



Government of Nepal

Ministry Of Agriculture and Livestock Development

Project IMPLEMENTATION Manual

Nepal Livestock Sector Innovation Project
(IDA Credit Number 6149-NP)

March 2019

ABBREVIATIONS

ABD	Animal Breeding Division
ADS	Agriculture Development Strategy
AEC	Agro-enterprise Centre of FNCCI
AFSP	Agriculture and Food Security Project
AFU	Agriculture and Forestry University
AHRD	Animal Health Research Division
AI	Artificial Insemination
AMR	Anti-microbial Resistance
AWPB	Annual Work Plan and Budget
BFI	Banks and Financial Institutions
BW	Body Weight
CCI	Chamber of Commerce and Industry
CDCAN	Central Dairy Cooperative Association of Nepal
CENA	Capacity Enhancement Needs Assessment
CHP	Clean and Hygienic Practices
CLBC	Community Livestock Breeding Centre
CPG	Cooperatives and Producer Groups
cSOE	Cumulative Statement of Expenditure
CVL	Central Veterinary Laboratory
DA	Designated Account
DDC	Dairy Development Corporation
DFO	District Forest Office
DFTQC	Department of Food Technology and Quality Control
DIA	Dairy Industries Association of Nepal
DLS	Department of Livestock Services
DLSO	District Livestock Services Office
DLSU	Decentralized Level Support Unit
DM	Dry Matter
DoHS	Department of Health Services
DP	Dialogue Platform
DPR	Detailed Project Report
DTCO	District Treasury Controller's Office
ECOP	Environmental Code of Practices
EHS	Environment and Health Safeguards
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan

ESMF	Environment and Social Management Framework
EU	European Union
FA	Financing Agreement
FAO	Food and Agriculture Organization
FBS	Farmer Business School
FCCGO	Financial Comptroller General Office
FFS	Farmer Field School
FM	Financial Management
FMD	Foot-and-mouth disease
FNCCI	Federation of Nepalese Chamber of Commerce and Industry
FPIC	Free Prior Informed Consultations
GA	Grant Applicant
GAHP	Good Animal Husbandry Practices
GAV	Good Veterinary Practices
GF-TADS	Global Framework for the Progressive Control of Trans-boundary Animal Diseases
GHG	Green House Gas
GMC	Grant Management Committee
GMP	Good Manufacturing Practices
GOM	Grant Operating Manual
GoN	Government of Nepal
GR	Grant Recipient
GRC	Grievance Redressing Committee
GRM	Grievance Redressing Mechanism
GRS	Goat Research Station
Ha	Hectare
HACCP	Hazard Analysis and Critical Control Points
HF	Holstein Friesian
HH	Households
HPAI	Highly Pathogenic Avian Influenza
ICAR	International Committee for Animal Recording
ICRR	Implementation Completion Result Report
ICT	Information Communication Technology
IDA	International Development Association
IEC	Information, Education and Communication
IEE	Initial Environmental Examination
IFC	International Finance Corporation
IFSP	Improved Seeds for Farmer Programme
IP	Indigenous Population

IPR	Implementation Progress Reports
IPSP	Intensive Production Support Program
IUFR	Interim Unaudited Financial Report
JT	Junior Technician
JTA	Junior Technical Assistant
KPI	Key Performance Indicator
LMBIS	Line Ministry Budgetary Information System
LMIS	Livestock Management Information System
LMP	Livestock Master Plan
LN ₂	Liquid Nitrogen
LPAI	Low Pathogenic Avian Influenza
LSIPT	Livestock Sector Investment and Policy Toolkit
M&E	Monitoring and Evaluation
MG	Matching Grant
MIS	Management Information System
MLSC	Municipal Livestock Service Centers
MoALD	Ministry of Agriculture and Livestock Development
MoF	Ministry of Finance
MoF&E	Ministry of Forestry and Environment
MoFA&GA	Ministry of Federal Affairs and General Administration
MoH	Ministry of Health
MoU	Memorandum of Understanding
MSc	Master of Science
MT	Metric Ton
NABIC	Nepal Agribusiness Incubation Centre
NADIL	National Avian Disease Investigation Laboratory
NAFSP	Nepal Agriculture and Food Security Project
NARC	Nepal Agricultural Research Council
NARDF	National Agricultural Research and Development Fund
NGO	Non-governmental Organization
NLBO	National Livestock Breeding Office
NLSIP	Nepal Livestock Innovation Project
NMDP	Nepal Agriculture Market Development Project
NPC	National Planning Commission
NPC	National Planning Commission
NRs	Nepali Rupees
NVC	Nepal Veterinary Council
OAG	Office of Auditor General
OIE	World Organization for Animal Health
OH	One Health

OHWG	One Health Working Group
PACT	Project for Agriculture Commercialization and Trade
PAD	Project Appraisal Document
PAN	Permanent Account Number
PCN	Project Concept Note
PCR	Project Completion Report
PDO	Project Development Objectives
PETS	Pashmina Enhancement and Trade Support
Ph.D.	Doctor of Philosophy
PIM	Project Implementation Manual
PMAT	PPR Monitoring and Assessment Tool
PMIS	Project Management Information System
PMU	Project Management Unit
PO	Producer (Farmer) Organization
PP	Productive Partnership
PPA	Project Preparation Advance
PPP	Public Private Partnership
PPR	<i>Peste des Petits Ruminants</i>
PPR-GCES	PPR-Global Control and Eradication Strategy
PPRS	Pedigree and Performance Recording Scheme
PSC	Project Steering Committee
PVS	Performance of Veterinary Services
QBS	Quality Based Selection
QCBS	Quality and Cost Based Selection
RAP	Resettlement Action Plan
SAARC	South Asian Association for Regional Cooperation
SDR	Special Drawing Rights
SM	Social Mobilizer
SME	Small and Medium Enterprises
SNF	Solids-not-fat
SOE	Statement of Expenditure
SOP	Standard Operating Procedures
SP	Sub-project
SPS	Sanitary and Phyto-sanitary
TA	Technical Assistance
TAG	Technical Advisory Group
TBT	Technical Barriers to Trade
TCC	Technical Coordination Committee
TCP	Technical Cooperation Programme of FAO
TIP	Trade and Investment Programme of EU

TMR	Total Mixed Ration
TOR	Terms of Reference
TOT	Training of Trainers
TSA	Treasury Single Account
USD	United States Dollar
VAHW	Village Animal Health Worker
VAT	Value Added Tax
VC	Value Chain
VCDP	Vulnerable Community Development Plan
VHLSSC	Veterinary Hospital and Livestock Services Specialist Centre
VPH	Veterinary Public Health
VS	Veterinary Services
WB	World Bank
WEAI	Women Empowerment in Agricultural Index
WHO	World Health Organization
WTO	World Trade Organization

Project Area

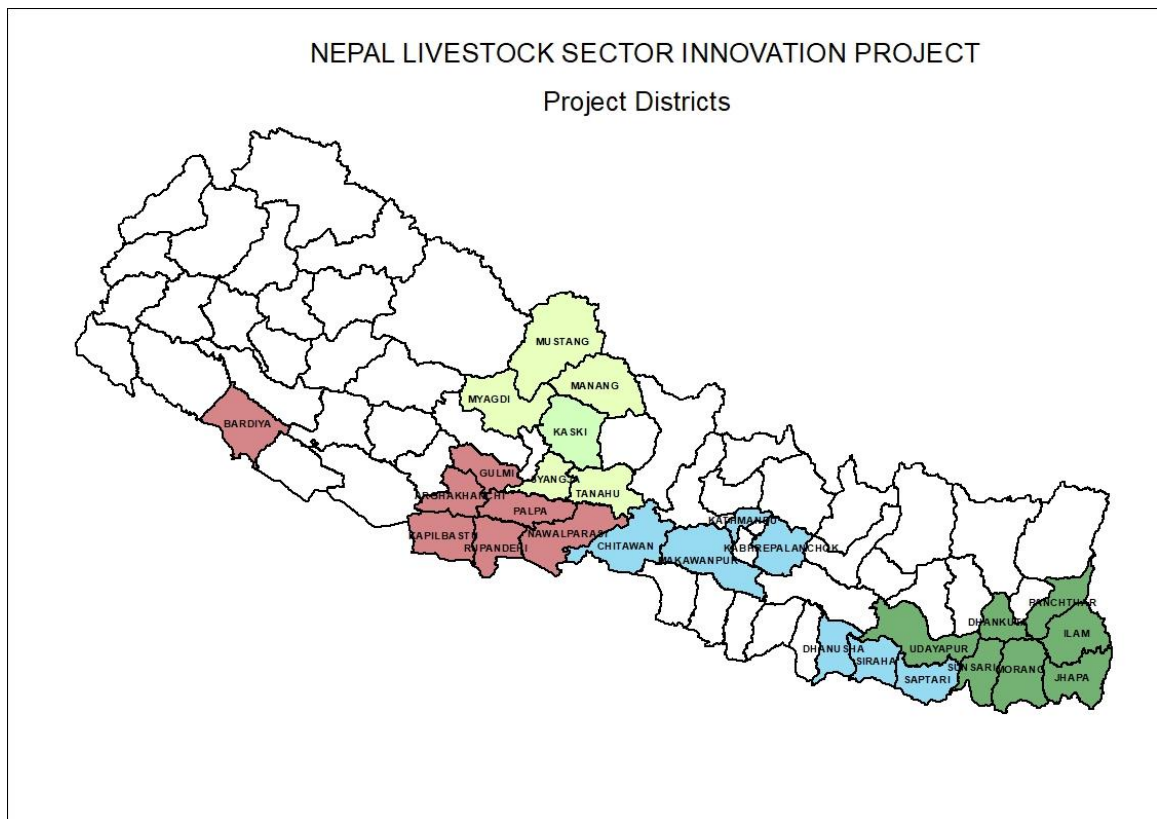


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SECTION I: PROJECT DESCRIPTION

1.1 Project Development Objectives and Components

1. The Project Development Objectives (PDO) of the Nepal Livestock Sector Innovation Project (NLSIP) are to increase productivity, enhance value addition, and improve climate resilience of smallholder farms and agro-enterprises in selected livestock value-chains in Nepal. The Project has four components: (A) Strengthening Critical Regulatory and Institutional Capacity; (B) Promoting Sector Innovation and Modernizing Service Delivery; (C) Promoting Inclusive Value Chains for Selected Livestock Commodities; and (D) Project Management and Knowledge Generation. The project is well aligned with the four strategic pillars (governance, productivity, commercialization and competitiveness) of the ADS, thus supporting the country's priorities and draws on the findings and recommendations from the Performance of Veterinary Services (PVS) pathway reports of the Veterinary Sector of Nepal. The project will be implemented across the mountains, hills and the terai plains in four clusters along the road corridor encompassing five newly established States.

