock production, the technical staff must be oriented in recent development. Although NLSIP has the mandate to support human capacity development, there are some gaps observed as follow:

Capacity Gaps:

- Laboratory training on Vet. Pathology, Vet. Parasitology, Vet Microbiology, and Molecular biology are not adequate, and not based on a planned basis.
- Training on good manufacturing practices (GMP) to officers and technicians involved in vaccine production is not adequate.
- Inadequate training on the marketing of vaccines to officers and technicians
- Insufficient on minor repair and maintenance of NVPL equipment to the Technicians
- Inadequate training on quality testing of veterinary drugs, biological, antibiotic residue, and growth promoters to officers and technicians of VSRDL.
- Insufficient training on epidemiology planning disease profile system analysis

Insufficient training on sample collection, labeling, and dispatch to address these capacity gaps, the capacity development plan has been presented in detail in Annex Table 1.

5.3.2.2 Breeding Services

Pedigree and Performance Recording Scheme (PPRS) Preparatory Work for Genetic Improvement

The breeding program depends upon reliable recording under an existing production system. Performance recording is a necessary pre-requisite for effective decision making on the breeding policy. Growing demand for livestock products and technology change is radically affecting the structure of the livestock production sector. Livestock production in Nepal is characterized by small herd/ flock size, common sheared grazing, uncontrolled mating, and absence of pedigree and performance record. These characteristics limit the implementation of an effective genetic improvement program in the country.

Therefore, to increase the production and productivity of dairy animals and meat-producing animals, genetic improvement is of prime importance and PPRS is the basis of genetic improvement. In PPRS, production of superior proven bulls; and conservation and improvement of native cattle genetic resources are done through three fundamental activities, they are:

- a. Dairy animals should be identified and registered.
- b. The existing database system should be extended and strengthened
- c. There should be the recording of production traits either on a full or partial record basis.

Keeping proper records and good information are keys to good management and more profitable dairying. A National Progeny Testing Program (NPTP) is very important for continued genetic improvement in the dairy cattle population. NLSIP has a breed improvement program in livestock through PPRS, where NLBO would take lead responsibility for its management. Bulls identified with superior genetic merit are utilized by dairy producers and AI studs as sires of future dams and sires. There are some gaps in the PPRS preparatory work for Genetic Improvement

Capacity Gaps:

- Inadequate capacity of POs for animal identification, herd registration, data generation, record keeping, and reporting under PPRS

- Problems in timely supply of logistics for a dairy lab (e.g. Lacto scanner machine, and vials for milk sample, etc.)
- Inadequate capacity of POs in repair, maintenance, and handling Lacto scanner machine for milk analysis
- Inadequate inseminators (training to the para-vets, VAHWs)

Recommendations

1. A comprehensive livestock breeding policy is to be launched soon based on farmers' socio-economic capacities, as per the increased capacity of the nation considering the needs and requirements of livestock producers in the country for the next 25 years.
2. Genetic recording system need to adopted by the cattle breeding program soon.
3. Facilitate AI inseminator and train them for breeding purpose through AI tools, and also for improving the livestock production systems in the country.
4. Trained manpower (officials) to be trained with the know-how on using modern tools and techniques of livestock breeding.

i) Strengthening AI Service System and Network

Genetic improvement has been recommended as a means of increasing the productivity of dairy animals along with management. Artificial insemination (AI) is the most widespread and economical means of genetic improvement globally. It is for the selection of indigenous breeds or for crossbreeding with exotic breeds. However, the coverage of AI services in Nepal is very low and needs strengthening AI service system and network.

So, NLSIP will support the expansion of AI networks and AI service and also encourage private sector service providers in delivering AI service in partnership with POs focusing more on PPRS cluster communities.

Capacity Gaps:

- Inadequate number of AI inseminator in practice
- Low AI service coverage area due to inadequate number of AI centers
- Frequent transfer of trained government staff (Inseminator)
- Inadequate AI recording, follow-up, and reporting system
- Insufficient infrastructure and physical facilities (Vehicles, LN₂ container, LN₂ referee, AI gun, storeroom, etc.)
- Difficulty in a regular supply of LN₂ and frozen semen in the required quantity.
- High transport cost of LN₂,
- Inadequate and expensive supply of liquid nitrogen;
- All AI centers are not remunerative for private inseminator
- AI program is feasible only in road accessible areas
- All semen obtained from NLBO are from bulls selected based on phenotype, not from the bull mothers' performance recording.
- Low conception rate due to poor heat detection- mainly in buffalo, incorrect timing of AI, and poor hygiene
- Inadequate human capacity to deal with silent heat in buffalo
- Infertility and reproductive disorders in cattle and buffalo
- Insufficient refresher training for AI practitioners.
- Inadequate logistic support to field services to service providers.
- Low motivation to para-veterinarians to attract in a private inseminator.

Recommendations

AI Delivery:

At the moment, about 1100 inseminators (AI technicians) are available in Nepal. The recent livestock breeding strategy document prepared by the project for the Government of Nepal (final draft) suggest that the DLS may have to ensure additional 1900 AI technicians (Inseminators) by 2023/24 than the numbers of inseminators available in the country now, including both public and private sectors inseminators.

Likewise, we suggest adding about 500 AI technicians per annum to be trained by the project in collaboration with the MoALD for the next three to three years to meet the growing demand for AI technicians in the country. Then, rests to be trained by the DLS from other funding sources. These inseminators should be trained more from those districts with a high number of breedable animals and a medium extent of the AI coverage. That is, districts that have a high number of breedable animals and with medium AI coverage could be given high priority for AI expansion efforts (including training to technicians). Then, progressively those with medium to high breedable population but low AI coverage could be selected.

ii) Strengthening NLBO and Cattle Breeding Stations - Semen Processing Centers

There are three Livestock Breeding Centers for the collection, transportation, processing, and storage of semen in Nepal. They are:

1. Pokhara (Kaski): Semen production, processing (Cattle, Buffalo, Goat), and pig (warm semen)
2. Lahan (Siraha): Semen production and processing (Buffalo and cattle)
3. Gaughat (Banke): Semen storage and distribution

There is an increasing demand for AI in the country which needs additional units of bull service for semen production. To address this issue, NLSIP will work with NLBOs to increase the semen production more than a double dose of existing capacity (650,000 doses of frozen semen/year) and will also invest in strengthening semen storage and distribution system at the VH&LSEC level and beyond the AI centre at the community level. Standard operating procedures (SoP) and code of conduct will be developed and practiced for delivering breeding services. There are some gaps observed in AI systems as listed below.

Capacity Gaps:

- Inadequate trained manpower for production and processing of semen
- Insufficient volume of semen production
- Inadequate number of a bull for semen collection
- Inadequate and traditional infrastructure and physical facilities (building, bull sheds)
- Inadequate laboratory equipment and facilities
- Inadequate freezing facilities (both hardware and software) for the production and distribution of Semen.
- Poor electricity back up and inadequate of other support services.
- Inadequate facility for production and storage of LN₂
- Inadequate skill of officers to handle goat semen production and processing.
- Insufficient incentive schemes and accountability among the staff in service delivery of AIs.
- Inadequate infrastructure (cold chain supply chain) and trained skilled manpower for semen handling (collection, processing, storage and uses).

iii) Genetic Improvement of Goats - Strengthening Goat Breeding Centers

There is a big variation in the production parameter of goat in Nepal. Breeding bucks are selected based on phenotype performance, not based on genetic merit. There is an absence of performance recording of individual goat for genetic selection. Therefore, NLSIP will support in the establishment and operation of PPRS in goat to achieve significant genetic gain through selection from the existing goat populations. To this end, NLSIP will support the genetic improvement of goat in upgrading native breeds with exotic Boer breed through performance recording and evaluation of different Boer blood levels. The PPRS would be implemented mainly in government/NARC goat farms in the beginning. The followings are the four government/NARC goat farms, where PPRS would be implemented.

- a) Nucleus farm at Pokhara
- b) Goat Research Station at Bandipur
- c) Goat Genetic Resource Center at Budhitola, Kailali.
- d) Goat Farm at Chitlang

Once the PPRS is implemented in the government farm, elite commercial Boer goat farms interested in PPRS adoption would also be included in the PPRS program.

Mainly, Goat semen is produced in Pokhara. But there is a need for an additional unit for the processing of goat semen.

Capacity Gaps:

- Inadequate knowledge and skill in heat detection and AI in goat
- Breeding bucks are selected based on phenotype
- High cost of Boer breeding buck from outside the countries.
- Limited number of larger goat farms
- Limited number of insurance and tagging of goat for identification
- Unavailability of trained AI technician in goat.
- Chyangra goat farming is migratory systems and difficult to manage breeding
- Chyangra herders have very low knowledge of modern husbandry practices.
- Limited study on Chyangra goat in Nepal.

In order to address these capacity gaps, a capacity development plan has been detailed presented in Annex Table 1.

5.3.3 Animal Feed Base and Animal Feed Balancing

Feeds and Feeding Situation

Animal feeds and feedings are one of the major components of livestock farming. Livestock suffers from a lack of adequate nutrition, in particular during the winter. Even when the green fodders are available in the rainy season, the feed is not balanced. The use of supplements to enrich the feed is rare and inadequate. Consequently, animal production is low with seasonality in production. There are three distinct situations in the country.

- a. Annual feed shortage is about 20.56 percent,
- b. More than 90 percent of farmers are using feedstuff adapting their traditional knowledge in feeds and feed to their stock and
- c. Farmers are not receiving specialized service in animal feeds and feeding. One technician has to cover all aspects of services such as livestock management, health care, feeds and feeding with

general knowledge. This existing situation is demanding the need for specific training on feed production, preservation, and utilization.

Straw feeding is a common practice in Nepal, which has poor nutrient content that needs to be replaced by green forage for improving the productivity of the animal.

The project will supply all needed seeds and seedlings/saplings to the farmers. NLSIP will develop a Ration Balancing Program (RBP) and establish a national feed database.

Capacity Gaps:

The following are gaps observed under the theme of feed and feed management.

- i. Inadequate coordination with green grass and seed producers and the ultimate users or commercial farmers.
- ii. Lack of capacity in providing support to feed and fodder marketing with quality assurance.

There is a lack of specific technical know-how about the use of balanced ration to the animal to support the reproduction and productive requirement of the nutrients. There are different types of feedstuffs available in the locality such as (a) roughage (green and dry) and (b) concentrate (cereals and legumes) with a great variation on nutrient content. But the knowledge of the technicians on a ration balancing of the required nutrient to meet the requirement of the animal is not adequate. Efforts have been made to increase the feed production to the animal in the past, but the appropriate manpower on post-harvest preservation and utilization of feed material is limited in the country, hence the project should enhance the capacity of the technicians to deal with these issues.

Need of Capacity Development on Feeds and Feeding

Technology related to animal feeds and feeding in Nepal is available but they are scattered across several entities of the MoALD. Innovative technologies are generated by NARC and academic institutions such as AFU and IAAS. These technologies are not adequately adapted and disseminated by government extension agencies across the country, due to the poor linkage among various agencies dealing with livestock sector activities. Some dedicated projects on livestock development such as TLDP/ CLDP, KUBK, HIMALI have provided TOT to technicians and farmers on feed management, but the available numbers of technicians on the subjects are not able to cover the rural livestock farming population in the country. Details of these capacity gaps are included in the capacity development plan developed out of the study, which is presented in detail in Annex Table 1.