1.2 Project Area and Beneficiaries

2. The project will work in 291 municipalities of 28 districts¹. These clusters have a population of 12.4 million (6.4 million female) belonging to an estimated 291 Municipalities. A cluster approach has been taken to maximize the efficiency of service delivery, produce impact at scale and maximize synergies. The primary beneficiaries will be at least 200,000 livestock producers (at least 45% women) and 500 small and medium-size agro-entrepreneurs.

1.3 Key Performance Indicators (KPI)

3. **KPI -1** – Productivity of targeted livestock commodities (milk and milk products, goat meat, Chyangra fiber) measured through percentage increase of average (i) milk production per cow/buffalo; (ii) off take rate expressed as carcass weight for goats, and (iii) increase in Chyangra fiber (cashmere) production.
4. **KPI -2** – Increased sales of value-added products in targeted value chains: measured through increase in production output processed and marketed in the dairy, goat meat and Chyangra cashmere value chains.
5. **KPI -3** –Farmers adopting climate smart agricultural technology (of which 45% female) measured by the number of target farmers, including female farmers, adopting improved practices and technologies promoted by the project. The corporate results indicator will be measured as adopting improved agricultural technology in livestock sector.
6. **KPI -4** – Farmers reached with agricultural assets or services (of which 45% female) measured through the cumulative number of farmers, including the share of women, and small and medium entrepreneurs, who benefit from one or more project activities. The corporate results indicator will be measured as farmers reached with agriculture assets or services.

1.4 Project Period

7. The Project became effective on 28 February 2018 and will end on June 30, 2023.

¹ Panchthar, Ilam, Jhapa, Dhankuta, Udayapur, Morang, Sunsari, Saptari, Dhanusha, Siraha, Kavrepalanchowk, Kathmandu, Makawanpur, Chitwan, Syangja, Kaski, Mustang, Manang, Tanahu, Myagdi, Nawalparasi (East), Rupandehi, Nawalparasi (W), Gulmi, Palpa, Arghakhanchi, Kapilbastu and Bardiya.

1.5 Project Cost and Financing

8. Total Project cost is US\$115 million. This includes US\$80 million IDA credit, US\$15 million financing from partner financial institutions, and US\$10 million from the Government of Nepal and beneficiaries (value chain actors). Component wise Component A is allocated US\$ 5 million (6.1%) and US\$ 40 (47.4%) for Component B while Components C and D are respectively allocated US\$ 30 million (39.1%) and 5 million (7%) respectively. (Table 1). Table 2 shows IDA financing by category.

Table 1: 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	54.51	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

Table 2: 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 component A, B, C (other than grants) and D of the project.	23,000,000	85%
Non-consulting services, consultants' services, training and workshops under component A, B, C (other than grant) and D of the project.	13,450,000	85%
Incremental operating costs under component 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	

1.6 Project Expenditure and Funding Sources

9. Table 3 below details the share of project expenditure by loan category that shall be borne by Government of Nepal, IDA, Matching Grant Recipient and Banking Financial Institutions.

Table 3 (a): Project Expenditure by Loan Category and Financing Sources
'In SDR'000'

Category		GoN		IDA		MG		BFIs		Total
No.	Descriptions	Amount	%	Amount	%	Amount	%	Amount	%	
1	Goods and Works	4,059	15	23,000	85	0	0	0	0	27,059
2	Non-consulting services, consultants' services, training and workshops	2,374	15	13,450	85	0	0	0	0	15,824
3	Incremental Operating Costs	836	28	2,150	72	0	0	0	0	2,986
4	Matching Grants	0	0	17,700	50	7,080	20	10,620	30	35,400
5	Refund of Preparation of Advance	0	0	400	100	0	0	0	0	400
Total		7,269		56,700		7,080		10,620		81,669

Table 3 (b): Project Expenditure by Loan Category and Financing Sources
'In US\$'000'

Category		GoN		IDA		MG		BFIs		Total
No.	Descriptions	Amount	%	Amount	%	Amount	%	Amount	%	
1	Goods and Works	5,727	15	32,451	85	0	0	0	0	38,178
2	Non-consulting services, consultants' services, Training and Workshops	3,349	15	18,977	85	0	0	0	0	22,326
3	Incremental Operating Costs	1,179	28	3,034	72	0	0	0	0	4,213
4	Matching Grants	0	0	24,974	50	10,000	20	15,000	30	49,974
5	Refund of Preparation of Advance	0	0	564	100	0	0	0	0	564
Total		10,255		80,000		10,000		15,000		115,255

Note: Conversion Rate: 1 SDR=1.41 USD

1.7 NLSIP Projected Disbursement

10. Following table presents the NLSIP projected disbursement indicated in PAD for IDA financing. However, the projection might change significantly as the Project has slow progress till now but may speed up as the implementation of project activities will speed up gradually overtime.

Table 4: Projected Disbursement by Year

Fiscal Year	'In US\$ Million'					
	2018	2109	2020	2021	2022	2023
Annual	5.00	10.00	20.00	25.00	18.00	2.00
Cumulative	5.00	15.00	35.00	60.00	78.00	80.00

1.8 Results Framework

- Annex 1.1 presents the result framework. PDO level indicators are: **(a) increased productivity of targeted livestock commodities (milk, goat meat, Chyangra) among beneficiaries; (b) increased sales of value added products in targeted value chains; (c) farmers adopting climate smart agricultural technology (of which female); and (d) farmers reached with agricultural assets or services (of which female)².**
- Annex 1.2 presents the NLSIP activity implementation timeline.

² This includes also the farmers who would benefit from the vaccination campaign supported by the project.

SECTION II: DESCRIPTION OF PROJECT COMPONENTS

2.1 Component A: Strengthening Critical Regulatory and Institutional Capacity

13. The objective of Component A is to contribute to the PDO by helping to establish and enact in the livestock sector an enabling policy and regulatory environment that improves the delivery of demand driven services to the livestock producers, provide adequate incentives for private sector investments, and achieve improved climate resilience and food safety.
14. This component comprise three major themes: (i) sector policies and strategies, (ii) institutional capacity development, and (iii) establishment of an LMIS for knowledge generation and utilization. The interventions under this component will help institutionalize policy and regulatory mechanism to improve the delivery of demand-driven services to livestock producers (link to Component B), set standards and monitor product/service qualities to meet consumer/market expectations and regulatory provisions, and provides adequate incentives for private sector investments in the livestock sector (link with Component C). The specific activities under this component are described in the following sections.

2.1.1 Developing, Updating and Operationalizing Key Policies, Acts and Regulations

15. Under this sub-component, the main activities are to review, update, formulate and operationalize key policies and regulations affecting the performance of livestock sector in Nepal. The policies, plans and strategies to be developed/updated are (a) Livestock Master Plan, (b) Livestock Breeding Policy, (c) Animal Health Policy and (d) Approach on One Health Strategy. The Acts to be developed and/or that are already in draft form and are yet to be tabled, as bills are: (a) Infectious Diseases Act, (b) Veterinary Drug Act, and (c) Animal Welfare Act. The key policies and laws/regulations that are already enacted, however are the subject of amendments are: (a) Animal Health and Livestock Service Act (1999), (b) Animal Slaughterhouse and Meat Inspection Act (1999) and (c) Nepal Veterinary Council Act (1999) and their respective Regulations. The project will also support development of *Peste des petits ruminants* (PPR) control roadmap and eradication strategy plan and national surveillance plan. SOPs for vaccine delivery, operationalization of vaccination campaign, Sero-surveillance (pre and post -vaccination and at Border Quarantine Check-points), record keeping and reporting.

2.1.1.1 Formulation of Plans, Policies and Strategies

16. NLSIP will finance for the updating and developing of the following five plans and policies.
 - a) *Livestock Master Plan (LMP)*
17. The overall objective for developing Livestock Master Plan is to develop a medium and long-term vision and associated investment plan for the livestock sector in the country. The LMP will address all major species (e.g. cattle, goat, sheep, buffaloes, pigs, chicken, and fish) and related commodities (meat, milk, eggs, fibre). Developed at the Central level, the LMP will be aligned to support the the Agriculture Development Strategy (2015) and will provide guidance for actions in operationalization of federal policies at all tiers of government (state and municipality levels); extension services, training and education; public and private infrastructure development; capacity development and technology transfer among private and public stakeholders; research and development; and engagement with private sector and development partners for climate friendly sustainable livestock development.
18. More specifically, the LMP will provide a roadmap for the next 20 years in the following themes: (a) animal breeding and animal identification system; (b) feed and forage base,

including seasonality and feed quality standards; (c) veterinary and animal health, diagnostic bio-security, prevention and control of contagious, zoonotic and transboundary animal diseases, transmission from/to wildlife; (d) animal husbandry practices (on-farm feed production, housing, level of technology, labor saving technology, renewable energy production, energy efficient technology); (e) animal welfare; (f) livestock products, traceability, quality control, diversification; (g) food safety and hygiene; (h) climate change adaptation and mitigation; (i) natural resource management under common and private ownership; (j) trade, import regulations, quarantine and phytosanitary regulations; (k) livestock credit and insurance; (l) livestock value chain; (m) innovation in production and processing; (n) market linkage and forms of cooperation between primary producers, processors, traders and off takers; (o) commercialization, private sector engagement and agri-business promotion; (p) application of Information technology for the livestock sector development and monitoring; and (q) inclusive growth, e.g. with regard to small-holder farms, gender, remote communities and youth. The TOR is given in Annex 6.1.