5.4 Social Safeguard Measures of the Project

The project (NLSIP) has a provision on the Environment, Social Safeguards, Food Quality Compliances, and Grievances Redressal with well explained Safeguard Implementation Monitoring Plan. These issues are important for ensuring the development of safe and sustainable livestock production and marketing systems in the country. The project has prepared a “Compliances and Grievances Redressal procedure and the guideline of the project 2075 BS (2019)” to manage and address some of the complaint and grievances, if emerges while implementing the project.

The expected sites of NLSIP sub-projects may have specific environmental, social, and cultural adverse impacts and which would trigger Environmental and Social Management Framework (ESMF) screening, as well. In this context, a safeguard framework document has been prepared by the project to ‘guide’ the planning, design, and construction elements of the project activities. Such a framework would help

in integrating and harmonizing the environment and social management principles at the various stages of sub-project preparation and execution.

The Environmental and Social Management Framework (ESMF) of the project is designed as a selection criterion of sub-project ensuring for the sustainable impact of the environment and social aspects of the project activities. The framework enables to assess extensively and prospectively, for each component, the environment and social impacts of the future activities of NLSIP to plan a project assessment grid as well as mitigation measures. The ESMF also allows to identify the risk associated with the various interventions of the project and to define mitigation measures to be implemented during project delivery.

Moreover, some of the selected capacity gaps on social safety measures of the livestock sector in the country and action points by the project to address them are summarized below.

Selected Capacity gaps:

- DLS/MOALD staffs have inadequate knowledge on environment and social issues related to livestock production, but they lack capacity on preparing the environment and social management plan of the production and management systems, taking value chain approach of the sector.
- Inadequate knowledge on livestock sector staffs of all the three tiers of the government about mitigation measures of social impacts associated with Chyangra production on transhumance¹³ system.
- MoALD/DLS as well as NLSP staffs involved in monitoring activities have inadequate knowledge on updated issues relate to regular and quarterly monitoring on ESMF compliance.
- NLSP staffs in PMU and DLSU have less than adequate capacity on environmental assessment, appraisal, and management, social safeguard related issues of the sub-projects.
- MoALD/DLS staffs have inadequate capacity for Social Assessment, Environmental Appraisal, and Management of sub-projects.
- Lack of effective communication strategy for addressing a clearer understanding of social problems in the sub-project area, especially in distance located districts (provinces).
- NLSIP stakeholders like field technicians, officials of PO's, farmers group, and cooperatives have a poor understanding of ESMF.
- Staff working in the veterinary laboratory have got less than adequate capacity for the proper disposal of the laboratory wastes.

Recommendations

To fulfill these gaps and implement the activities effectively, training (and with hand-holding sessions and case studies-based learning) to the officials and stakeholder is essential. Trainings includes environment and social issues related to livestock production, preparing an environment management plan, monitoring on ESMF compliance, environmental assessment, appraisal and management; social safeguard and issues of sub-projects; and so on. These issues also include Social Assessment, Appraisal, and Management of sub-projects, communication strategy, proper disposal of wastage, mitigation measures of social impacts associated with Chyangra production on transhumance system.

¹³ Transhumance is a type of pastoralism or nomadism, a seasonal movement of livestock between fixed summer and winter pastures. That is, the action or practice of moving livestock from one grazing ground to another in a seasonal cycle, typically to lowlands in winter and highlands in summer season. This is also a traditionally followed practiced for rearing Chyangra, Yak, and other animals in high land of high Himalayan regions for long time.

ore specifically, two sets of training can be planned by the project, they are: (1) Central level training to the policymaker (30 participants) and (2) State and local level (Municipality) officer training including the other key stakeholders (Chair of milk, meat and Pashmina coop representatives (30 participants), one in each DLSU location. As there is a provision of **Environmental and Social Specialists** in the project, he/she can lead such training to the both Central and Local levels. This is for effectively executing and monitoring the Environmental and Social Safeguard measure of the project guidelines ensuring effective implementation of project activities. The duration of the training should be of two days, with the curriculum focusing on following thematic coverage.

- (a) Ability to consult and communicate with the affected people.
- (b) Ability to alternate planning and design to avoid/minimize the adverse impact
- (c) Impact assessment and prediction measure to address the impact
- (d) Grievance hearing and management skills
- (e) to execute the action plan, and
- (f) monitoring and reporting to the immediate authorities i.e., Municipalities – Provinces-PMU-MoALD.

The major areas to be considered while conducting the training programs are also summarized details in Annex Table 3.

CHAPTER VI

CAPACITY NEED - PROJECT MANAGEMENT AND KNOWLEDGE GENERATION

6.1 Program Management and Implementation at Municipality and Ward Level

As per the Federalism based Constitution of Nepal, roles and functions of each of the governments under the three tier-based governance structures have been clearly described in the constitution itself. At the grassroots, the urban and rural municipalities are working as the representative of the government, and are working at the doorstep of the mass population.

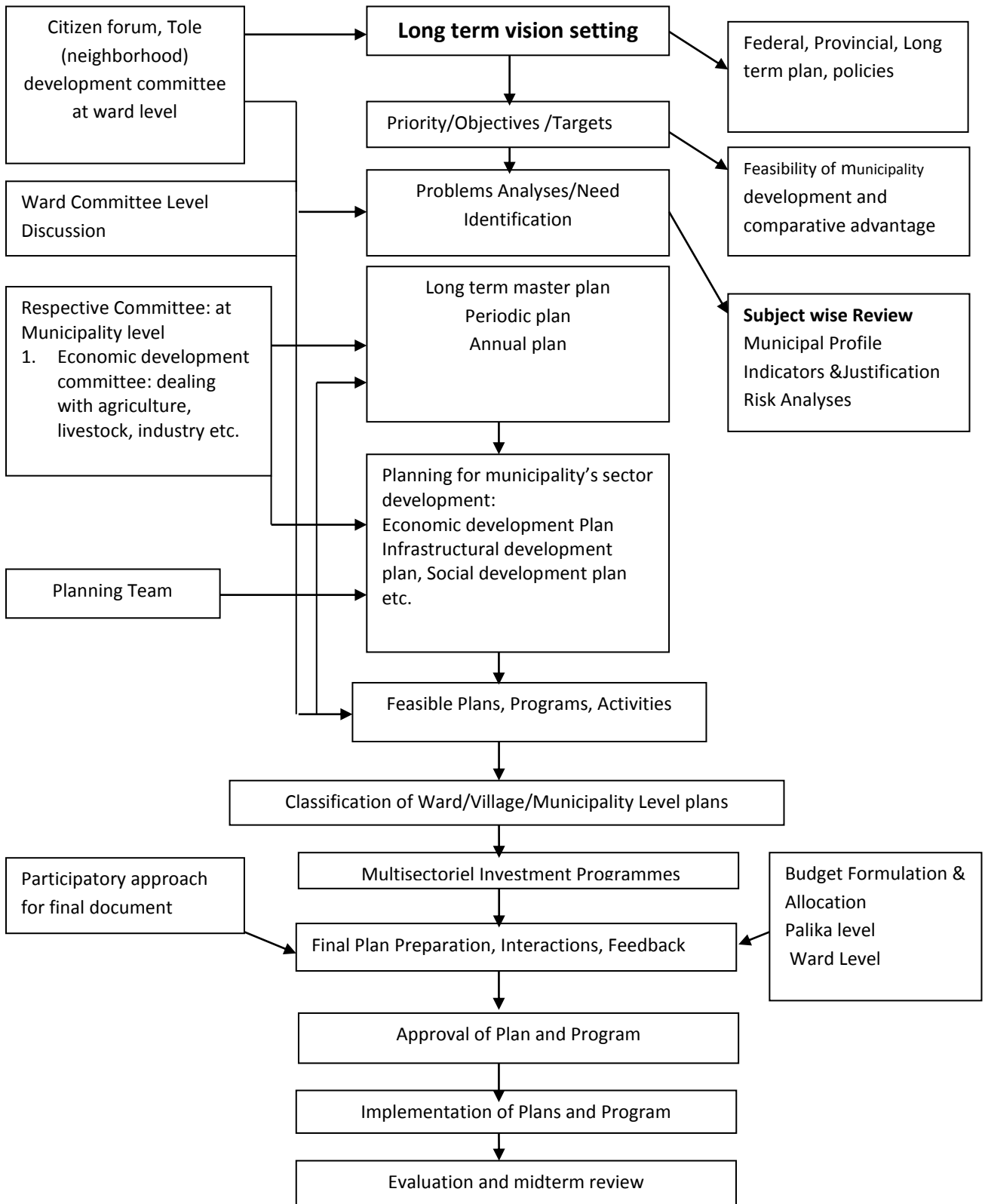
For the holistic development of people living in both urban and rural municipalities, project planning starts from the ward level '*Tole Bikas Samuha*' (or Toile Development Group –TDG) Ward level plans are prepared and forwarded through ward committee to a municipality, which is later approved by the municipality council meeting. The planning of agricultural developments that practices in each of the local government units are summarized in Figure 7.

Both municipalities and rural municipalities are responsible to prepare and implement periodic and annual plans for local development (**Local Government Operation Act 2074**). While preparing such plans, policy objectives, timeline, and processes of federal and provincial governments should be considered.

As specified in law (clause 12 of the Local Government Operation Act 2074), municipalities including rural municipalities, while assigning functions, duties, and powers to ward committee, a delegation of authority for planning, implementation, and monitoring is assured. Adopting a participatory planning approach at the ward level, people's need for slum and Toile level are collected and then prioritized and selected. Ward committees are responsible to form and operate the Toile Development Group (TDG) and the user's committee for the implementation and monitoring of the programs within the ward.

In principle, the program planning for agriculture and livestock development should be done demand-based and markets driven. Moreover, in practice, the process is not performed as per the spirit of rules and guidelines.

Figure 7: Flow chart of the Planning Process at Local Government Level (Municipality Level)



6.2 Role of VH & LSEC and Social Mobilizers in Planning and Monitoring

The VH & LSEC are responsible for the respective DLSUs. Each of them with support of social mobilizers and in close coordination with the municipal LSCs is responsible for:

1. Local-level planning and budgeting, implementation, monitoring and evaluation, and reporting to DLSU;
2. Guide the municipal LSC staff for on-the-spot technical support to project beneficiaries and coordinate for timely delivery of quality inputs and services;
3. Maintain a high degree of coordination at the municipal and district level;
4. Facilitate implementation of FFS and FBS;
5. Assist the Expert to document and transmit climate resilience practices developed by the project or other development partners to DLSU and PMU; and
6. Organize regular meetings of the district level dialogue platform:
 - (a) Build productive partnerships between the producers and buyers;
 - (b) Create a conducive environment for investment in the livestock sector, and
 - (c) Guide in coordination and service delivery.

DLSU has to advance the activity budget to Municipal level LSCs, and enhance their capacity

The Municipal-based Livestock Service Center (MLSC) across the project targeted districts (municipalities) are the grassroots agencies responsible for project planning, implementation, monitoring and evaluation, and reporting back to the PMU. Each of the MLSCs needs to get basic equipment and facilities (ICT -tablet or laptop from the project). This is for rapid transfer of data on livestock services across the districts and municipalities with the central agencies. .

CHAPTER VII

CAPACITY DEVELOPMENT PLAN

This chapter summarizes a Capacity Development Plan (CDP) developed for the NLSIP project, based on the results and findings discussed in earlier chapters of the report. The Capacity Development plan is developed based on critical assessment of the project activities and existing institutional and organization set up, functional performances, outcome achievement of the project, and the availability of various technical capacity and competency of the project staffs (and TA staffs assigned). The details are described in the earlier chapters. The capacity development plan of the project has been prepared taking into account of the major issues and activities raised and described in the Project Implementation Manual (PIM) of the project - NLSIP.