19. For the preparation of LMP, the project will seek guidance from the MoALD in identifying an appropriate institution. Preference will be given to a reputed organizations that have experience in the preparation of Livestock Master Plans/Investment Plans using latest available toolkits.. In this context, it is appropriate that a select group of project staff visits countries where the LMP or Livestock Investment Plan has been prepared recently. To support the preparation of LMP a Technical Advisory Group (TAG) will be set up at the ministerial-level.
20. The selected consulting firm is required to organize meetings and workshops with the key stakeholders from both public and private sectors at various levels across the provinces and agro-eco zones. The LMP will be thoroughly reviewed by a group of experts drawn from the government and the private sectors. A national level validation workshop will be held where the representatives from relevant stakeholders will be invited and their contributions incorporated into the LMP.
21. Major deliverables for LMP include: (a) inception report with detailed methodology for LMP preparation, data collection and modelling with reference to internationally developed policy tool kits; (b) review report of past LMP; (b) review of policy analysis papers; (c) review of study reports on thematic areas; (d) working papers on key thematic areas; (e) five year and 20-year investment plan; and (f) training report. The synthesis of the review should help in formulating the LMP. For quality assurance, it is expected that the consulting firm shares the draft reports at appropriate intervals (twice at least) before the final submission of of the Plan that is acceptable to the Government and the World Bank.

b) Livestock Breeding Policy

22. NLSIP will support for the formulation of the breeding policy and its approval from the government. The national livestock breeding policy will guide the implementers and the livestock owners to indicate what breed and breed combination or exotic blood level is most suitable in the given agro-climatic condition of the country.
23. The process will involve formation of a thematic working group comprised of experts drawn from public and private sectors, universities, research organizations, dairy and meat industry associations and farmer organizations who will provide overall guidance to develop the breeding policy. Workshops will be organized at the district, state and central levels to secure wider participation of citizens and grassroots service providers. Finalization of the policy will be preceded by a validation workshop the central level.
24. The **Nepal Veterinary Council (NVC)** will undertake this policy development work with the involvement of national experts. A Memorandum of Understanding (MOU) will be

signed between the NVC and NLSIP. Major deliverables are: (a) an inception report; (b) a synthesis of experience and lessons from development partners, farmers and other stakeholders in breed improvement and conservation attempts; (c) findings and recommendations from the stakeholder workshop by agro-eco zone; (d) first draft report at agreed time, (e) second draft report after the validation workshop; and (f) the final report acceptable to the PMU.

c) Animal Health Policy

25. The OIE defines veterinary service as Global Public Goods. With the increased globalization of trade and increasing distribution and movement of livestock and livestock products the risk associated with the spread of animal diseases is on the rise. Thus, to contain the risk of disease outbreak and spread, an effective Animal Health Policy must be put in place.
26. The National Animal Health Policy will provide the best possible framework for animal disease control to minimize the negative effects on livestock value chain, animal production and welfare, trade in livestock and livestock products, and human health. More specifically, this policy will help: (i) strengthen the veterinary diagnostic services, animal quarantine and disease surveillance services; (ii) control and contain major economically and zoonotically important diseases; (iii) ensure food safety and food security; (iv) ensure veterinary drug regulation, prudent use of veterinary drugs and pesticides; and (v) guide the formulation of an appropriate legislations. The project will prepare the Policy either by hiring a consulting firm or consultant/s, or through an MOU with NVC. During the formulation of the policy, the consultant/s will conduct a series of workshops at the district, state and national levels for adequate citizen engagement. Expert consultations will also be part of the process.
27. The consulting team will work closely with the thematic working group formed by the DLS/MOALD. The thematic group will comprise of representatives from appropriate public and private sectors, universities, research organizations, dairy and meat industry associations and farmer organizations. The development of this national policy will form the basis for the formulation of state policy.
28. Final output is the submission of Animal Health Policy for approval by the MoALD. The process will include first the submission of an interim report which will clearly outline the methodology, timeline, in addition to sharing the Policy Report with the PMU at appropriate intervals. The final product will be developed after a validation workshop with the relevant stakeholders.

d) One Health Policy and Approach

29. The main objective of One Health Policy and Approach is to improve health and well-being of the society through the prevention of risks and the mitigation of effects of crises that originate at the interface between humans, animals and their various environments. This requires a multi-sectoral and collaborative approach.
30. In Nepal, efforts to put ideas behind “One Health Approach” into the action started with the formulation of a multi-sectoral committee in 2014. Following several rounds of discussions, the committee developed a draft document in 2015 with strategic framework for mainstreaming and implementing it to prevent and control diseases. With this framework, a draft strategic framework on “One Health Approach” was prepared and submitted to MoALD with technical assistance from FAO.
31. The implementation of the above framework requires developing mechanisms for: (a) clear identification of priority areas for collaboration and cooperation; (b) identification of potential actors (c) defining the roles and responsibilities of each actor/collaborator;

and (d) instituting a collaborative system to implement and monitor the processes, outputs and outcomes.

32. The MoALD, with the support of NLSIP, will revive/constitute a One Health Working Group (OHWG) comprised of representatives from MOALD, MOHP, MoFE (Department of National Parks and Wild Life), MoFAGA, NARC, Federation of Municipalities, and NGOs as appropriate. The OHWG will elaborate: (i) sectoral coordination mechanism; (ii) disease surveillance and information sharing; (iii) coordinated response mechanism; and (iv) risk reduction. In this process, the OHWG will organise consultative meetings and workshops as necessary to get the information from concerned stakeholders and prepare an action plan document. FAO and WHO will be invited for technical support.
33. The national document will form the basis for the formulation of state level and municipal level action plan and OH approach activities.
34. NLSIP will facilitate the operationalization of the One Health policy and approaches through training on sampling, mass communication, sharing disease information and local campaigns in project command municipalities.

2.1.1.2 Formulation of Acts

35. NLSIP will finance the formulation of the following three Acts.

a) Animal Infectious Disease Control Act

36. Nepal as a Member Country of the OIE is required to abide by the International Animal Health Code stipulated by OIE. Specific objectives are to (a) prevent, control and eradicate infectious and contagious diseases affecting animals; (b) prevent outbreak or spread of such diseases from one farm, locality/State to another; (c) safeguard public from zoonotic diseases; and (d) meet the international obligations of Nepal for facilitating import and export of animals and animal products and for matters connected therewith or incidental thereto.
37. The **NVC** will undertake this assignment under an MoU with the NLSIP. A thematic working group comprised of a Veterinary Disease Specialist, a Veterinary Public Health Expert and a Legal expert, among others, will provide an overall guidance in formulation of the Act. Consultation workshops will be organized attended by experts and representatives from relevant public and private sectors, universities, research organizations, dairy and meat industry associations and farmer organizations, consumers' forum.
38. A central level workshop will finalize the Draft Act. Deliverables include inception report, thematic papers, draft reports and a final report using the **legal format** will be major deliverables.

b) Veterinary Drug Act

39. Presently, all veterinary drugs are being regulated by the Department of Drug Administration through the Drug Act (1978). This Act does not cover the essential part for control and regulation of veterinary drugs as per the Office International Des Epizooties (OIE) Code, and even does not permit veterinarians to prescribe veterinary drugs for animal use. As a Member Country of the OIE, implementation of its general obligations, decisions and recommendations are obligatory for Nepal.
40. In the absence of Veterinary Drug Act, misuse of antibiotics and pesticides for controlling ecto-parasites, and hormones to improve animal feed efficiency are not regulated. Therefore, NLSIP is committed to help formulate this Act with the objective of regulating the veterinary pharmaceutical products (including ayurvedic) intended for animal use and safeguard the environment and the public health.

41. NVC will prepare this Act under an MOU with NLSIP. A thematic working group, comprising of an Animal health Specialist, a Veterinary Public Health Expert and a Legal Expert among others, will provide overall guidance in the process. Representatives from the relevant public and private sectors, universities, research organizations, dairy and meat industry associations, farmer organizations and consumers' forum will be consulted through a series of workshops. Towards the end a workshop will be held at the central level which will contribute to finalization of the Draft Act. An inception report, thematic papers, draft reports and a final report/Act (on **legal format**) will be the major deliverables.

c) Animal Welfare Act

42. Development of Animal Welfare Act is proposed to ensure humane treatment of animals at primary production, transportation and slaughtering or commercial transportation for food and other intended purposes such as in research experiments, breeding for commercial sale, and exhibitions in the public events. The recent verdict issued by Supreme Court of Nepal has directed MOALD/DLS to bring the Animal Welfare Act and implement it. Although Animal Health and Livestock Services Act 1999 (2055 BS) mentions that "Government of Nepal may constitute a committee for the prevention of cruelty to animals by a notification published in the Nepal Gazette and the functions, duties and powers of such committee shall be as specified in such notification". This provision is not enough for assuring the animal welfare, quality and safety of food of animal origin in the absence of Animal welfare Act.
43. Therefore, NLSIP will hire a local consulting firm with a team of experts comprising of Animal health/livestock Specialist, Animal Welfare Specialist, NGOs working for prevention of cruel on animals, and a Legal expert among others will provide overall guidance. Alternatively, NLSIP may have MOU with NVC or other non-profit making organization to undertake this assignment. A thematic working group comprising of appropriate representations from public and private sectors, universities, research organizations, live animal traders, farmer organizations and consumers' forum will provide overall guidance.
44. The consulting team/organization will submit an inception report with detailed activities and work plan, which will be finalized after detailed discussions with the thematic working group. Inputs received from thematic group and feedback obtained during a final workshop will finalize the draft Act after critical review.

2.1.1.3 Amendment of Existing Acts

45. With evolving animal health and animal production systems, increasing international trade volume and expanding opportunities for new avenues, there is need for strict compliance with WTO SPS, obligate to OIE requirements and bilateral/multilateral international treaties. This warrants immediate need of updating the Animal Health and Livestock Services Act (1999), Animal Slaughterhouse and Meat Inspection Act (1999) and Nepal Veterinary Council Act (1999), which were developed almost 20 years ago. Therefore, NLSIP has planned to finance the updating of these Acts. The Acts will be updated by hiring a local consulting firm or by an MOU with an agency such as NVC. The expert team should necessarily have a lawyer among others. Updating of these Acts will follow similar processes as discussed above for formulation of Acts.

2.1.1.4 Development of Peste des petits ruminants (PPR) Control Roadmap

46. PPR, one of the most important animal diseases causing huge economic loss, is among the priority diseases indicated in the 5 Year Action Plan of FAO-OIE Global Framework for the Progressive Control of Trans-boundary Animal Diseases (GF-TADs). After eradication of Rinderpest from the world, OIE and FAO have set a target to eliminate the PPR disease

globally by 2030. The long-term PPR management national goal is to eradicate PPR from Nepal with substantial positive impact on poverty reduction, livelihood, food security and economic development of smallholder rural community by 2028 in the line of PPR-GCES.