In summary, the comprehensive CDP of the NLSIP has been developed taking view-points, suggestions, and feedbacks of National Livestock Sector experts and key officials of MoALD, DLS and the NLSIP Project teams, including feedback and suggestions of the Technical Assistants team members, and other stakeholders of the project in the country. In fact, the CPD presented here has been taken as per the recent changes in the local, national, regional, and global context after the emergence of the COVID 19 pandemic – one of the worst disaster events in the economy and livelihood of the rural population globally. Moreover, the capacity development plan has been designed and adapted to respond to some of the burning issues that emerged in Nepal after the emergent of the COVID 19 pandemic globally, one of the worst external factors that has worst affected the country economy in the last 40-50 years of recent history.

The capacity development plans (and training activities) have been categorized by the participant categories so that the plan is easy to be adopted easily by the various units of the projects (PMU and DLSU) for implementation of the training program. A summary of the capacity development plan is presented in Table 19. The detailed descriptions of the training plans are in Annex Table 1.

In summing up, the total non-degree training program (short-term training) related costs proposed for the next three years of the project cycle are 4.28 million USD, out of that 3.58 million USD is allocated as a high priority category of short term-training and 0.70 million is for medium priority activities. Under the high priority category, the short-term training is proposed to be given to altogether 11,304 personnel within the three years of time-frame.

Likewise, under the category of academic training, a total of USD 0.6 million is proposed to provide academic training (MSc) to 22 personnel in the project period of the next three years, two personnel from each of the 12 different academic degree programs. Out of the total cost of USD 0.60 million for an academic degree, USD 0.40 million is allocated for high priority training (66%); and the remaining 33% of the academic costs are for the medium category of the academic degree program.

In Nepal, laboratory facilities and equipment (as well as animal health clinic facility) at the regulation level is far below the Biological Safety Levels -2 (BSL- 2) standard needed for ensuring/checking food quality of international trading of livestock animal and livestock products. Moreover, there is increasing greater demand from various stakeholders (Livestock farmers as well as Livestock entrepreneurs) that the public entities of MoALD/DLS provide new equipment, techniques, and technologies at their various

agencies (entities). This is to ensure that the Livestock and veterinary service available in the country are in line with new OIE guidelines.

Therefore, to enhance the capacity of the functioning of the livestock sector personnel, we have also included some of the critical equipment and machinery that are critical for the effective functioning of the livestock officials for effective delivery of the services to the livestock farmers (producers) in the country. Accordingly, the total cost proposed for purchasing critical machinery and equipment is USD 6.98 million, which includes also the equipment and machinery required for the effective delivery of the livestock services. Out of that, 47% is allocated for the high priority category and 53% of the machinery costs for the medium priority category. The proposed cost for machinery and equipment proposed here is reasonable considering various dimensions and scope and objectives of the project (NLSIP). The detailed item-wise break down of the capacity development plan (CDP) is presented in annex table 1, with about 12 pages of various item-wise trainings its description.

In fact, as per the changing institutional context, and with the changing dynamics of financial resources available to the project from the government and the bank, in the context of the post-pandemic era of COVID 19, the project management and MoALD can also change the priority level of each of line items, given the availability of the fund with the project, and other emerging priority of the government and the urgent and more pressing needs of the society. Therefore, we have provided a flexible and handy capacity development plan and training management tools to the project office, MoALD, and to the other partners can also adjust the line items and adjust the plan as per the changing context in the post-pandemic era of program intervention.

For example, at the moment, COVID 19 has brought several adverse impacts on the Nepalese livestock sector due to supply obstruction, in particular, disposal of the end products to the market, and disruption of regular supply chains of the necessary inputs for production and processing activities. The shock of the COVID 19 pandemic (and over 4 months of lockdown in the economy) has been transmitted to all subsectors of the livestock as dairy, poultry, pig, and goat. production, processing, and marketing. Thus, many smallholder farmers, agribusiness entrepreneurs, processing units, agriculture labor, and self-employed individuals involved in product collection and marketing activities are losing their income and job.

Moreover, after the global pandemic situation, employment opportunities abroad might be shrunk because of restrictions in economic activities, and a large chunk of Nepalese citizens may lose their foreign job and return to the homeland. This will trigger the problem of unemployment and food supply in the country. Obviously, to manage the post-COVID 19 problems of the economy, livestock is an important sub-sector that can provide immediate response to overcome unemployment and food supply problems of the country. For this, unemployed but interested farmer centered program needs to be designed so that it will motivate them to engage in livestock production and run agri-business enterprises at the home area and gradually addressing foreseen unemployment situation after the COVID-19 pandemic through discovering viable earning opportunities in the agri-business sector within the country.

Some emerging interventions in livestock sectors in response to the COVID-19 pandemic

To minimize the possible negative effect of pandemic COVID-19 in the value chain of dairy, goat, and Chyangra-pashmina, some activities like infrastructure development for milk and meat processing, establishment/strengthening of powder milk plant, support to existing dairy processing plants can be done to improve their efficiency in the processing of the milk and milk products at the locally and within the regional market. In addition, considering the farmers' pressing needs, the interventions can be done also through supplying various equipment and facilities like milk tanker, cold room, cream separator, homogenizer, pasteurizer, Chilling VAT, etc. Likewise, the project can also support to increase the number of milk collection centers in the country (and collection center of live animal of goat, and strengthening cold chain supply of goat meat) through the construction of building in Public Private Partnership (PPP) model.

Table 19: Summary of capacity development related training types of the related costs and number of participants

Summary of cost and number of participants						
Categories	Grand Total	Total No of Participants	Total of High Priority		Total of Medium Priority	
	Total Cost (In NRs. Lakh)		Total Cost (In NRs. Lakh)	Total No of Participants	Total Cost (in NRs. Lakh)	Total No of Participants
A. Training (short term)						
1. Farmers level	1,845	5,895	1,349	5,130	496	765
2. JT/ JTA level	2,359	3,755	2,239	3,255	120	500
3. Officers level	424	3,099	323	2,779	101	320
4. Senior Officer & management	80	210	30	30	50	180
Subtotal A	4,708	12,959	3,941	11,194	767	1,765
B. Academic Study Courses M.Sc. and Ph.D.)						
Academic Study Courses	600	22	400	14	200	8
Subtotal B	600	22	400	14	200	8
C. Machinery and Equipment						
Infrastructure	7,673	804	3,623	96	4,050	708
Subtotal C	7,673	804	3,623	96	4,050	708
Sum Total (A+B+C)	12,981	13,785	7,964	11,304	5,017	2,481
Total of all Capacity Development Activities by Major Types	Grand Total		Total of High Priority		Total of Medium Priority	
	In. Nepali Rs.	In USD	In Nepali Rs.	In. USD	In. Nepali Rs.	
Total of Training Courses (short-term)	470,800,000	4,280,000	394,100,000	3,582,727	76,700,000	697,273
Total of Academic Courses	60,000,000	545,455	40,000,000	363,636	20,000,000	181,818
Total of Machinery & Equipment	767,300,000	6,975,455	362,300,000	3,293,636	405,000,000	3,681,818
Total Expenditure	1,298,100,000	11,800,909	796,400,000	7,240,000	501,700,000	4,560,909
Value in NRs. and USD (@NRs. 110=1USD) as in 2019						

Table 20: Academic courses (M.Sc.) proposed to be supported by the NLSIP in the 2020- 2023-year cycle.

D. Capacity Development for Academic Study courses											
S. N	Rank	Name of Training	No. of Slots	Participants/ Slot	Duration, Years	FY 2020/21	FY 2021/22	FY 2022/23	Unit Costs NRs. Lakh	Total Cost NRs. Lakh	Participants
		Human capacity development (Academic)									
		M.S. (or M. Sc.) equivalent Program in any university in Nepal									
1.	A	Veterinary Medicine		2	2	1	1		25	50	2
2.	A	2a. Animal breeding (Semen quality analysis)		2	2	1	1		25	50	2
		2b. Animal breeding		2	2	1	1		25	50	2
3.	A	Animal Nutrition (Feeds and feeding) + Nutrition Lab		2	2	1	1		25	50	2
4.	A	Vet. Surgery		2	2	1	1		25	50	2
5.	A	Microbiology		2	2	1	1		25	50	2
6.	A	Veterinary epidemiology		2	2	1	1		25	50	2
7.	A	Veterinary pathology		2	2	1	1		25	50	2
8.	A	Agri-business/ agri. economics		4	2	2	2		25	100	2
9.	A	Meat technology		2	2	1	1		25	50	2
10.	A	Dairy technology		2	2	1	1		25	50	2
			0	24	22	12	12	0	275	600	22

Note: The costs estimates provided in the table are for the candidate in pursuing the M Sc. Degree from any university in Nepal

CHAPTER VIII**CONCLUSION AND LESSONS LEARNT**

Through implementing the activities of the NLSIP, the Government of Nepal aims to transform the stage of agriculture sectors from low-value livestock production systems to a stage of higher value livestock production and improved value chain of the livestock sector enterprises in the country. In other words, the interventions under NLSIP are expected to contribute in terms of bringing innovations in production, management, and value chain services of LS sector with higher potential to raise livestock farmer's income, especially through targeted interventions in the targeted livestock commodities of dairy, meat goat and Chyangra pashmina.

In this context, the overall objectives of this assignment of CENA study of NLSIP were to (i) Undertake a Capacity Enhancement Needs Assessment (CENA) of the NLSIP project and its partner's stakeholders (federal, provincial, and local governments) to implement NLSIP and (ii) to propose an appropriate capacity development plan, with the budget, and detailed break-downs on the activities and costing for better management of the CD activities by the project management.

Capacity Development Plans have been prepared for NLSIP after analyzing the existing gaps (in technical infrastructural and functional capacities) of the project staff and its key stakeholders linked with the project activities. This includes providing item-wise detailed information on non-academic training (or short-term training), academic and long-term training items, and critical equipment and machinery for better LS sector services to the farmers. The CD plans were developed after thoroughly analyzing the capacity gaps in each of the sectors, and after analyzing these capacity gaps, and after proper documenting them. Similarly, training and study visits (and observation visits) plans have been developed along with the estimation of the cost (tentative) to implement the various CD activities proposed here.

In this section, only a few important conclusions related points and the lessons learning out of the comprehensive study on capacity analysis in LS of Nepal have been summarized, details are already discussed in the main part of the report in the respective chapters earlier.

Similarly, livestock extension coverage at the field level is currently very poor, despite the present local level governance at the grass-root level. It has been realized only 20-23 percent of livestock farmers are receiving our organized services in the fields. Enhanced awareness among the farmers about the program, through in-country and international exposure visits, will certainly improve the situation¹⁴.

For Nepal to be benefited from joining trade bodies such as WTO, there is a need to make the livestock sector competitive and remove the constraints faced by the private sector. This requires considerable enhancement in the area of laboratory analysis and quality control in order to be able to comply with SPS measures. For this purpose, training and academic education on laboratory management, WTO/SPS, quality management, Diagnostics techniques, risk assessment & management should be the part of CENA report.

¹⁴ Due acknowledgement to Mr. Nar Bahadur Rajwar for providing these issues to the study team.

Major findings and lesson learning out of the study are summarized here that the project management can take further action and interventions to enhance the capacity and performance of the project and delivery of its outputs and outcomes for the benefit of the society at large.