47. In South Asia, a regional roadmap was formulated in 2011 by the SAARC member countries. A draft National Strategic Plan for the prevention and control of PPR in Nepal was developed in 2016 with the support from Global PPR Secretariat of FAO of the United Nation, Rome.
48. Self-assessment submitted to the international organization by the Veterinary Authority of Nepal, based on the PPR monitoring and assessment tool (PMAT) questionnaire, includes six outcomes - each for stage I and II of PPR control and eradication roadmap. Different activities, timeframes and performance indicators have been identified to complete these two stages. Approaches and activities proposed are: (a) risk based epidemiological assessment and use of outbreak investigation tools to find out the associated risk factors for disease transmission; (b) development of essential documents and mechanisms for the control of cross-border animal movement and shared officially between neighbouring countries; (c) PPR virus isolation and characterization, and testing for vaccine efficacy to be carried out in collaboration with in-country and external reference laboratories. Implementation of gastro-intestinal parasite control programme including control of seteriasis and vaccination against enterotoxemia in special pockets/districts along with PPR vaccination to reduce the incidence and economic losses from these diseases may be blended as per the national PPR control document. Based on the clear-cut road map, NLSIP will finance implementation of control plan by the government to eradicate PPR by 2030.
49. In view of the foregoing, NLSIP will provide financial and technical support to the working group formed by the DLS to develop a roadmap, SOPs and surveillance plan for PPR prevention and control for subsequent eradication by 2030 as appropriate. Alternatively, the Project may hire a local consulting firm/consultant to carry out the task. The roadmap (2019 -2028) is to be aligned with the PPR-GCES along with a strategic plan and tentative budget. The team will develop a year-wise action plan, surveillance plan, and vaccination plan with sero-monitoring.
50. A technical Advisory committee, under the chair of director general of DLS, will provide overall guidance to the working group or consulting team/firm. Inputs from the FAO experts in PPR roadmap will facilitate to align it with FAO/OIE strategy in control and eradication of PPR. The working group or consultant shall review the “National Strategic Plan for the Prevention and Control of PPR in Nepal”. To develop the PPR control and eradication road map, the working group or consultant will: (a) develop national PPR eradication strategic plan and national surveillance plan and (b) develop SOPs for vaccine delivery, operationalization of vaccination campaign, pre and post vaccination sero-monitoring, record keeping and reporting. The working group or consultant will also develop the laboratory testing protocols, action plan and budgetary requirement as outlined by OIE/FAO to eradicate disease by 2030.
51. In developing the roadmap, international guidelines prepared by the GF-TADs, “Global Strategy for Control and Eradication of PPR” is to be followed. During the course, the working group or consultant/s will consult with senior animal health officers of MoALD and its related agencies.
52. The working group or consultant/s will submit an inception report with detailed activity plan and methodologies. Other deliverables will be reports on: (a) assessment of economic impact of PPR; (b) institutional capacity of DLS (human and laboratory, vaccine production) for PPR eradication; and (c) national PPR control road map and national surveillance plan; and (d) SOPs as mentioned in above paragraph (para 56). The final

report will be submitted on review of draft document by a team of experts. NLSIP will take necessary action for MOALD endorsement and ratification process.

2.1.1.5 Development of FMD control strategy and control plan

53. FMD vaccine procurement and vaccination is one of the major components of this project. EU-FMD programme of FAO is conducting Real-time FMD training programme in Nepal, in which 10 Nepali veterinarians are receiving training every year in disease recognition and disease surveillance in field at the face of outbreak. The inputs from the experts of Realtime FMD training programme of FAO will give well recognised control strategy and plan.
54. To accelerate the development process of control strategy and control plan for FMD prevention, control and subsequent eradication action plan NLSIP will provide financial and technical support to the DLS working group. Alternatively, it may be developed by hiring a national consulting firm or consultant/s. The working group or consultant/s will review the Global, Regional and National FMD control strategy and control plan. The working group or consultant will (a) develop national FMD vaccination strategic and national surveillance plans; and (b) develop SOPs for vaccine delivery, operationalization of vaccination campaign, pre and post vaccination sero-monitoring, record keeping and reporting.

2.1.2 Institutional Capacity Strengthening

55. Strengthening the capacity of the different actors in livestock sector value chain (with an emphasis on dairy, goat meat and Chyangara fibre) is critical for the successful implementation and sustenance of the livestock development in the country. In order to achieve this goal, identifying the key technical and functional capacity gaps and prioritize the key training needs to develop efficient training plans and their delivery is crucial.
56. The capacity assessment will be done at two levels: One at the project level and the other at the Institutional level. At the project level the team will focus at: (a) project management and monitoring; (b) implementation of safeguard measures; (c) operation of information management system; (d) communication; and (d) value chain development. At the institutional level, the team will assess the capacity of the MoALD (livestock) and DLS will focus at their capacity to implement project activities and deliver required services, the capacity assessment of organizations associated with NLSIP implementation e.g. BFIs, NABIC, DFTQC, Dialogue platforms, and the private paravets will focus at developing their capacity to contribute to achieving project development objectives. The assignment will also identify recommendations regarding enabling environment and institutional arrangements, which would impact retention as well as utilization of acquired skills.
57. A Technical Advisory Group (TAG) will be established at MoALD level to guide the consulting team. The team will have a series of meetings and workshops with the stakeholders at various levels covering all provinces with field visits. The process will involve a number of consultative meetings with representatives from different functionaries under MoALD, DLS, State and municipalities, and with organizations associated with NLSIP implementation.
58. The Consulting Firm shall be selected based on World Bank's consultant selection guidelines, January 2011 (revised July 2014). The main criteria for selection will be relevant work experience and qualifications. Detailed Terms of Reference is given in Annex 6.2

2.1.3 Developing/establishing a Dedicated Livestock Management Information System (LMIS)

59. Information relevant to the livestock sector and related value chains is limited, often outdated and stored under diverse formats, by several organizations. As a consequence, decision made in regard to the development of the sector, whether by public or private decision makers, is often made on scarce evidence. To address this issue, NLSIP will develop a comprehensive and unified Livestock Management Information System (LMIS), and support Information and Communications Technologies (ICT) platform. The LMIS located at MoALD will serve as an apex body to undertake the entire data management system such as data collection, quality control, storage, retrieval, analysis, monitoring, and data dissemination. It will have specific domains related to the following themes - livestock production, animal health e.g. vaccination, breeding, feeding eg., feed database, prices, animal movement/marketing, milk collection and processing, meat processing, export and import, farmer institutions, environment and social safeguards, and human resources including a roster of national experts. The national experts in different livestock sector discipline would be the resouces for the farmers to seek appropriate advices.
60. In addition to the LMIS, the ICT platform may support the development of the following: (a) National Livestock Identification Database, initially limited to animals under PPRS, insurance, disease survelience and sero-monitoring for traceability purpose; (b) laboratory MIS; (c) disease surveilliance and animal health; (d) digital apps to support market linkages, transport logistics, etc.; (e) ICT enabled advisory services (e.g ration balancing); (f) food and environmental safety; (g) mobile platform based M & E; and (h) citizen feedback and grievance redressal mechanism. The MIS of livestock projects, including the PMIS of NLSIP will also be linked with LMIS, which will be useful for MOALD to monitor performances of projects and provide feedbacks and guidance. PMISs should ensure that the disaggregated (sex and caste/ ethnicity) information of the beneficiaries is adequately captured. It is expected that the data generated in the system will be useful also to assess climate vulnerability and GHG emissions.
61. The LMIS will be started with a minimum but smart database that directly contributes to assessing the progress outlined in the Results Framework in the PAD with ample space for future expansion. The MOALD, DLS and other potential users of LMIS will decide the domians and different variables to go into each domain. The LMSC extension agents will be provided with tablets and training for primary data collection on a real time basis and technology communication. The platform will also be used to assess the effectiveness of service delivery.
62. In support of the above, NLSIP will undertake a strategic study to specifically identify the medium and long-term information needs of the livestock sector and to establish a plan for developing an Information System as well as the technical standards for its development. The strategy for LMIS development will (a) identify, categorize and prioritize expected uses and users of the LMIS and assess their information needs; (b) for each user group, define the most adapted information supports and formats, and ways of dissemination; (c) propose institutional arrangements for data collection, sharing and analysis; and (d) evaluate capacity development and resource needs for the development of the LMIS.
63. Similarly, the strategy for the development of the ICT platform will include (a) broadly delineate the Network, Software, Hardware, Training, Security, Backup and Disaster Recovery policies; (b) design a system architecture that defines standards for databases, information flows and information systems; (c) design a technology and networking architecture that guides future procurement, maintenance and operation; (d) identify, based upon desktop computing needs in the NLSIP, a standard set of core applications for

common business functions (eg. word processing, document storage and retrieval, e-mail etc.); (e) prepare detailed plans for technology acquisition, system development, staff training, and system deployment; and (f) develop investment and operating cost estimates for ICT in NSLIP during a 4-year period.

64. The consultants will prepare the Strategy with the assistance of a Working Group of knowledgeable individuals drawn from the various functional areas of the NLSIP and associated local governments, district administration, line ministries and agencies. The consultants will must provide any specialized software and hardware technology needed to document the Strategy. Detailed TOR is given in Annex 6.3. Based on the recommendations, NLSIP will establish hardware and software linking with the national server at different layers. The LMIS at all tiers will be promptly maintained through maintenance services contract with expert firms.

2.2 Component B: Promoting Sector Innovation and Modernizing Service Delivery

65. This component will contribute directly to the PDO by enhancing livestock productivity and climate resilience. It will support capacity development of key stakeholders along with the selected livestock supply chains to develop, disseminate and adopt best practices focused at 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 will contribute to environmental sustainability and the GHG emission reduction. This component will also promote citizen engagement to ensure a demand driven approach to livestock services. This component has two sub-components as discussed below.

2.2.1 Support to Producers' Organizations (POs)

66. Producers' organizations are the farmer commodity groups registered with the previous District Livestock Services Offices or under the present municipal livestock service centres, farmer associations registered at District Administration Office pursuant to Society Registration Act or Registered at Inland Revenue Office, or cooperatives registered under Nepal Cooperative Act (1992). The project will map these POs and undertake their capacity need assessment in the dairy, goat and pashmina-Chyangra value chains through a locally hired firm. The firm will identify the groups and cooperatives by commodity (dairy, goat, chyangra) to inform the scale of delivery. It will also be responsible to develop manuals on group strengthening and cooperative development. Based on the needs assessment, the project will train select members of groups and cooperatives at the Regional Training Centres of the DLS or at an appropriate location for enhanced access to improved technologies, market information, and economies of scale to access product markets, financial services, and rural infrastructure. Social mobilizers will provide separate on-site training and coaching for the general members. *With this training, farmer groups will be graduated into a legal entity like cooperatives with strengthened capacity, and the cooperatives with added capacity to operate at scale (business volume, revenue and profit) with capacity to offer new products to their members.* Along with these trainings the POs will be capacitated to operate business hubs supporting not only aggregation, basic grading, cooling etc, but also inputs and services to members.
67. Experience has it that these training alone will not be sufficient for the farmer groups or cooperatives to operate at scale for economic viability. In addition, there will a need of strengthening the capacity of second layer farmer organizations like the Central Dairy Cooperative Association of Nepal (CDCAN) and livestock commodity associations (cattle, buffalo, goats, chanygra). Therefore, NLSIP will outsource expert agencies for this purpose.