Lesson Learning for Enhancing Activities of PMU and DLSU level

- a) Awareness about the programs and grant activities (and its various grants and supports) of the NLIP still have not been reached to all of the potential participants of the project partners (LS stakeholders and officials at the provincial and local level governments). Hence, project communication to be strengthened across the field sites.
- b) Few additional technical expertise (from TA Team) may be needed in the project team to handle and deliver the project desired outputs and outcomes, as indicated from our gap analysis on the professional (technical) capacity of that project (at PMU and DLSU) team. Especially, critical experts from the TA team to be included in the project team for function such as an expert in dealing on Value Chain Analysis and agri-business management of live animal and live products, an expert in dealing with business plan preparation, expert for sound demonstration of business credits and finance (insurance), grant management experts, Engineering Technical experts (water treatment, electrical equipment), apps developer, and so on. The project can also get these specialized technical through hiring a short-term consultant or procuring additional professionals through the existing TA team for a short time basis of the assignment.
- c) The project management team and the core team of the project employees at PMU and DLSU are qualified to implement the programs and activities effectively. However, considering need to adopt advanced and up to-dated methods of grant management for development of livestock services (LS) across the countries, a vigorous level of capacity enhancement activities (training and skill development programs) to be provided for the project staff at all levels, and to other major stakeholder partners and the producers' groups in the project cluster areas. Details are in the CD plan, attached as in annex section.
- d) Livestock sector services are a complex combination of art and science, which requires specialized know-how and skill in enterprise management. Hence, these issues should be addressed through scientific merit and authentication, as well as knowledge sharing in best practices and environmental social safeguard, and so on, and lesson-learning opportunities across the countries. Thus, a series of exposure study visits to a successful value chain in Nepal as well as in India, China, and South Korea have been proposed in the study. This should be initiated soon so that the project management team can be able to adapt and disseminate innovative project activities to the LS producers, and other project beneficiaries (farmers and others) across the countries.
- e) There remains three more Financial Years to complete the project (NLSIP) activities. Hence, enhancing the capacity, skill, and knowledgebase of the professional staff of the projects and its key stakeholders is strategically important. A more vigorous program of Capacity Development (CD) should be by the project soon, as discussed details in earlier sections, and in the Annex Table 1.
- f) The project should enhance the capacity of its core staff and stakeholders, thorough using more online services and e-based M & E and facilitation process, and to speed up the project work. This is more important in the context of a new era of post-pandemic of the COVID 19. Accordingly, this study has also proposed special thrusts for capacity development in terms of development to the technical staff of Livestock Services in terms of the application of specific apps and information sharing platform for M & E of the project activities across the clusters.
- g) For ease in extension services from the public entity to the innovative livestock producers and entrepreneur farmers, more priority can be given for the use of Video and information-based

information sharing and establishing tele call and video call center at the DLSU and at some of the targeted municipalities where large pockets of livestock productions are being taken now.

Adoption of ICT and New technology, and innovation and also responding to the COVID- 19 Pandemic adverse effects in the livestock production

- a) The LIMS is the heart of the project for sharing information across themes and interlinking both livestock disease diagnostic laboratory, as well as in production expansion, and productivity enhancement. Its adaptation, adoption, and customization activities should be sped up, digitalized, and operated at a faster pace of work for better coordination of livestock activities across the stakeholders.
- b) The Livestock service providers like agro vets, VAHW are less up-to-date with the new knowledge and know-how and efficient management practices. Hence, special training packages on efficient service management of livestock production and marketing to be given to them by competent professionals on regular basis. Since Para Vet and VAHW are more frequently approached by farmers for specialized services and management practices.
- c) Vet Service App, Animal Breeding (AI) Apps, and Ration Balancing APP should be developed to monitor the activity of animal health, feeding, and animal breeding.
- d) Considering the COVID 19 pandemic and health issues in transboundary trade of live animals and animal products, the existing infrastructure facility (technical persons, land and equipment and related infrastructure – animal holding yard, and animal feeding facilities, etc.) should be strengthened in each of the 24 check posts (quarantine) located at the border points and inside the country.
- e) Facilities and infrastructures (software and hardware) for the marketing of live animals and animal products should be addressed with each value chain of dairy, meat goat, and pashmina Chyangra, and help to establish a sustained way of market operations in these sectors in the country, through targeted interventions in the targeted sectors.

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ANNEXES

ANNEX NOTE 1: A BRIEF DESCRIPTION OF THE PROJECT (“NLSIP”) COMPONENTS AND ACTIVITIES

1. Overview of Objectives, Key Activities, Output and Outcomes of NLSIP

The NLSIP Project

The Nepal Livestock Sector Innovation Project (NLSIP) has been implemented by the Ministry of Agricultural and Livestock Development (MoALD), GoN, and with the loan support from The World Bank Group. The NLSIP project is aligned with the objectives of the Nepal Country Partnership Strategy (CPS-2014–2018) of the bank (83148-NP5). The bank strategy aims to reduce extreme poverty and to promote shared prosperity in Nepal by (i) increasing economic growth and competitiveness (pillar 1) and (ii) increasing inclusive growth and opportunities for shared prosperity (pillar 2).

Project Context

Through the NLSIP, the Government of Nepal would like to shift the agriculture sectors from low-value food crops towards higher-value agricultural innovations that have higher potential to raise farmer incomes by integrating smallholders in the profitable value chain of on-traditional higher value commodities (especially livestock commodities such as dairy, goat, and *Chyangra* related commodities). The NLSIP project, in this sense, contributes to achieving the overall objective of the CPS. The project is also consistent with the World Bank’s twin goals of ending extreme poverty and promoting shared prosperity.

Project Development Objectives (PDO)

The development objectives of the project are listed below.

1. The project development objectives are to increase productivity, enhance value addition, and improve the climate resilience of smallholder farms and agro-enterprises in selected livestock value-chains in Nepal.
2. In four clusters along the road corridor encompassing five newly established states, these clusters have a population of 12.4 million (6.4 million female) belonging to 28 districts, which correspond to 291 municipalities under the new structure. A cluster approach has been taken to maximize the efficiency of service delivery, produce impact at scale, and maximize synergies.
3. Two hundred thousand livestock producers (at least 45 percent female) from 291 municipalities. Also, about 500 small and medium-size agro-enterprises will benefit from production and postproduction value chain support.

Components of the Project

The Government of Nepal is implementing Nepal Livestock Sector Innovation Project. The project's objective is to “increase productivity, enhance value addition, and improve the climate resilience of smallholder farms and agro-enterprises in selected livestock value chains in Nepal”. The project consists of four components outputs; they are:

- a. Strengthening critical regulatory and institutional capacity,
- b. Promoting sector innovation and modernizing service delivery,
- c. Promoting smallholder inclusive value chains for selected livestock commodities, and,
- d. Project management and knowledge generation.

In other ways, the project is designed to invest in productive assets, livestock services, market infrastructure, capacity building, institutional and regulatory strengthening. In terms of the operational modality, the project plans to adopt innovative approaches for enhancing market linkage of targeted livestock sectors (dairy, goats, etc.), address responses to meet national demand of livestock and livestock products, value chain linkages, and so on. Likewise, it also aims to promote innovative and knowledge-based management for scaling up of research results and innovations, gender and youth inclusion, awareness on nutrition, reduction of greenhouse gas emissions, adapting climate-smart agriculture, private sector, and citizen engagement for the sustainability of the project.

The project has been implemented in 28 districts of five provinces (Provinces 1, 2, Bagmati, Gandaki, and 5) and covers 291 rural/municipalities. Two hundred thousand livestock producers will be the primary beneficiaries of the project. Also, about 500 small and medium-sized agro-enterprises will benefit from production and post-production value chain support .

Strengthening the capacity of the different actors involved in the livestock sector value chain (with a focus on dairy, goat, and Sheep, and *Chyangra* value chain) is critical for the successful implementation and sustenance of the livestock development in Nepal. To achieve this goal, identifying the key technical and functional capacity gaps and prioritize the key training needs and capacity development activities to develop efficient training plans and related other capacity enhancement activities in alignment with the project implementation manual (PIM) are imperative.

The project management unit (PMU) of the NSLIP is an implementing unit reporting its management function to the MoALD. The PMU performs day to day management, implementation of project activities including fiduciary, environmental, social safeguards, communication, monitoring, and evaluation (M&E), and reporting. It provides also guidance/assistance to decentralized level support units (DLSUs) in carrying out their assigned work activities. PMU is supported by four other DLSUs as cost centers one in each of the four provinces covering 291 rural/municipalities in the selected clusters.

2. Capacity of NLSIP to Deliver the Stated Outputs and Outcomes

As per the objective of the project and the status of the last fiscal year progress it can be observed that project personnel were engaged lately to implement the actual value chain objectives to get output in time. Although there is enough time to accelerate the program implementation and get better result outputs in the project. The technical HR allocated are some still lacking and must be filled with the sector requirements. There is a need for extra Technical HR and skilled persons in the field of different pillars of livestock sectors. This portion has been detailed in the HR development plan.

a. Adequacy of Manpower Allocation of the Project by Outputs

As reported in the project document the project has primarily support 200,000 farm families and 500 agro enterprises along with an innovative livestock management approach. There are about 54 technical human resources (THR) allocated to PMU and DLSUs and 112 social Mobilizers at the grass-root level. This HR is not enough to get coverage of all the beneficiaries at the question. The higher THR, each has to deal with about 3704 farmers and at grass root level it is 1786 farm families per Social Mobilizers. This indicates that each year from now about 1000 and 562 farm families should be incorporated by both higher THR and Mobilizers respectively. The capacity to deal with such a huge beneficiary has been a challenging job. It needs a highly motivated, skilled HR with an electronically based ICT system to perform as well as monitor the programs' activities in the project.

b. Adequacy of Infrastructures to Deliver the Outputs

The NLSIP had spelled out its output in PIM and has to deliver so many activities to get the real objectives of the project. The required infrastructures to support these attainable outputs are also very challenging. Now facilities of laboratory equipment, lab building, and machinery are not sufficient. The required machinery and equipment for animal breed improvement as well as for disease diagnostic and vaccine production is underscored. The present infrastructures are inadequate to obtain the desired output (CENA, Field survey 2020)

ANNEX NOTE 2: GLOSSARY OF TERMINOLOGY USED IN THIS REPORT

Mixed Methodology

Mixed methods research is a methodology for conducting **research** that involves collecting, analyzing, and integrating quantitative (e.g., experiments, surveys) and qualitative (e.g., focus groups, interviews) **research**.

Characteristics of Mixed Methods Research

- The analysis of both qualitative and quantitative data.
- The collection of both open and closed-ended data (qualitative and quantitative data) in response to the research questions.
- Persuasive and rigorous procedures for qualitative and quantitative methods.

Qualitative Research Approaches:

Qualitative research is a scientific method of observation to gather non-numerical data. The aim of a qualitative research project may vary with the disciplinary background, such as a psychologist seeking an in-depth understanding of human behavior and the reasons that govern such behavior.

Four different methods are used in qualitative research. The most common are interviews, focus group discussions, observational methods, and document analysis. Combining two or more data collections methods, for instance, interviews as well as focus groups ('data triangulation') enhances the credibility of the study.

Quantitative Research Approaches:

Quantitative methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques.

There are four main types of quantitative research designs: descriptive, correlational, quasi-experimental, and experimental. The differences between the four types primarily relate to the degree the researcher designs for control of the variables in the experiment.

Quantitative research focuses more on the ability to complete statistical analysis. With quantitative studies, each respondent is asked to respond to the same questions: Surveys and questionnaires are the most common technique for collecting quantitative data.

Key Informant Survey:

Within the context of survey research, *Key informant* refers to the person with whom an interview about a particular organization, social program, problem, or interest group is conducted. In a sense, the key informant is a proxy for her or his associates at the organization or group. Key informant interviews are in-depth interviews of a select (nonrandom) group of experts who are most knowledgeable of the organization or issue. They often are used as part of program evaluations and needs assessments, though they can also be used to supplement survey findings, particularly for the interpretation of survey results. Key informants are chosen not because they are in any way representative of the general population that may be affected by whatever issue is being studied.

The key informant survey is a method of obtaining data from persons whose professional and/or organizational roles imply they know specific characteristics of the population being studied as well as potential pathways and constraints for community change. Involving key informants in needs assessments often leads to initial community mobilization

Snowball Sampling

Snowball sampling is where research participants recruit other participants for a test or study. It is used where potential participants are hard to find. It's called snowball sampling because (in theory) once you have the ball rolling, it picks up more "snow" along the way and becomes larger and larger.

Snowball sampling is a special non-probability method used when the desired sample characteristic is rare.

In sociology, "snowball sampling" refers to a non-probability sampling technique (which includes purposive sampling) in which a researcher begins with a small population of known individuals and expands the sample by asking those initial participants to identify others that should participate in the study.

Mock Interview Exercises (mock trial)

The mock trial or interview exercise begins where an actual trial would begin, with a conflict or dispute that parties involved would be unable to resolve on their own. This mock trial will use general rules of evidence and procedure. There are generally two ways to conduct a mock trial. One way consists of rigid rules and carefully followed scripts. The other way allows for more flexibility and expanded creative freedom on behalf of the participants involved.

A mock interview helps us learn how to answer difficult questions, develop interview strategies, improve our communication skills, and reduce our stress before an actual job interview. During a mock interview, the interviewer may use a semi-structured **interview** format rather than asking a formal list of questions.

ANNEX NOTE 3: THREE MAJOR COMPONENTS OF CENA THAT ARE STUDIED IN THIS STUDY

The institutional level dimension of the capacity building indicates enabling environment or policy context of intervention, which deals more with policy issues to enable the implementation of the project, or context of the working environment. They also create an enabling environment with an appropriate legal framework. Thus, the institutional level analysis of the capacity building is more associated with Ministerial and/or Departmental levels organizations than at the lower level of government units.

In the same way, the organization level of assessment refers to strengthening the internal capacity to achieve goals and accomplish the mission, which focuses more on strengthening systems and work processes of an organization or a firm. In this study, the organizational level of analyses is more concerned with NLSIP's PMU, DLSU, different organizations (mainly; municipalities, livestock service providers at provincial and local levels) concerned with NLSIP implementation objective.

Similarly, at individual level assessment, within a given organization, the process of equipping individuals with a better understanding of the context of the functioning of the organization, skills of persons to join the group, and access to information knowledge and training that enables them to perform effectively.

These three levels of capacity also fluidly influence each other. For example, the strength of one person depends on, and/or, is determined by the strength of the others. At the heart of the driving force to achieve capacity is a set of two skills known as *functional and technical capacities*.

Functional capacities are essentially the management and interpersonal skills that allow for stakeholder negotiations, effective work plan development, efficient budget planning and allocation, timely implementation, monitoring and evaluation of staff, projects, program and service delivery. In the same way, Technical capacities are skills related to a given area of expertise and require specialized training to acquire.

An effective innovation system in the livestock sector requires a cadre of professionals with a specific skill mix. The new paradigms and the on-going transformation processes within the agricultural research and development system require a changed behavior of the change agents. To be relevant, any capacity strengthening activity should be geared towards some specific outcomes. These outcomes are tied to the skills and performance levels of the various actors in the innovation system. Capacity strengthening, therefore, should contribute to the overall performance of individuals, organizations, and society at large and should support the strategic directions of the broader developmental goals.

ANNEX NOTE 4: MAJOR FUNCTIONS OF MUNICIPALITIES

The local level of authority has provided tremendous functions and empowered by law and policy to perform the following. The major functions of municipalities, specified also in clause 11 of the Act are relevant to the livestock sector development at the local level includes:

1. Local-level policy, law, standards along with planning implementation, monitoring, evaluation. associated with agriculture and livestock production management, animal health
2. Livestock market-related information, market construction, small irrigation construction, training, technology promotion, technical support, agricultural equipment supply, and farmer capacity development program operation and regulation on agriculture and livestock farming.
3. Controlling epidemics and the effects of natural disasters on agriculture and livestock
4. Livestock treatment and healing service management
5. Preservation of agricultural environment and preservation and promotion of biodiversity
6. Development and management in animal genetic improvements
7. Promotion, development, and marketing of high-value agricultural products
8. Local-level grazing development and management
9. Quality regulation on animal fodder
10. Livestock related statistics management and information mechanism at the local level
11. Management and regulation of animal slaughterhouse and cold storage\
12. Other activities related to livestock farming and animal health

**ANNEX TABLE 1:
CAPACITY DEVELOPMENT PLAN AND ITEM-WISE COSTING OF TRAINING FOR PARTICIPANT TYPES**

Note: A=high priority for implementations by the project; and B= medium priority for Implementation by the project.

The ranking (and prioritization) has been done here considering to dynamics of changing patterns of the project and priority within the project and with MoALD and its other stakeholders.

S.N.	Rank	A. Capacity Development Plan for Farmers and Producers							Cost per slot (in Lakh NRs.)	Total Cost NRs. Lakh	Number of participants
		Name of Training	No. of Slots	Participants / slot	Duration (in Days per slot)	No of Slot of Training					
						FY 2020/21	FY 2021/22	FY 2022/23			
A1.	Support to Producers' Organizations (FARMERS)/Entrepreneurs										
1.	A	Farmer's training through FFS (TOT on cattle buffalo and Goat)	60	25	15	20	20	20	12	720	1500
2.	A	Orientation on benefits of livestock insurance and its process	8	25	3	4	2	2	5	40	200
3.	A	PO/Cooperative training in GAHP, GVP and food safety (1 day)	60	30	1	20	20	20	1	60	1800
4.		Milk Production and product diversification Training: one week: in coordination with DFTQC and DDC) 30 participants/slot.	2	30	7	1	1	-	7	14	60
5.	B	Bio-security to VC stakeholders	8	25	3	4	2	2	5	40	200
6.	A	LS services and Farm business record keeping (1 day)	10	25	1	4	4	2	1	10	250
7.	A	Development of business plans to PO & Farmers' Group (3 days)	10	20	3	5	5		3	30	200
8.	A	Livestock Sector Financing issues and constraints with Banks and Micro-Finance Institutions	4	20	3	2	2		3	12	80
A2	Training on food safety (1 week)										
	Milk (Dairy):										
1.	A	Hygienic Milk Production Practices at farm level	15	20	7	8	4	3	12	180	300

Meat (Goat):											
2.	A	Fodder Seed Production and Fodder Nursery Training (One in each DLSU)	4	30	7	2	2		12	48	120
3.	A	Forage and Fodder (perennial) Nursery business training)	4	30	3	2	2		3	12	120
4.	A	Silo agri-business and technology management	2	25	3	2			7	14	50
5.	A	Silo/TMR (Total Mixed Rations) – innovative farmer	1	25	3	1			7	7	25
6.	A	Innovative Farmers visit to selected sites in India (1 bus training trip to UP, Haryana & Punjab states of India).	1	40	10	1			25	25	40
Intensive hand-holding Training											
1.	B	Tree Fodder and Forage Nursery Entrepreneurs – nursery management agro-business (through FFS)	4	20	7	1	2	1	12	48	80
2.	B	Hand-holding Training on Silage and Hay Preservation Demos (through FPS)	4	20	3	2	1	1	3	12	80
3.	B	Entrepreneurs Training (7 days) on Commercial buffalo farming	8	20	7	2	4	2	7	56	160
4.	A	Cheesemaking training to dairy cooperatives and small dairies	1	20	7		1		12	12	20
A3.	Study Visit to Farmers & POs/Entrepreneurs										
1.	A	Observation/exposure visits of Coop or producers' groups Successful model (200) – In country visits	4	45	10	1	1	1	25	100	180
2.	B	Forage production and management Observation Tour (10 days)	2	30	10	1	1		25	50	60
3.	B	Farm Operation & Management and Dairy Industries Dev.& Management observation Tour, 15 days Haryana, Punjab, UP and Annand Coop (Buffalo and Cattle), India	2	30	10	1		1	40	80	60
4.	B	Pashmina production, processing and marketing Study Observation, 12 days, Pashmina production (outside Nepal)	2	25	10		1	1	45	90	50

5.	B	Goat production System Observation and Live Meat Goat Marketing and Slaughterhouse Operation visit 15 days (Northern states, India)	3	25	10	1	1	1	40	120	75
6.	A	In-country exposure visits of members of dialogue platforms	2	30	10	1		1	15	30	60
7.	A	Low-cost nutrient-dense Ration management (Feed, Forage,) for Cattle and Goat (7 days)	3	25	7	2	1		7	21	75
8.	A	Low-cost nutrient-dense management (Feed, Forage,) for Chyangra (7 days)	2	25	7	1	1		7	14	50
Total			226	685	167	89	78	58	341	1845	5895

B. Capacity Development for Para vet (JT_JTA) and VAHW

S.N.	Rank	Name of Training	No. of Slots	Participants per slot	Duration, Days	No. of Slot of Trainings			Unit Cost, NRs Lakh	Total Cost NRs. Lakh	No. of Participants
						FY 2020/21	FY 2021/22	FY 2022/23			
1.	A	Training on AI	125	12	15	38	46	42	12	1500	1500
2.	A	Master trainers of FFS (Goat, Dairy, Pig, Poultry)	15	25	15	7	8	0	12	180	375
3.	A	Technicians: Pasture and Animal Nutrition Management	10	25	7	5	5	0	7	70	250
4.	A	Alpine pasture and Livestock Management Training	2	20	7	2	0	0	7	14	40
Enhancing disease surveillance and prevention											
1.	A	Field epidemiology training level I (15 persons/cohort) 2 weeks duration	6	15	15	4	2	0	12	72	90
2.	A	Field epidemiology training level II (15persons/cohort) 2 weeks duration	8	15	15	4	4	0	12	96	120
3.	A	Training to operate the BSL1 and 2+ laboratory (3 day)	5	20	3	3	2	0	3	15	100
Training for livestock service providers/Agro vet											
1.	B	(a). Agro- vet (veterinary medicine shops, feed retail sellers, chicks retail seller, forage seeds suppliers, and liquid Nitrogen supplier if any at agro to vet level) (3 days)	10	20	3	8	2		3	30	200
2.	B	(b). Private AI inseminators (cattle, buffalo) (2 weeks)	10	20	15	5	5		3	30	200
3.	B	(c). Private AI inseminators (Goat + Chyangra (AI inseminators on Goat including Chyangra)	5	20	15	2	3		12	60	100
Training on food safety (1 week)											
a) Milk (Dairy):											
1.	A	Hygienic milk production, processing, and Storage	10	15	7	5	5		7	70	150
b) Meat (Goat):											

2.	A	Hygienic meat goat production; Hygienic meat slaughtering (butchers), and Transportation, and storage	10	15	7	5	5		7	70	150
3.	A	Training to municipal level field animal health technicians on sample collection and dispatch-3days (20 per batch)	4	20	3	3	1		3	12	80
Training on disease surveillance. & prevention											
1.	A	Control and Prevention of major diseases and pests on, cattle, buffalo, and Goat (Para-vet)	10	20	7	2	8		7	70	200
2.	A	Refresher Vet. Training 7 days (1 per municipality)	10	20	7	5	5		7	70	200
Total			240	282	141	98	101	42	114	2359	3755