68. The DLSU Social Mobilizers, with support from the Veterinary Hospital and Livestock Specialist Service Centres and the Municipal level Livestock Service Centers, will facilitate the formation and registration of new groups, where necessary. During the process, the social mobilizers will undertake social mapping at community level and ensure that the disadvantaged and marginalized group/communities such as women and vulnerable people, indigenous people, differently able people, dalits and Madeshis in the communities are included in the new groups. The group size will depend on the local situation and level of diversity of communities. DLSU/Veterinary Hospital and Livestock Specialist Service Centres with support from the District/Municipal Cooperative Development Section will organize training of the members of these new groups covering topics such as group dynamics, leadership development, group/cooperative management, assessing production costs, basic accounting systems, and so on. Their skills in business development will also be enhanced. The project expects that the groups are promoted/federated into cooperatives and by project year 3, these new groups and cooperatives would be able to take part in project grant scheme.
69. Technical training courses will be organized in farm management, housing, breeding, animal health and sanitation through Farmer Field School (FFS). The VH&LSSC will facilitate FFS implementation through Master Trainers who will be receiving specialised training such as from FAO under NAFSP.
70. **Pashmina-Chyangra sector:** The narrative of the previous DLSO staff who visited chyangra production area is that this sector is virtually out of the national livestock sector development mainstream. There are farmer groups and committees organized by the then District Livestock Service Offices. The groups are usually led by leader farmers, who are literate and bilingual (speaking Nepali and Bhotia). The other group members are usually illiterate and many even do not speak Nepali language. These groups and committees including the Chyangra Pashmina Farmer Association promoted by the Himali Project are not active now. There would a need of undertaking a separate focused study to understand the farming, farmer institutions, social system and the value chain system.
71. The Chyangra areas are located at difficult terrain in high mountains, therefore, difficult to travel. Narrative from MOALD staff involved in Pashmina Enhancement and Trade Support (PETS) Project and earlier value chain studies indicted that the Chyangra in these areas suffer from inadequate nutrition, as biomass yield per unit land is too low due to lack of irrigation for pasture development. Inbreeding, inadequate treatment services, predation due to unsafe housing yards and lack of adequate technique for pashmina fibre harvesting are other problems associated with Pashmina Chyangra production. Some Pashmina industries in Kathmandu claim buying local fiber through local middlemen. However, there is no direct link between the farmers/groups and the pashmina industries. Farmers claimed that the Nepalese Pashmina industries pay lower price (about Rs 200 to 250 per kg raw fiber) than what they are paid in Tibet. Therefore, most of Pashmina fibre is bartered in Tibet for household goods. With 150g to 250g pashmina fibre per animal, farmers have very low priority to Pashmina Chyangra production.
72. Given the project districts (Mustang and Manang) are characterized by difficult terrain and limited communication, the project cannot reach out across these districts at a time. Therefore, the project is advised to initially work in two sites in each of these districts for the first two years. However, under the present structured system, a strong field staff support is lacking in terms of both expertise and human resources. Therefore, NLSIP will **hire a separate dedicated national firm** for the project period to work initially for two years in four selected pashmina production villages and expand the program in rest of the Chyangra production area by year three. The contract would be well defined, time-bound, and outputs and outcomes-based. The firm will supply a dedicated team of

Mountain Pasture Expert, veterinary/livestock technicians and local social mobilizers. While the Pasture expert will be located in one of two pilot sites of either Mustang or Manang district, a Veterinary/Livestock Technician and a social mobilizer will be located in each pilot site. These teams will be backstopped three monthly by the experts such as agribusiness and cooperative development from PMU. The firm will also be responsible to build the capacity of the Pashmina Chyangra Farmers Association in Mustang. These teams could have been hired under a single contract with the consulting firm that will manage technical assistance at PMU and DLSU levels. However, this arrangement may not be effective due to inadequate field monitoring and dilution of responsibilities of the consulting firm.

73. The project will finance development of training visuals and training delivery in Chyangra production and pasture management, group development and all activities identified (through participatory planning) for intensive programme. There could be an array of activities such as the supply of bucks, shed/yard improvements, development of watering points in the pasturelands and en-route, construction/improvement of wooden bridges on rivers and rivulets, installation of water efficient irrigation system in the pasturelands, training of VAHWs, veterinary treatments through a trained and coached area specific village animal health workers by the project veterinary technician, installation of solar panels for light and other utilities, and development and implementation of pastureland management plans.
74. These farmers will also be supported with the training in spinning and developing facilities for the same. Simultaneously, the farmers will be linked with the **Pashmina Industries Association** which may also have interest of developing local products from local Pashmina fibre and/or with mix of Chyangra fibre and Yak under cover. It is expected that this learning will help develop Pashmina sector development strategy and guide NLSIP to systematically expand its activities in the remaining municipalities of these districts. With this experience, the project may consider supporting the establishment of primary processing facilities including de-hairing facilities at district level/ Kathmandu under PPP with Pashmina Industries Association or similar organizations, based on technical and financial analysis.

2.2.2 Modernizing Livestock Extension Services and Inputs

75. This sub-component 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 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 subcomponent is the capacity building of the service providers including financing institutions. Important activities are discussed below.

2.2.2.1 Animal Health Services and Inputs

a) Animal Health and Veterinary Public Health Services

76. The project investments on animal health and veterinary public health services will focus on reducing economic losses due to livestock mortality as well as morbidity and production (a) targeting FMD, PPR, and parasites; (b) addressing preventable management related losses such as udder health and pneumonia in new borne; (c) enhancing engagement with private sector for effective farm level service delivery; and (d) improving biosecurity, e) enhancing food safety measures related to AMR, aflatoxin, and prevention and control of zoonotic diseases and , and building associated capacity of stakeholders in animal health and VPH. The VPH issues will be addressed through enabling the OH approach effectively engaging the stakeholders from other departments (DoHS, DFTQC, Department of Wildlife and National Parks, Department of Environment

etc.). CENA consulting team once hired by NLSIP will identify the area for capacity enhancement in animal health and veterinary public health sector.

b) Disease surveillance and prevention

77. The disease surveillance and prevention will be enhanced through: (a) stakeholder training, including FPOs, farmers, DLS staff, field workers (b) developing a system for field sampling, including the necessary equipment, incentives for collection c) equipping field technicians with sample collection kits and cool boxes d) building capacity of labs through training and equipping as required, ; (e) calibration of laboratory equipment and instrument with supporting tools for it, (f) upgrading Laboratory Management Information System (LMIS) with linkages with CVL and other diagnostic laboratories and Veterinary Epidemiology Centre for two way linking (in the area where ECTAD programme of FAO has not covered as a supplementary activity); This activity will not be limited to PPR and FMD control plan, it will support the whole country in surveillance of notifiable and other economically and zoonotically important diseases and timely reporting to VEC at DLS.
78. The Veterinarians, para-vets and the member stakeholders of One Health Committee will be trained in field epidemiology, and the laboratory personnel on handling and operation of BSL2+ laboratory, and modern and molecular diagnostic techniques. Field technicians will also receive training in sample collection and delivery. Laboratory technical officers will be trained in laboratory accreditation to ISO/IEC 17025, calibration of laboratory equipment and instrument with supporting tools, and on laboratory bio-safety and bio-security. Fleming fund programme is associated in AMR activities with CVL, NADIL and RVLs of Biratnagar and Pokhara. NLSIP is expected to replicate the similar activities with other RVLs in order to rationalize the activities across the country in addressing the concerned veterinary public health issues. A separate AMR committee is working which is being coordinated by CVL chief.
79. The requirements to upgrade the laboratories for accreditation as per the standards provided by ISO/IEC17025 to upscale the PPR vaccine production capacity. The project will also finance for obtaining the standardization certification from international organization for vaccine production facility. A roadmap for accreditation and supports to Laboratories prepared by a Laboratory consulting team under PACT is given in Annex 2.1. NLSIP will implement these activities as prescribed in this road map.

c) Disease control program and delivery of inputs and logistics

80. The project will invest or facilitate in delivery mechanisms and maintaining cold chain for vaccines, development of drug use monitoring system, recruitment of para-veterinarians and VAHWs including imparting training to them for vaccination programme. The NVPL will be supported in procurement of reagents, chemicals, equipment and air handling system. Other activities to be supported include financing FMD vaccine purchase; and linking to an international reference laboratory for accreditation of PPR and FMD testing protocols and procedures; enhancing biosecurity with a targeted plan for the priority value chains; and yet others as envisaged by the FMD Control Roadmap and PPR Eradication Roadmap.
81. **Livestock emergencies:** NLSIP will support for ***development of preparedness plans to deal with emergencies (disease outbreaks for priority diseases, and other natural disasters)***; and an early warning system to inform risk and feed into a community-based response system that includes equipping village-based animal health workers.
82. CVL will be strengthened in its expansion for molecular diagnosis and veterinary public health laboratory units with necessary equipments in order to enhance the capacity to handle more samples that is expected after execution of activities under the project. Similarly, FMD and TADs laboratory will be strengthened to have ample space to handle

the samples from sero-monitoring and sero-surveillance in addition to samples coming from disease outbreak.

83. VSDRL will be strengthened to enhance its capacity in potency and safety testing of vaccines and biologicals. The technical staff needs hands on training to operate the specialized equipments.
84. A bulk storage facility will be established at DLS level for storing the vaccines that are procured from outside or received from NVPL for distribution to field.
85. Introduction of a herd health program to optimize animal health and herd productivity through better management practices and limit food safety risks through prudent use of veterinary drugs. The herd health program will cover multiplier breeding farms, farms with improved animals and PRRS farmers.
86. **FMD vaccination campaign:** DLS already has FMD Control Strategic Plan, which is very general but is now preparing a Risk Based Control Strategy and Roadmap for this disease with technical support from FAO's EU-FMD Real time training programme. The FMD vaccine is not produced in the country. Therefore, the project will finance the procurement of quality FMD vaccine (the Project will also explore the feasibility of procuring concentrated bulk vaccine and reconstituting it at NVPL), develop storage facilities, logistics for vaccination campaign (vaccine boxes, automatic vaccination syringes, logistics for pre - and post vaccination serum collection etc) and incentives (DSA) for vaccinators (private para-vets and VAHWs), technicians and officers in the project command districts and Municipalities. Prefab Cold store will be established in all state laboratories for vaccine storing, and dual function de-freezer in all the 47 Veterinary Hospital and Livestock Service Specialist Centre (VHL&SSC). This will facilitate to maintain the cold chain in vaccine and use it during mass vaccination campaign. In addition, it will support for pre and post-vaccination, sero-surveillance and monitoring activities with adherence to "Foot and Mouth Disease Vaccination and Post-vaccination Monitoring Guidelines" published by The Food and Agriculture Organization of the United Nations and the World Animal Health Organization (FAO/OIE).
87. **PPR Vaccination campaign:** The PPR vaccination campaign will be targeted as per the National strategic plan for prevention and control of PPR action plan. Since NVPL is producing PPR vaccine using a world class PPR vaccine seed, the project will finance for the procurement of vaccine production reagents, media, glassware and other essential laboratory equipment/ instruments and necessary consumables. It will also finance the logistics for vaccination campaign (vaccine boxes, automatic vaccination syringes, logistics for pre and post vaccination serum collection etc), incentives (DSA) for vaccinators (private para-vets and VAHWs), technicians and officers. The PPR working group of DLS or a national consultant hired by project will formulate PPR roadmap with action plan and National guideline for PPR vaccination and post-vaccination monitoring targeting to eradicate the disease by 2030.

d) Biosecurity

88. The following activities are to be implemented under this: (a) training for stakeholders on biosecurity practices (bio-security manual already in hand developed by PACT for commercial poultry sector, but not for other sector); (b) development of standard operating procedures (SOPs) for biosecurity of semen stations and field-level delivery; (c) development of SOPs for milk pooling stations, markets, and (d) development of SOP for slaughter facilities in line with the Animal Slaughterhouse and Meat Inspection Act; (e) biosecurity manuals for diagnostic laboratories and field veterinary units on safe disposal and disinfection of laboratory waste, carcass and other contaminated objects are to be developed through hiring of national expert/s; and (f) supply of

sanitizers/disinfectants and sprayers for field stations and border quarantines for quick response to disease outbreaks.

e) One health approaches and emergency preparedness

89. In the initial stage Rabies, Avian influenza (HPAI and LPAI), food borne diseases, AMR. Emerging, re-emerging and other important zoonotic diseases will be considered within OH framework. Where possible the zoonotic diseases like Brucellosis, Hydatid diseases and aflatoxicosis will also be considered as OH activities for field awareness programme. Experts of concerned agencies will provide inputs for field awareness activities. The national document will form the basis for the formulation of state level and municipal level action plan and OH approach activities.
90. One Health committee will be formed at municipal level in project districts with multi-sectoral involvement and they will be trained on how to bring down risk. The committee will compose of officials from Animal health, public health and representatives from municipal elected members, farmers, consumers, traders, health teachers from community school etc. The OH committee is to be formalised through OH action plan development at Central and state level.

f) Herd Health Management Program

91. Introduction of a Herd Health management program is aimed to optimize animal health, udder health, clean milk production, herd productivity through better management (calf management, kid management, housing, etc) practices and limit food safety risks due to unnecessary use of veterinary drugs and pesticides. The herd health program will cover multiplier breeding farms, farms with improved animals and PRRS farmers under breeding programme.

g) Human Capacity Enhancement

92. NLSIP will support to develop/update national standards and training curriculum for livestock/veterinary professionals and para-veterinarians either through Training Working Group or through hiring consultant/s. DLS and municipal livestock/veterinary staff will be trained as per the assessment of CENA. Training Community animal health workers/service providers will be trained to enable them by ICT and specialised advisory services. To enhance the technical capabilities of veterinarians, continuing education training will be facilitated by NLSIP through NVC. Where possible this will be a web-based training on ICT domain.
93. All curricula, and training and extension materials intended for para-professionals, community workers and farmers are to be developed in Nepali language.

2.2.2.2 Livestock Genetic Improvement Program

94. NLSIP will invest in providing technical assistance in establishing the performance recording system, implementation of field activities, strengthening capacities of National Livestock Breeding Office (NLBO), DLS and NARC, and institutionalizing and building capacity of producers' organizations for the establishment and operation of genetic improvement programs of dairy cattle, dairy buffalo and goats. Activities will include development of an animal identification and performance recording system, support to breeding services for genetic improvement, selection of breeding stocks following breeding principles and the multiplication of breeding stocks for distribution in regular production programs. The project will also support the production of frozen semen, expansion of artificial insemination services and natural insemination services in areas where AI is not feasible. The focus will remain on the selection of mothers from the local herds registered with PPRS scheme and upgrading them by using imported semen for the production of progenies of genetic merit that are adaptive, more productive and resilient to climate change impacts. Upon successful establishment of PPRS in dairy cattle and

buffalo, NLSIP will support DLS, so that it can further adapt and apply the same systems for selection of both male and female parents through performance recording in native breeds such as *Parkote* buffalo and *Khari* and *Chyangra* goats. NLSIP will provide trainings to technicians of VHLSSC, Ministry and Directorates of respective states for scaling up genetic improvement programs for conservation and utilization of native breeds. Locations for scaling up will be identified through the district level DP meetings. Implementation of Genetic Improvement Program will follow strategic actions, embodied in the animal Breeding Policy, during its implementation in the field.

a) *Animal Breeding Policy in effect as a guidance for PPRS implementation*

Once Animal Breeding Policy is approved from the GoN, NLSIP will facilitate in creating awareness among the key stakeholders through available network, meetings and workshops for operationalizing the policy provisions on the ground.

b) *Provision for National Certifying Authority*

95. NLSIP will support the DLS for in implementing genetic improvement activities as a long-term program for continuity even after the termination of NLSIP. One of the key elements of institutionalization would be that all the animals selected for breeding purpose (as seed animals) will required to be certified based on the pedigree and performance records so that the expected productivity of their progenies could be estimated or predicted. For this, NLSIP will facilitate the process through the NLRMPO based on the recommendations of technical experts and concerned stakeholders. It is proposed that the NLRMPO, as a focal institution, will form a National Certification Authority for breeding animals. This authority may comprise DLS experts, NARC scientists, independent expert and representatives of participating POs or their national associations (e.g. CDCAN, Dairy associations, Goat farmers' associations). An independent task group of technical experts could be formed under this certification authority for regular technical works.

c) *Institutionalizing performance record management*

96. At present, there is no agency within DLS that has a specific role and responsibility for carrying out breed improvement program based on performance recording. To fill this gap, NLBO will assign from among the present specialists available (senior officers and veterinarians/ livestock officers) to create a "PPRS Management, Analysis and Performance Evaluation Unit". Concurrently, DLS should consider establishing a permanent unit within its structure.

Series of intensive on-site trainings including FFS are needed to ensure proper recordings and flow of data from farmers, dairy labs, Veterinary Hospital and Livestock Specialists Service Centres (VHLSSCs) to the PPRS unit of the NLBO and vice-versa. The interval between recording and processing (data entry and analysis) should be as short as possible. Otherwise, the feedback to the farmer is not useful. The system will rely on farmers for recording of reproductive and health data (AI, health problems, mastitis, fertility problems if any, and metabolic diseases such as milk fever).

NLBO will ensure that bull dams are identified and mated with top semen, preferably imported proven semen (NLSIP will import this). It will also be responsible for: (a) estimation of genetic parameters including breeding values; (b) refinement of breeding goal – milk productivity, milk composition and others; (d) determining how should the various traits be combined, what should be the economic weights (marginal profits); and (e) deriving aggregated breeding value i.e., selection index.

d) *An Independent monitoring system of PPRS herds*

97. NLRMPO will be the focal institution for an independent monitoring of NLSIP breed improvement program. NLSIP and NLRMPO will work in a coordinated manner and

mobilize DLSU livestock expert, NLBO and LBO experts, members of the technical task group (stated above), relevant Dialogue Platform members and VHLSSC/NARC experts for monitoring of performance records and evaluation system of the NLSIP breed improvement activities. DLSU livestock expert will be the key person to facilitate this activity at the field level during NLSIP and N/LBO thereafter. A critical mass of human resource (30 expert level personnel from DLS, NARC, AFU and private sector) on management of breed improvement programs will be trained/developed by NLSIP while the Consulting Firm is in assignment i.e. while working for initial feasibility studies and, design and establishment of the PPRS system (see implementation arrangements below).

e) Animal Identification and Recording

98. NLSIP will establish scientific animal recording systems following the principles of "pedigree and performance recording system" in dairy cattle (Jersey and Holstein), buffalo and Boer goat breeder herds. Giving unique identification and tracking the performance of each animal in the register for determining the genetic merit is the crux of the animal recording system. Initially, dairy cattle, dairy buffalo and Boer goat will be the priority commodities for the field activities on the ground, then further scaling up may be planned with DLS and NLRMPO

i) Dairy Cattle and Buffalo Improvement Programs

99. A Technical Cooperation Programme (TCP) on pedigree and performance recording system (PPRS) of cattle was implemented with assistance of FAO from year 2008 to 2010. This was a joint project of NARC and DLS with technical assistance from FAO. The project was successful to register about 8,500 dairy cows in the PPRS register and evaluate their performance, inseminate selected better performing cows with imported semen and arrange to purchase male calves thus born for semen production purpose. However, recording system discontinued as there was a huge gap **in letting beneficiaries know the objectives and, importance of true and correct data and technical knowhow of the recording system**. The introduced system heavily depended on the government staff. The outcome of frequent staff transfer/turnover, lack of qualified human resource at NLBO for data analysis and interpretation and lack of functional coordination between DLS and NARC entities attributed to the discontinuity of the program after the termination of the TCP. NLSIP will consider these learning to redesign or revive a robust PPRS by engaging POs and NLBO.
100. Farmers' grievances related to poor genetic merit of the semen supplied by National Livestock Breeding Office at present is the reflection of the result of bulls selected at random. **Animal identification and recording system is lacking**. Exceptional increase in milk productivity could be achieved through adoption of five fundamental steps of genetic improvement program in addition to improved feeding, husbandry practices and healthcare. These are: (i) permanent and unique identification of the animals; (ii) parentage recording; (iii) recording of milk yield and other traits of economic importance; (iv) artificial insemination; and (v) statistically advanced genetic evaluation and selection based on the performance. NLSIP will establish dairy cattle and buffalo breed improvement program adopting these scientific principles, track the better performing animals, and demonstrate genetic gain as an outcome that would directly contribute to the PDO i.e. an increased productivity/animal. PPRS program vision would be a system in operation for selection of animals for genetic improvement managed by respective POs i.e. breed promotion farmers' associations and make the certified seed animals of genetic merits available within the country for multiplication and regular production purpose.
101. Genetic improvement program of dairy animals will be implemented adopting an approach to crossbreeding with exotic breeds with a robust Pedigree and Performance Recording Scheme (PPRS) in place. PPRS will focus on identifying objectively the better

performing animals as parents of next generation. Artificial insemination service from NLBO would be an integral element of this PPRS for the selection and multiplication of the top performing animals.