C. Capacity Development for Officer level											
S.N.	Rank	Name of Training	No. of Slots	Participants per slot	Duration, Days	No of Slot of Training			Unit Cost (NRs Lakh)	Total Cost NRs. Lakh	Participants
						FY 2020/21	FY 2021/22	FY 2022/23			
1.	A	Short term AI Training	5	20	7	3	2		7	35	100
2.	A	Ration balancing	10	20	7	5	5		7	70	200
3.	A	Training on LIMS system use-budget to share data with Government another data management system (LMIS)	10	20	3	5	5		3	30	200
4.	B	Trainings on PPRS and semen quality (In LDO Pokhara and Lahan: 2 weeks)	1	15	15	1	0		12	12	15
5.	B	Trainings on PPRS and semen quality (Outside of Nepal - in India 2 weeks)	1	15	15		1		50	50	15
Promoting Inclusive Value Chains for Selected Livestock Commodities											
1.	A	Value chain information platform (Market, Practices, finance, CC technologies, POs)	1	25	2	1	0		5	5	25
2.	A	Seminars, platform meetings to maintain dialogue MG awareness	42	20	2	15	15	12	2	84	840
3.	A	Training on Technical expertise to evaluate the business plan and follow up assistance three days	3	100	3	3	0		3	9	300
4.	A	Food safety awareness campaign for farmers, processors, and consumers	4	75	3	3	1		3	12	300
5.	A	Strengthening food quality monitoring in the field	4	75	3	3	1		3	12	300
Community-level planning and budgeting											
1.	A	Training on Community level planning and budgeting in 28 districts	8	28	2	4	4		2	16	224
2.	A	Training on Community level planning and budgeting in 2 mountain districts (2 sites per district)	2	24	2	1	1		2	4	48
Project planning											

1.	B	Orientation on DLSU level annual planning and budgeting workshops	3	20	2	1	1	1	2	6	60
2.	B	Orientation on PMU level annual planning and budgeting workshop	1	20	2	1	0	1	3	3	20
Innovative – Capacity Development Initiatives											
1.	A	TOT on Knowledge Management Training	2	30	3	1	1		3	6	60
2.	B	Project Management Training for 4 in charge from DLSU)	3	30	3	2	1		3	9	90
3.	A	Procurement Management Training for 4 in charge from DLSU)	3	30	3	2	1		3	9	90
4.	B	Financial Management of Donor Funded Project to DLSU staffs	3	30	3	2	1		3	9	90
Strengthening Training and Extension Services											
1.	A	Training on disease surveillance.	2	20	7	1	1		7	14	40
Grant recipients and staff training											
1.	B	Training on (a) GoN and WB safeguard policies; (b) EMP and ECOP preparation; and (c) on EIA	2	15	7	1	1		6	12	30
2.	A	M&E training to DLSU staff including Veterinary Hospital and Livestock Specialist Service Centers (3 days)	2	20	7	1	1		6	12	40
3.	A	GRs training in technical and financial management	1	12	3	1	0		5	5	12
Total			121	664	104	57	43	14	140	424	3099

D. Capacity Development Training Senior Officers and Senior Management											
S.N.	Rank	Name of Training	No. of Slots	Participants/ Slot	Duration, Days	FY 2020/21	FY 2021/22	FY 2022/23	Unit Costs Rs Lakh	Total Cost NRs. Lakh	Participants
1.	A	Training of manpower for Provincial Diagnostic Lab 2 week	2	15	15		1	1	15	30	30
2.	B	National workshops -Two: (a) Development Grant Management in South Asia Context (practices and lesson learning in South Asia); (b) Best Practices and Innovations in LS production and Management. in South Asia	2	90		1		1	25	50	180

E. Capacity Development for Academic Study courses											
S.N.	Rank	Name of Training	No. of Slots	Participants/ Slot	Duration, Years	FY 2020/21	FY 2021/22	FY 2022/23	Unit Costs Rs Lakh	Total Cost NRs. Lakh	Participants
Human capacity development (Academic)											
M.S. (or M. Sc.) equivalent Program in any university in Nepal											
1.	A	Veterinary Medicine		2	2	1	1		25	50	2
2.	A	a. Animal breeding (Semen quality analysis)		2	2	1	1		25	50	2
		b. Animal breeding		2	2	1	1		25	50	2
3.	A	Animal Nutrition (Feeds and feeding) + Nutrition Lab		2	2	1	1		25	50	2
4.	A	Vet. Surgery		2	2	1	1		25	50	2
5.	A	Microbiology		2	2	1	1		25	50	2
6.	A	Veterinary epidemiology		2	2	1	1		25	50	2
7.	A	Veterinary pathology		2	2	1	1		25	50	2
8.	A	Agri-business/ agri. economics		4	2	2	2		25	100	2
9.	A	Meat technology		2	2	1	1		25	50	2
10.	A	Dairy technology		2	2	1	1		25	50	2
			0	24	22	12	12	0	275	600	22

F. Capacity Development of different Institutions (Infrastructures; Machinery/Equipment)											
S.N.	Rank	Name of Training	No. of Units	Types	No. of Units	FY 2020/21	FY 2021/22	FY 2022/23	Unit Cost in NRs Lakh	Total Cost NRs. Lakh	No. of Units
Capacity enhancement of laboratories and Border quarantine Check-posts											
Strengthening Vaccine production lab (NVPL)											
1.	A	Strengthening quality control testing of PPR vaccine	1	Equipment	1		1		200	200	1
2.	M	Quality improvement of HS&BQ combined vaccine by filtration technology	1	Machinery	1		1		100	100	1
3.	M	FMD vaccine production lab establishment	1	Machinery	1		1		750	750	1
4.	A	Production of Enterotoxaemia vaccine	1	Infrastructure	1		1		100	100	1
5.	A	Classical swine fever vaccine production by cell culture technology	1	Machinery	1		1		100	100	1
6.	M	Strengthening rabies vaccine production (Virus titration in the International Unit (IU) of cell culture rabies vaccine)	1	Machinery	1		1		100	100	1
Strengthening VSDRL											
1.	A	Strengthening of Antibiotic testing program	1	Equipment	1		1		80	80	1
2.	A	Strengthening of vaccine testing program	1	Equipment	1		1		90	90	1
3.	A	Accreditation of VSDRL	1	Equipment	1	1			200	200	1
Strengthening CVL											
1.	A	Operation and maintenance of BSL2+ lab by providing training	15	Machinery	15	15			20	300	15
2.	A	Accreditation of CVL with the addition of equipment, improving management and proficiency testing	1	Machinery	1		1		200	200	1
3.	A	Enhancing capacity for the diagnosis of viral diseases	1	Machinery	1	1			100	100	1
Strengthening FMD&TADs and other Diseases controlling Labs											

1.	A	Capacity enhancement of the lab by adding equipment and technology for the quick detection and typing of FMD and TADS	3	Machinery	1	1	3		200	600	3
New provincial disease diagnostic lab											
1.	M	Construction of BSL2 lab	2	Machinery	1	1			350	700	2
2.	M	Procurement of equipment for BSL2 lab	2	Machinery	1	1			500	1000	2
Strengthening of Animal Quarantine & border check-posts											
1.	A	Capacity enhancement for checking animal products feed ingredient,	4	Machinery	4	4			60	240	4
2.	A	Strengthening -inspection facility (holding yards, lab),	4	Machinery	4	4			60	240	4
3.	A	Strengthening patrolling activity (Use of CCTV)	4	Machinery	4		4		12	48	4
4.	A	Installation of Lab information management system (LIMS) in diagnostic labs (CVL, NADIL, FMD TADs)- budget to be shared from LMIS Package (+ 7 provincial lab)	12	Machinery	12	12			10	120	12
5.	A	Strengthening semen banks - storage and distribution facilities (Manang and Mustang not included)	15	Infrastructure	15	15			35	525	15
6.	B	Establishment of new AI centers	1	Infrastructure	1	1			700	700	1
7.	A	Strengthening existing AI centers at VHLSEC and Municipal level	25	Infrastructure	25	25			10	250	25
8.	B	AI subsidy in kinds (Refry + liquid nitrogen container and AI logistics to Private service providers	700	Machinery equipment	200	250	250		1	700	700
9.	A	Biosecurity facilities at breeding stations	4	Infrastructure	4	4			50	200	4
10.	A	Genetic improvement of goats - strengthening goat breeding centers (NARC/GRS Bandipur, and Budhitola)	2	Infrastructure	2	2			15	30	2
Total			804		300	337	266			7673	804

ANNEX TABLE 2:

SUMMARY OF MAJOR FINDING ON CAPACITY DEVELOPMENT OF THE STUDY USING CENA FRAMEWORK - MATRIX FORMAT (NLSIP)

Key areas for Capacity Development based on Needs Assessment with capacity Issues ranking

Dimension of Capacity	Existing Capacity	Capacity Gap	Proposed Intervention Measures	Capacity Priority Ranking H=High M=Medium L=Low	Timeline
I. Enabling Environment					
1.1 Policy and Strategy Context	<ul style="list-style-type: none"> ADS (2015-2030), National Agriculture Policy and 15th Plan favoring LS development Commitment of government for the sectoral development Project financing agreement, and Project appraisal document, Project implementation manual, annual budget, and planning, etc. Policy and strategy for NLSIP implementation A couple of acts, rules guidelines facilitating the project implementation 	<ul style="list-style-type: none"> Fresh Livestock Policy and Master Plan have not developed yet Most of the policies and acts are not updated according to the new strategic context Implementation of the policy is not effectively done 	<ul style="list-style-type: none"> Formulating the livestock policy and master plan Updating the old policies and acts Strengthening implementation, monitoring, and evaluation activities Managing effective linkages and co-ordination of project with other stakeholders Resetting strategies and action plan to obtain targeted achievement within the next three years 	M	1.5 Year
1.2 Management Accountability	<ul style="list-style-type: none"> Federal, province, and local level institutions are made accountable for livestock service development Project steering and technical committee for overall direction, implementation, monitoring PMU in a lead role with DLSU and other stakeholders to implement the LS development programs Plan of action and system of budget authorization Grievance handling mechanism at three levels 	<ul style="list-style-type: none"> The federal system, i.e. central, province, and local governments is not well set up. Being a new system province and local governments are not functioning well. Problems regarding the adjustment of employees at provinces and local level have not been solved yet. Project activities are not in implementation according to the timeline. 	<ul style="list-style-type: none"> Setting up the province and local levels in a proper way Solving the problems of adjustment of employees and fulfill the shortage of staff Enactment of federal civil service act Managing mutual coordination and linkage mechanism avoiding duplication of works Implementing project activities in time initiating capacity enhancement plan 	H	Continues