- 102. Strengthening POs engaged in PPRS:** The project will undertake institutional mapping of producers' organizations and identify their interests related to promotion of Jersey and Holstein breeds of cattle and Murrah breed of buffalo. The selected POs will be trained in PPRS data generation, record keeping and reporting. The groups and cooperatives will be further institutionalized as breeding associations or similar entities (may be unions of cooperatives) for working in partnership with NLBO. The project will emphasize on evolving working modalities to address Nepal's unique challenges associated with the small and scattered herds. In view of this, the groups, committees or cooperatives that are interested in participating in performance recording systems for cattle (Jersey and HF) and buffalo (Murrah), will be trained and engaged while formulating and implementing the PPR system for generating the PPRS data. This approach is expected to induce an element of ownership among them in addition to encouraging them to learn more about the advantages and benefit of maintaining performance records. During the first two years, NLBO will work together with these POs with financial support from PMU/NLSIP. From year three onwards NLBO may co-create a program/plan on PPRS with these POs or POs may even opt to compete for grants for PPRS implementation.
- 103.** NLBO and NARC scientists will provide technical assistance once every month to these POs for the analysis and interpretation of data. By the end of project, NLSIP/NLBO will develop national level umbrella POs such as, Jersey breeder farmer association, HF breeder farmer association, Murrah breeder farmer association with capacity to undertake performance recording. It is expected that these national level breed associations will co-work with NLBO for sustainable PPRS for several years until the private sector (associations) would be able to run the program on their own. Eventually they may evolve as national institutions for livestock breed improvement and will seek membership of International Committee for Animal Recording (ICAR), a non-government international organization that strives to become the leading developer of guiding principles and standards in identification, accounting and assessment of livestock. ICAR aims at improving efficiency and profitability of animal breeding. Currently this committee consists of 115 members from 57 countries³. DLS will facilitate and support POs for receiving such a membership in the long run.
- 104. Mobilization of technicians in operationalizing PPRS:** The project will facilitate POs to identify and train private sector service providers e.g., para veterinarians, experienced VAHWs, and qualified agrovets. Many of them may require fresh AI training and others refresher training. Upon receiving the training, NLSIP will build incentive and affiliate these paravets with POs for breed improvement and service provisions including AI services (many cooperatives already have their own paravets). They will be linked with NLBO and partner POs for data recording in the performance recording clusters. They will be responsible for animal tagging, providing AI services and keeping performance records as scheduled. Each herd would be recorded at least once or two times a month, subject to agreement with POs and/or cost involved. Milk samples will be collected for each animal in the morning and evening of the same day along with the volume of milk produced. The milk samples of each animal in duplicate would be transported separately to the dairy laboratory for milk analysis.
- 105. Support to NLBO:** NLSIP will also fund NLBO for farmer and staff trainings, infrastructure improvement in NLBO premises, purchasing breeding bulls, frozen semen and bull calves and bull mothers identified from PPRS. The major support for

³ <https://isbc.com/partners/international-committee-for-animal-recording-icar.html>

infrastructure will be for bull mother sheds, bull sheds, upgrading existing laboratory and semen freezing facilities, creation of facilities for initiation of frozen semen production and AI System for Boer and *Chyangra* goats. NLBO and its satellite farms will begin to rear outstanding bull mothers as an open nucleus herd and maintain an elite herd at the national level. Similarly, NLSIP/government will fund and support to maintain elite herds in DLS herds (e.g. Jiri) and NARC herds (Rampur and Tarahara).

106. Computerized breeding data management system: NLBO will act as a center for PPRS management. A computerized PPR system designed by the individual consultant or consulting firm will be an integral sub-system of the LMIS for the information on animal pedigree and productivity in the PPRS register, PPRS implementation status and outputs. This sub-system will be utilized for data management and analysis for the selection of the top performing animals (as an output of the sub-system). NLBO will report each month to POs the list of the animals in the order of performance, which will help POs to intensify selection process (selection, culling and considerations for replacement with better stocks). The government regular programs or projects, NGOs and private sector investors will utilize the information retrieved from LMIS for purchase of breeding stocks (bulls and cows from PPRS herds) for further multiplication and/or for general production farms.

(ii) Goat improvement program

107. There is wide variation in productivity parameters (body weight gain, kidding rate, kidding interval, twinning rate and kid mortality) of the goat flocks irrespective of the breed of different locations in Nepal. This situation warrants introduction of animal identification and performance recording system. This unique identification and recording allow adoption of selection as a tool of technical intervention for genetic improvement. AFSP and ISFP projects in the past imported Boer goats and placed in government/NARC farms and selected farmer communities with a purpose of establishing breeder and multiplication herds. The projects aimed at establishing a robust PPRS system. However, performance recording of individual animals and selection did not occur. Selection of better performing animals based on genetic selection does not exist. The upgrading of native breeds with Boer goat seemed successful but based on phenotypic performance. Data recording, storage and analysis at community levels were missed out in these projects.

108. Keeping the above lessons in view, NLSIP will finance the establishment and operation of PPRS in goats. The aim is to achieve significant genetic gain through selection from the existing goat populations⁴. To this end, NLSIP will support genetic improvement of goat in upgrading native breeds with exotic Boer breed through performance recording and evaluation of different Boer blood level. Based on the outcome of this activity, NLSIP will support DLS to scale up similar models in Khari breeds in mid hill districts and in *Chyangra* herds of the pilot programs in Mustang and Manang districts.

109. The PPRS would be implemented mainly in government/NARC goat farms in the beginning. To develop government goat farms as a open nucleus herds of elite Boer goats the recording system would be expanded based on feasibility to those goat community clusters where goats of same breed are feasible to register with the PPRS. elite commercial boer goat farms interested in PPRS adoption would also be included in the register. Then, NLSIP will target to increase the number of mother does to 2,500 by the end of year two. The government goat farms will have open nucleus herd that will bring in elite goats from farmers and *vice versa* for maintaining the breeder herds and multiplication herds. Farmers will be trained and incentivized for retaining the progenies

⁴ Recommendations in Proceedings of the national workshop held in Kathmandu on 27 – 28 Sep 2012 on research and development strategies for goat enterprises in Nepal (eds. Gurung TB, Joshi BR, Singh UM, Paudel KP, Shrestha BS, Rijal KP and Khanal DR); NARC, Kathmandu

so that recording, and evaluations is not severely compromised due to frequent sale/turnover of animals in the register.

110. **Goat Breeder herds:** A breeder herd of about 1,000 does would be established by registering female lines of government goat farms, selected commercial farms (larger farms where mating is manageable as per breeding plan) and outreach sites of the government/NARC goat farms combined. NLSIP will consider first for swift multiplication of Boer breed. NLSIP will develop breeder herds by providing 100% Boer buck of different lines to breed the genetically superior females (does) identified from the PPRS established in these clusters. Initially, one breeder herd cluster will need at least 20 - 25 bucks to successfully mate about 1000 + does.
111. The government goat farms with technical assistance from consultants will design and execute a breeding plan, mating plan, performance recording in subsets and performance evaluations for 37.5, 50, 62.5, 75 and 87.5 percent Boer blood levels in the herd. Simultaneously, POs of the breeder herd community, i.e. outreach sites, farmers will be trained in performance recording, record keeping and reporting to respective farm for data management and analysis. Care should be taken that participating farmers will have a tendency to dispose Boer crosses quickly for the reasons – acquiring cash and/or not being able to sustain the increased flock size. Community level participatory planning is required to resolve such problems. For example, NLSIP requires planning for expansion of clusters or registration of crossbred Boer does from neighboring villages or creating a new cluster breeder herds at different location for evaluating different blood levels. By year three, a breeder herd of Boer breed will have at least 2,500 mother does in the register that will produce seed animals for further multiplication.
112. **Goat Multiplication Herds:** The seed animal produced in the breeder herd (government farms + commercial farms + OR sites) would be distributed for further multiplication and for maintaining significant crossbred population of the outperforming exotic blood level. The objective of the multiplication herd is to provide production farms with seed animals of defined exotic blood level. Performance recording and evaluations of goats in multiplication herds will follow the same scientific principles described above for dairy animals, except, a breeding plan in hand will be there for maintaining the exotic blood level that suits the best in a given agro-ecological situation.
113. Upon successful demonstration of PPRS in Boer breeder and multiplier herds, NLSIP will support DLS plan and implement similar PPRS models for native goats and *Chyangra*. Technical Descriptions on genetic improvement of dairy animals and goats are given in Annex 2.2.

2.2.2.3 Germplasm Production, Import and Distribution

114. NLBO produces about 650,000 doses of frozen semen of dairy animals (about 80% cattle and 20% buffalo) and carries out about 0.5 million inseminations per annum through public, community and private sector inseminators. To meet the growing demand of AI in the existing and new areas, the semen production capacity needs to be increased to about 1.5 million doses within the next five years. NLSIP will co-work with NLBO to achieve this.

2.2.2.4 Strengthening and Expansion of Semen Storage and Distribution Network

115. Conception rate in field could be improved with adoption of proper semen handling techniques during semen storage and transfer, provision of proper storage facilities with regular replenishment of liquid Nitrogen, especially in district headquarters, a semen distribution hub at the district level. NLSIP will co-work with NLBO to assess the gap and accordingly invest in strengthening semen storage and distribution system at the VHLSSC level and beyond at the AI centers at the community level. Standard operating

procedures and code of conduct will be developed and practiced for delivering breeding services.

116. Similarly, the project will carry out dairy cluster mapping and identify potential locations for the expansion of new AI centers in partnership with respective municipal livestock service section. AI services are provided on payment basis. From farmers' perspectives, generally, an AI center can run successfully as an enterprise if a minimum of 400 inseminations/annum are performed. NLSIP will facilitate NLBO to ensure AI service providers receive semen, liquid nitrogen and AI consumables in required quantity and and on timely basis.

117. NLSIP will also invest for the procurement of AI consumables and logistics such as AI guns, AI refries, Liquid Nitrogen containers for the existing and new AI centers. The project will organize animal health/infertility treatment camps and also ensure specialist service in need for managing infertility or undertaking heat synchronization in PPRS clusters, commercial farms and main production clusters, if needed.