Dimension of Capacity	Existing Capacity	Capacity Gap	Proposed Intervention Measures	Capacity Priority Ranking H=High M=Medium L=Low	Timeline
1.3. Human Resource (Technical Staff)	<ul style="list-style-type: none"> • Technical staffs have been deployment by the government at PMU, DLSUs, and municipalities. They include Officers level Assistant level, and Others 	<ul style="list-style-type: none"> • Inadequate technical staff in municipalities & rural municipalities • Problem to retain staff in project and LS service centers • Uncertainty in the capacity development opportunity 	<ul style="list-style-type: none"> • Increasing and training frontline technical service providers • Ensuring capacity development opportunity • Implementing the policy of reward and punishment 	H	Immediately and continue
1.4 Co-ordination with other stakeholders	<ul style="list-style-type: none"> • A large number of stakeholders are linked from provinces, municipality, and rural municipality: <ul style="list-style-type: none"> - Non-governmental organization - Agro-enterprises - Farmer's organization - District co-operatives - Banks Financial Institutions and • Others 	<ul style="list-style-type: none"> • Lack of strong co-ordination within different stakeholders for the livestock development • LMIS is not developed yet as a linking mechanism 	<ul style="list-style-type: none"> • Creating an environment of close co-ordination among responsible partners • Coordination and collaboration skills in working staff • Implementation of LMIS with focus on capacity development initiatives 	H	Continues
II. Organizational Level					
2.1 Process Implementation Ability	<ul style="list-style-type: none"> • Acts and regulations of government guiding performance • Planning and budget activity of MoALD including LMBIS • Top-down process of project implementation 	<ul style="list-style-type: none"> • Process implementation ability is not so strong • Lengthy and complicated process to be followed for implementation • Province and local level organizations doing work in their own way 	<ul style="list-style-type: none"> • Making a strong process implementation plan through capacity development • Managing simplified procedures and strong coordination among responsible units • Maintaining a good culture • Capacity enhancement through training initiative strategies 	M	Continues

Dimension of Capacity	Existing Capacity	Capacity Gap	Proposed Intervention Measures	Capacity Priority Ranking H=High M=Medium L=Low	Timeline
2.2 Financial Management	<ul style="list-style-type: none"> LMBIS system of fund management Commitment of adequate fund by donor Grants providing scheme Finance staff supplied by FCGO Grant up to 50 % of the subproject cost MOU with BFIs for financing 	<ul style="list-style-type: none"> Donor fund spending procedure involves many complications causing a delay in implementation Finance section staff transferred frequently Grant manual not yet finalized BFIs not showing their interest and readiness for co-financing 	<ul style="list-style-type: none"> Enhancing capabilities of finance staff and making provision with FCGO to retain them Monitoring the financial management practice at the national and project level Finalizing grant manual and expedite the grant distribution for LS development Educating and increasing awareness to farmers and other beneficiaries 	M	Continues
2.4 Human Resource (Technical Skill)					
a) Support to producer's organizations	<ul style="list-style-type: none"> Cooperative/association/ societies are registered under cooperative act 1992. Cooperatives are fully owned and managed by local communities Livestock farmer's groups on different commodity are registered in MLSCs 	<ul style="list-style-type: none"> Poor knowledge of group dynamics Weak in leadership development Insufficient technical know-how on production and processing technology Poor capacity to make a business plan Weak risk-bearing capacity on running a business Unaware of the livestock insurance and process about taking a loan from the B & FIs POs are not aware of bio-security 	<ul style="list-style-type: none"> Providing adequate training on group dynamics, and leadership development Enhancing knowledge and skills in quality production and processing Improving the capacity to make a good business plan and run the agribusiness Training POs about insurance and banking process through the orientation program Training PO's leaders on TOT on FFS on good management practices of Cattle, Goats, and Chyangra 	H	Continuous
b) Strengthening livestock Service Center	<ul style="list-style-type: none"> Every municipality have one LSC In urban municipalities: LSCs: officer level staff provides veterinary service. In rural municipalities LSCs: JT level staff provides veterinary service. 	<ul style="list-style-type: none"> Insufficient technical and skilled manpower Inadequate physical facilities (building, clinical shed with Travis), primary veterinary laboratory, and clinical instruments Poor coordination with related organizations for One Health Approach and food safety. Monitoring and evaluation of ICT System not well developed 	<ul style="list-style-type: none"> Managing a required number of technical human resources and upgrade their skills through training Arranging officer level staff to provide technical services in all MLSCs Improving adequate physical facilities including laboratory and required tools, equipment, and reagents Adequate supply of veterinary drugs and vaccines Developing better coordination with public health, wildlife, and other related 	H	Continuous.

Dimension of Capacity	Existing Capacity	Capacity Gap	Proposed Intervention Measures	Capacity Priority Ranking H=High M=Medium L=Low	Timeline
			<p>line agencies to implement one health approach</p> <ul style="list-style-type: none"> Developing better coordination, communication, and collaboration between LSCs and DFTQC to assure food safety (livestock products) Establishing ITC based M & E and reporting system 		
c). Strengthening Animal Quarantine and Border Check Posts	At present 8 animal quarantine offices and 24 animal quarantine check posts and are safeguarding the country against the entry of infectious animal diseases.	<ul style="list-style-type: none"> Insufficient facility of holding yard in quarantine check posts Poor facility of disease investigation and diagnosis at quarantine check posts Insufficient supply of laboratory equipment, reagents, chemicals, and diagnostic kits Poor linkage with Provincial Vet. Laboratories and reference laboratories. Insufficient transport facility (vehicle) for patrolling 	<ul style="list-style-type: none"> Developing facility of holding yard in quarantine check posts Improving facility of disease investigation and diagnosis at quarantine check posts Regular and adequate supply of laboratory-related materials Developing a strong linkage with the Provincial Vet. Laboratories and reference laboratories Provision of transport facility (vehicle) for patrolling 	H	Continuous.
d) Strengthening Disease control program	<ul style="list-style-type: none"> Nationwide vaccination program for controlling the FMD and PPR in a planned manner. Production of PPR vaccine in NVPL 	<ul style="list-style-type: none"> Inadequate veterinary technicians (Para-vet) in the government sector. Inadequate logistic support (e.g. Vehicle, syringe, needle, cool box, etc.) Inadequate provision of an emergency fund Poor coordination with local government Insufficient availability of vaccines against major diseases (PPR/ FMD) Poor facilities to maintain the cold chain for vaccines Poor practice on zero-surveillance of the vaccinated animal No effective communication for disease control 	<ul style="list-style-type: none"> Involving private veterinary technicians in the disease control program Assuring a sufficient supply of logistic supports Managing an adequate quantity of vaccine for disease control Developing a facility to maintain a cold chain for the vaccine. Ensuring strong coordination with the local government Developing practice for zero-surveillance of the vaccinated animal Improving effective communication for disease control Teaching farmers to adopt biosecurity measures on their farms 	H	Continuous.

Dimension of Capacity	Existing Capacity	Capacity Gap	Proposed Intervention Measures	Capacity Priority Ranking H=High M=Medium L=Low	Timeline
		<ul style="list-style-type: none"> Poor recording and reporting of diseases control information Poor adoption of bio-security measures by the livestock farmers. Absence of planning and implementation of the Livestock Emergency Preparedness program. 	<ul style="list-style-type: none"> Providing training to NVPL technical staff on vaccine production technology Supporting NVPL for repair and maintenance of equipment Supporting to prepare guidelines for planning and implementation of the Livestock Emergency Preparedness program 		
e). Strengthening AI service system and Network	<ul style="list-style-type: none"> AI centers are running through government, community (CLBC), and private sector. Total number of AI centers: 949 Total number of insemination (F.Y. 2015/16): 493133 Total number of inseminator /AI center: 520 Total number of insemination: /Inseminator: 451 Based on NLBO's report, the Conception rate in cattle is 55.85% and the buffalo is 47.64%. 	<ul style="list-style-type: none"> Inadequate number of AI inseminator in practice Low AI service coverage area due to inadequate number of AI centers Frequent transfer of trained government staff (Inseminator) Inadequate AI recording, follow-up, and reporting Insufficient infrastructure and physical facilities (Vehicles, LN2 container, LN2 referee, AI gun, storeroom, etc.) Difficulty in a regular supply of LN2 and semen in the required quantity All AI centers are not remunerative for private inseminator. All semen obtained from NLBO are from bulls selected based on phenotype only. Low conception rate due to poor heat detection, incorrect timing of AI, and poor hygiene Infertility and reproductive disorders in cattle and buffalo Inadequate logistic support to field services to service providers Low motivation to para-veterinarians to attract in a private inseminator 	<ul style="list-style-type: none"> Provide AI training to JT/JTA in government service as well as to private para-vets and VAHWs Increasing the number of AI centers in potential areas Making policy provision of retention of government staff (inseminator) for at least five years in the same service center Developing infrastructure and ensure the supply of physical facilities like LN2 container, LN2 referee, AI gun, etc. Providing refresher training to the AI inseminators Making a program of animal infertility camp to treat animals with reproductive disorders Providing semen of a good genetic quality bull 	H	Continuous.

Dimension of Capacity	Existing Capacity	Capacity Gap	Proposed Intervention Measures	Capacity Priority Ranking H=High M=Medium L=Low	Timeline
f). Strengthening NLBO and cattle breeding stations - Semen processing centers	<ul style="list-style-type: none"> • Three Livestock Breeding centers for collection, transportation, processing, and storage of Semen in Nepal. They are Pokhara: Semen production, processing (Cattle, Buffalo, Goat), and pig (warm semen) Lahan: Semen production and processing (Buffalo and cattle) Nepalganj: Semen storage and distribution 	<ul style="list-style-type: none"> • Inadequate trained manpower for production and processing of semen • Insufficient volume of semen production • Inadequate number of bulls for semen collection • Not timely replacement of breeding bull • Inadequate and traditional infrastructure and physical facilities (building, bull sheds) • Inadequate laboratory equipment and facilities • Inadequate Semen freezing facilities • Inadequate Semen filling, labeling, and storage facilities • Inadequate facility for semen production and distribution • Inadequate facility for ensuring Bio-security measures • Inadequate Vehicles for semen distribution • Inadequate access to Laboratory reagents and chemicals • Poor Electricity back up • Insufficient LN2 production • Inadequate facility for LN2 storage • Inadequate Skill to handle goat semen production and processing to officers • Inadequate infrastructure (cold chain supply chain) and trained skilled human resource for semen handling 	<ul style="list-style-type: none"> • Training human resources for the production and processing of semen • Increasing the number of elite bulls for semen production • Ensuring good infrastructure and physical facilities (building, bull shed) • Ensuring adequate laboratory equipment, chemicals, reagents, and freezing facilities • Improving facilities for ensuring bio-security measures • Increasing LN2 in sufficient quantity and develop adequate storage facilities • Providing goat semen production and processing training to officers 	M	Continuous
g) Animal feed base and animal feed balancing	<ul style="list-style-type: none"> • Livestock suffers from nutrition, particularly during the winter season. There are three distinct situations in the country: • Animal feed shortage is about 	<ul style="list-style-type: none"> • Weak coordination with green grass and seed producers and the ultimate users or commercial farmers • No quality assurance in feeds and fodder marketing 	<ul style="list-style-type: none"> • Developing coordination and linkage between green grass and seed producers and commercial farmers • Assuring the quality of feeds and fodder • Teaching farmers of POs about the 	H	Continuous.

Dimension of Capacity	Existing Capacity	Capacity Gap	Proposed Intervention Measures	Capacity Priority Ranking H=High M=Medium L=Low	Timeline
	<p>20.56%.</p> <ul style="list-style-type: none"> • More than 90 percent of farmers are using feedstuff adapting their traditional knowledge • Farmers are not receiving specialized service in animal feeds and feeding. 	<ul style="list-style-type: none"> • Low level of technical knowledge about the use of balanced ration to the animal to support the reproduction and productive requirement of the nutrients 	<p>benefits of using a balanced ration for their animals</p>		
h) Strengthening the dairy sector	<ul style="list-style-type: none"> • Accounts for 60% of livestock output. • Annual demand increasing by 8-9% • Annual per capita availability: 72 liters • No of dairy cooperatives: 1800 • Daily milk production: 62.5 million liters • Milk marketing through the formal sector: 15% • Milk marketing through informal sector: 35% • Buffalo and cow milk contribution 65% and 35% respectively. • Jersey, Holstein Friesian, and Cross are improved cattle breeds in Nepal. • Murrah and their cross are the improved buffalo breeds in Nepal. 	<p>In the production sector</p> <ul style="list-style-type: none"> • Breed improvement and forage-based dairy farming • One-time milk collection • Insurance and veterinary service inaccessible in the majority of production points • Seasonal fluctuation in milk production • Commercial and modern farming system slow • High cost of production due to concentrate based production • Inadequate improved and high yielding breeds and feed availability • Slow pace of commercialization <p>In the Marketing sector:</p> <ul style="list-style-type: none"> • Unable to develop a cold chain system • Production of quality milk as per market demand • Limited domestic consumption of processed milk due to inadequate extension and awareness • Limited product diversification of milk and milk products 	<ul style="list-style-type: none"> • Promoting breed improvement and forage-based dairy farming to reduce the cost of production • Promoting two times milking through increasing the number of milk chilling centers • Increasing coverage of veterinary service and insurance service in the production areas • Improving effective breeding patterns and improve feed and nutrition to reduce seasonal fluctuation in milk production • Promoting farmers to increase the number of commercial dairy farms • Orienting farmers for hygienic milk production • Supporting the milk marketing sector to develop a cold chain system • Need campaigning to increase domestic consumption of processed milk • Training farmers/entrepreneurs for diversification of milk products 	M	Continuous
i) Chyangra goat promotion	<ul style="list-style-type: none"> • Sheep and Goat Development Program was implemented in Mustang in the cooperation of FAO in 1975. • Farmers' groups and committees are 	<ul style="list-style-type: none"> • Slow growth due to shortage of feed. • Low bio-mass production in the pasture land • Loss of animal due to predators. • Poor housing management 	<ul style="list-style-type: none"> • Improving pasture land by removing weeds and undesirable plants • Supporting in better housing management • WAHW training to the local person to provide animal treatment service 	H	Continuous.

Dimension of Capacity	Existing Capacity	Capacity Gap	Proposed Intervention Measures	Capacity Priority Ranking H=High M=Medium L=Low	Timeline
	already formed.	<ul style="list-style-type: none"> • Problem in the treatment of sick animals • Inbreeding problem • Poor knowledge of pashmina wool harvesting 	<ul style="list-style-type: none"> • Supporting VAHW with equipment and veterinary drugs • Managing irrigation in the pasture land • Pond construction in different areas for drinking water • Bridging construction in the small streams in the migratory route of Chyangra • Providing a good quality tent to the house for the herdsman 		
2.5 Information management and flow of mechanism	<ul style="list-style-type: none"> • Use of telephone, mobile phones, and internet service • Plan to execute Livestock Management Information System (LMIS) • Tablet distributed for communicating to each municipality at the project area 	<ul style="list-style-type: none"> • No efficiency in communication with the province and local level • No ICT software used to connect all stakeholders • LMIS has not yet fully established 	<ul style="list-style-type: none"> • Prompt development of ICT software and create infrastructure in all levels • Enhancing IT skills and use of ICT tools 	M	Continues
2.6. Existing Infrastructure	<ul style="list-style-type: none"> • Project office at Harihar Bhawan, Lalitpur. • Four cluster level DLSUs at provinces • Service Centers, labs • Use of technology and facilities 	<ul style="list-style-type: none"> • Infrastructure being not sufficient, building, lab equipment, machinery not sufficient to deliver service • Limited office space 	Improving the Infrastructure and furnish facilities	H	Continuous
III. Individual Level					
3.1 Job Specific skills and experience	<ul style="list-style-type: none"> • Positions approved and fulfilled is as for requirement in PMU and DLSU • Most staff have appropriate qualifications as per their role • LS technicians in all municipalities 	<ul style="list-style-type: none"> • Local-level staff have not sufficient technical knowledge and skill • Uncertain capacity development opportunity • Lack of computer skills 	Mapping staff skill and enhance capabilities at all levels	M	

Dimension of Capacity	Existing Capacity	Capacity Gap	Proposed Intervention Measures	Capacity Priority Ranking H=High M=Medium L=Low	Timeline
3.2 Professional development and opportunity	<ul style="list-style-type: none"> Staff development and opportunity as per MoALD criteria Have to strictly follow: Civil Service Law, Agricultural Service Group Operational Rules etc. 	<ul style="list-style-type: none"> No ensured promotion, career development opportunity No value of reward and punishment Career path for staff is not predictable 	<ul style="list-style-type: none"> Ensuring promotion and career development opportunity Providing adequate trainings for capacity development Implementing the policy of the right person in the right place Promoting the policy of reward and punishment in practice 	M	Continues
3.3 Use and ability of ICT at the workplace	<ul style="list-style-type: none"> LMBIS is in operation LMIS is under construction 	<ul style="list-style-type: none"> Non-availability of all required information Lack of disease monitoring tools M&E system is not functional as required 	<ul style="list-style-type: none"> Using of the ICT system in field-level offices Strengthening the M & E system 	M	1-2 Years
3.4 Motivational Incentive at Workplace	<ul style="list-style-type: none"> Motivational aspects determined as per civil service rule Dedicated staff and technical back support from experts 	<ul style="list-style-type: none"> Uncertain capacity development opportunity; and no additional incentive to technical staff No staff morale Lack of training and development facility 	<ul style="list-style-type: none"> A clear framework for capacity development Career development plan and additional incentives Providing training and exposure visit 	H	1-2 Years

**ANNEX TABLE 3:
KEY ENVIRONMENTAL AND SOCIAL SAFEGUARD MEASURE TO BE CONSIDERED WHILE
CONDUCTING THE TRAINING**

S.N.	Safeguard Measure	Dairy and Meat processing	Dairy and Goat production
1.	Structure sites not to be in the landslide-prone area	√	√
2.	Controlled forest grazing (stall feeding)		√
3.	Construction of isolation box for sick animals		√
4.	Construction of manure/compost/urinal pits		√
5.	Construction of biogas plant	√	√
6.	Safety guard against chaff cutter /silage crusher		√
7.	Use of bio-pesticide/organic fertilizer		√
8.	Use of dead animal body disposal pit		√
9.	Dipping tank to be away from water bodies with a soak pit and adequate fencing to keep human beings and animals away from the tank.		√
10.	Use of drip irrigation (water conservation)		√
11.	Construction of solid waste pit (gut fills, hair, hooves, bones, etc.)	√	
12.	Construction of wastewater treatment pits	√	
13.	If GI sheet roofing, use of transparent sheet for natural light	√	√
14.	Adequate ventilation	√	√
15.	Use of appropriate personal protective equipment (PPE) such as gloves, masks, eye glasses, safety boots, and other PPEs as per nature of work	√	
16.	Biosecurity measures applied	√	√
17.	Use of wind turbine ventilator for the exhaust of foul air from the processing unit or shed/pen	√	√
18.	Construction of covered drainage	√	√
19.	Flat skirting of walls of processing units	√	
20.	Replacement of power generator with solar	√	√
21.	Separate clean toilets separate for men and women	√	√
22.	No use of labour under the age of 16	√	√

Source: Adapted from PIM report of NLSIP (2018)- Annex 5.5. (b): Key Environmental and Social Safeguard Measures.

ANNEX NOTE 5:

LIVESTOCK SECTOR CAPACITY DEVELOPMENT INITIATIVES OF PREVIOUS LS PROJECTS

In the recent past, three Megaprojects have been implemented with a component of the capacity development of Livestock sectors. Hence, the capacity development related activities implemented under these projects are summarized below.

1. Livestock Development Projects (LDP) started during 2038/39 BS, its 2nd LDP, and then its 3rd LDP, which ended with Community Livestock Development Project (CLDP-2063). The first mega project assisted in i) Infrastructure, ii) Human Resource Development, and iii) Technical equipment (AI, milk collection sets, milk chilling equipment, milk delivery vans, and tankers, etc.);
2. PACT project (2013-2018) having the major components of i) Agriculture and rural business development, ii) Support for sanitary and phytosanitary facilities, (iii) Food quality management, iv) Dairy and Meat value chain, v) Project management, monitoring, and evaluation, and vi) Climate-friendly and environmental consideration was implemented. PACT focused on infrastructure development rather than human resource capacity development. The PCR Report (PACT, Oct. 2018) pointed out that Grants to individual producers should be discouraged in Nepal, as there is more elite capture on it, and rather, the emphasis is needed to accessible, easy, timely, and interest-subsidized credit to small farmers and entrepreneurs. Similarly, the evaluation report has suggested financing the limited value chain products only instead of a shopping list of a large number of agricultural goods and services; and
3. High Mountain Agribusiness and Livelihood Improvement (HIMALI) Project, funded by the Asian Development Bank (ADB). Its Project Preparation for Technical Assistance (PPTA) document was completed in December 2012 proposed, which suggested several capacity development activities for LS institutions in Nepal as well. The project was consistent with the poverty reduction and gender strategies of the GON. HIMALI project did not focus on infrastructure development as well as human resource capacity development. This project insists on productivity enhancement in rural high mountain belt crops and livestock. These lessons learned from the PACT project as well as HIMALI project has been a value-addition in NLSIP formulation as well as on its implementation

ANNEX NOTE 6: CHECKLIST AND QUESTIONNAIRES SET USE FOR SURVEY IN THIS STUDY

Checklist-1:	Institutional Assessment of CENA- Central Level
Checklist-1 (A):	PMU of NLSIP
Checklist-1 (B):	PMU of NLSIP (Individual Level – KIS)
Checklist-1 (C):	MOALD (Institutional Assessment)
Checklist-1 (D):	Department of Livestock Services (DLS)
Checklist-1 (E):	KIS for Institutional of Department of Food Technology and Quality Control (DFTQC)
Checklist-1 (E1):	DFTQC (Individual Level – KIS)
Checklist-2	Key Interviews Survey (KIS) at Central Level
Checklist-2 (A):	Key Informant Survey for Bank
Checklist-2 (B):	KIS Guidelines for Insurance
Checklist-2 (C):	KIS Guidelines for NABIC
Checklist-2 (D):	KIS with Head of the Livestock Training Division
Checklist-2 (E):	KIS with Key persons of the veterinary organization (Facilitator Organization/Agro-Vet)
Checklist-3:	Institutional Capacity Assessment for Province Level
Checklist-3 (A):	CENA of DLSU
Checklist-3 (B):	CENA of (Individual Level – KIS) for individual assessment (province/local level) All Livestock Sectors
Checklist-3 (C):	Province Level Ministry (Livestock Sector)
Checklist-3 (D):	CENA of District Level Vet. Hospital and Livestock Service Expert Center (DLVHEC)
Checklist (3E):	CENA of Palika Level (Municipalities)-Livestock Service Center/Unit
Checklist-3 (F):	KIS based institution assessment with entrepreneur
Checklist-3 (G):	KIS Checklist with Head of the Livestock Training Division
Checklist-4:	CENA of Other related institutions (District Level)
Checklist-4 (A1):	Focus Group Discussion (FGD) at DCC
Checklist-4 (A2):	Dialogue Platform/Focus Group Discussion (FGD)
Checklist-4 (B):	KIS for Bank
Checklist-4 (C):	KIS for Insurance
Checklist-5:	Other agencies at Palika Level
Checklist-5 (A):	KIS for Bank and Insurance
Checklist-5 (B):	Veterinary Service Provider
Checklist-6:	Other vital organization/person/agencies
Checklist-6 (A):	Series of discussion with the Team Leader and Consultants with other Technical Team
Checklist-6 (B):	Discussion with World Bank
Checklist-6 (C):	Discussion with the Secretary of MOALD and Head of DOLD



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