2.2.2.5 Breed Improvement (Delivery)

Increased private sector involvement as service providers: About 21% of the total milking cows and 3.5% of milking buffaloes were reported to have bred through artificial insemination (NLBC 2016) from 949 AI centers (Table 5). The opportunity to increase the role of the private sector in extending AI services is significant both in terms of providing services and increasing milk production to meet the demand. NLSIP will support the expansion of NLBO network, mobilize DPs, VHLSSCs and Municipal LSCs and Private Agrovets/inseminators in a coordinated manner to extend AI service. NLSIP will encourage the private sector service providers in delivering AI services in partnership with POs with a major focus on PPRS clusters/communities.

Table 5. Total Inseminations and Technicians in FY 2015-16

Region	AI Centers				Inseminators				Total inseminations	No of inseminations /AI Center	No of inseminations /Inseminator
	GoN	CLBC	Pvt	Total	GoN	CLBC	Pvt	Total			
Eastern	88	81	60	229	114	86	70	270	131,232	573.07	486.04
Central	148	166	58	372	190	169	65	424	213,626	574.26	503.83
Western	91	82	73	246	115	89	79	283	112,625	457.83	397.97
Midwestern	26	34	8	68	38	34	8	80	16,471	242.22	205.89
Far western	13	16	5	34	15	16	5	36	19,179	564.09	532.75
Total	366	379	204	949	472	394	227	1093	493,133	519.63	451.17

Source: NLBO annual report (2016). GoN= Government of Nepal, Pvt = private, CLBC = Community Livestock Breeding Center

118. NLSIP will focus on supporting the NLBO, LBOs and VHLSSCs in monitoring of AI program in the districts and farms. NLBO reports that conception rates from AI is at **55.85 %** in cattle and **47.64 %** in buffalo. The present calculation does not consider services/conception, which is more accurate to measure the efficiency of the AI service. As maintenance of farm-level records and AI cards is not a common practice, the animal

identification system described in para 119 above will contribute in monitoring AI performance. NLSIP will ensure that accurate recording system is in place in all the project districts and AI centers. All the officers and technicians engaged in AI services will be trained during the TOTs. Fresh and refresher training courses will be provided on the methods of calculations and reporting system to ensure that farm records and service providers yield authentic AI data and reports on inseminations, non-return rates, pregnancy diagnosis (actually performed) and calving data. Conception rates would be tracked by non-return rate (of all animals inseminated), confirmed pregnancy diagnosis (in sample) and calving events (card records (in sample) for tracking one of the parameters of breed improvement outcomes.

2.2.2.6 Financing Genetic Improvement

119. Since NLBO is not the NLSIP cost center, PMU will ensure timely flow of needed financing by preparing joint AWPB with NLRMPO, NLBO and LBOs and working under an MOU. Key activities to be financed are:

- Expenses for PPRS system establishment and operation;
- Fresh/Refreshers training to the data recorders and inseminator to comply with the standard of PPRS (accurate and timely recording);
- Strengthening feedback mechanism to farmers (communication services at municipal or cooperative/cluster level);
- Interactions at dialogue platforms with farmers, cooperatives to strengthen PPRS;
- Strengthening LN2 supply;
- Import of the top bull semen (for planned mating to produce future bulls and potential bull mothers);
- Importation of frozen semen including sexed semen for supply to commercial/semi-commercial dairy farms;
- Importation of Boer bucks and goats;
- Training on data management at different level to implement decentralized data entry and national data pooling mechanism (system to be designed by NLSIP);
- Training to NLBO, NARC, DLS scientists for data analysis and bull mother selection using PPRS software;
- Training to NLBO, NARC, DLS scientists for data analysis and buck/doe selection using PPRS software;
- Clean milk production and mastitis prevention activities (campaign at farmers' level);
- Infertility management and heat synchronization activities;
- Capacity building to undertake progeny testing scheme; and
- Thesis grants for graduate students for action research.

Implementation arrangements

NLSIP will hire **an international or a national consulting firm** or a team of mix of local and expat consultants to provide guidance to design and implement PPRS (detail TOR is given in Annex 6.4). The same firm will also undertake feasibility assessment for making appropriate decisions on whether to invest for semen production from regional/state level semen production centers. Based on the findings and recommendation of this assessment, NLSIP will further invest on infrastructure development, and establishment of semen production laboratories in Lahan for eastern region and at Gaughat/Nepalgunj

for far-west States. Similarly, NLSIP will also invest for the production and processing of frozen semen of goats including that of Boer breed and Chyangra at NLBO.

- The consultants will also provide adequate guidance to the NLBO to determine the quality and quantity of the frozen semen (Jersey, HF of cattle and Murrah buffalo, and Boer goat) that NLSIP *should* import. Based on the recommendation, NLSIP will import the frozen semen of genetic merits and handover to the NLBO for use in PPRS clusters and large commercial farms, if in surplus. While importing semen the NLBO will also refer to the genomics information of the semen consignment in question that will enable selection of the semen to be imported on the basis of production and functional traits such as disease resistance and feed efficiency in addition to productivity traits and total production. For native female lines, polymorphism at chromosomal and DNA level for production traits and disease resistance could be feasible to investigate through research grants (preferably at Ph.D. level) as laboratories at NARC, AFU and CVL have begun DNA level investigations, i.e. polymerase chain reactions (PCR) for familial studies and disease diagnosis. Same laboratory facilities with minor modification in procedures could be utilized for the purpose. The NLBO may begin screening bulls this way before the bulls are subjected for semen collection.
- The consultants *will* train in-country specialists and work closely with them to build their capacity for operationalizing the system, demonstrate PPRS system results and produce PPRS manual and training materials. It is proposed that a critical mass of about 30 personnel from DLS, NARC, AFU and private sector be trained and developed as a core team of experts in breeding management.

120. Table 6 below gives the summary of main interventions to be undertaken by the project for genetic improvement of livestock.

Table 6: Summary of main interventions for genetic improvement

Activity	Key tasks to be accomplished
Hiring of international/national consultants/ firm and its/their mobilization	<ul style="list-style-type: none"> • Feasibility analysis to guide semen production investment in regional/provincial centers • PPRS design, piloting, execution • Training/capacity building of in-country human resource • Demonstrate PPRS system results • Produce PPRS manual and training materials
Promote engagement of private paravets in PPRS data collection, service delivery and husbandry management	<ul style="list-style-type: none"> • PPRS operation, data management and analysis training to in-country scientists/officers. • Refresher trainings to service providers • Build incentive and affiliate paravets with POs for breed improvement and service provisions including AI service (many cooperatives already have their paravets)
Strengthen district semen storage facilities and distribution systems – VHLSSC level	<ul style="list-style-type: none"> • Infrastructure • Trainings on semen handling, storage and distribution following the pedigree records and semen requirements in clusters (avoid inbreeding and maintain records).
Strengthening of state semen production and storage facilities and semen and LN2 distribution systems	<ul style="list-style-type: none"> • Infrastructure - as above for Npj/Gaughat – cattle and buffalo • Lahan - Frozen semen production Facility (eastern region) – with focus on Murrah buffalo • Boer/Chyangra goat semen processing laboratory at NLBO, Pokhara
Strengthening NLBO	<ul style="list-style-type: none"> • Infrastructure • Bull mother sheds, bull sheds • Laboratory and semen freezing facilities • Trainings • Frozen Semen Production Facility and AI System for Boer and

Activity	Key tasks to be accomplished
Strengthening of municipal AI service centers (private and public both)	<p><i>Chyangra</i> goats</p> <ul style="list-style-type: none"> • Training for fresh inseminators (JT/JTAs), • Refresher trainings on AI of public and private sector inseminators, • Engage them in PPRS system (see above) • SOPs set and practiced
Establishment of AI centers in new areas	<ul style="list-style-type: none"> • Dairy cluster mapping – identify potential locations • Partnership with respective municipal livestock service section • Expand in areas where 400 inseminations/annum are feasible.
Import of frozen semen (Jersey, HF of cattle and Murrah buffalo, frozen semen of Boer goat)	<ul style="list-style-type: none"> • Specifications as per need for PPRS • Tender and procurement in time.
Import/procurement of Boer live goats	<ul style="list-style-type: none"> • Import will be made based on assessment of availability of 100% Boer blood level within country.
Timely procurement of AI consumables and logistics	<ul style="list-style-type: none"> • As per NLBO requirements or as reflected in the AWPB.
Ensure specialist service in need for managing infertility or undertaking heat synchronization	<ul style="list-style-type: none"> • Trainings • Engage VHLSSC personnel
Environmental and social screening and reports preparation (EMPs, IEE etc)	<ul style="list-style-type: none"> • Assess and evaluate as per WB guidelines (see EMP)

2.2.2.7 Roles and Responsibilities NLBO and NARC

121. Roles and Responsibilities of the NLBO

- Act as lead core institution of the DLS for breed improvement program
- Assign specialist personnel and create a "PPRS Management, Analysis and Performance Evaluation Unit" in NLBO from among the present specialists available (senior officers and veterinarians/ livestock officers)
- Maintain an open nucleus herds of cattle, buffalo and goats in NLBO itself or in its satellite farms.
- As a lead agency support PMU to develop AWPB for all the breed improvement activities to be funded by NLSIP
- Execute PPRSs in partnership with the POs.
- Ensure continuity of the PPRSs after the termination of the NLSIP

122. Roles and Responsibilities of NARC

- Assign specialist personnel and institutions (ABD, AHRD, GRS Bandipur, Dairy Cattle Program Rampur and Dairy Buffalo Program, Tarahara) for participation and partnership in NLSIP breed improvement programs.
- Participate in PPRS training activities (as stated above)
- Keep performance records and participate in data analysis and evaluations.
- Co-work with NLSIP/consulting firm on PPRS to resolve short and long-term problems associated with PPRS system operation. For this, NLSIP will provide NARC with research grants.
- Engage graduate students in thesis work in genetics and breeding. For this, NLSIP will provide students with thesis grants.

2.2.2.3 Feed Base Development and Animal Ration Balancing

123. Livestock suffers from the lack of adequate nutrition particularly during the winter and spring. Even when the green feeds are available in the rainy season, the diet is not balanced. Supplementation is rare and inadequate. Consequently, the animal productivity is low with seasonality in production. To address this issue, the project has given high attention to increase feed supply and forage seed production and promote feed balancing system. It is envisaged that seasonal and perennial fodder production will be promoted on about **2,000 ha**, and that fodder trees will be allocated 5 per adult goat and cover about 200 ha. The project will also support establishment of about 28 nurseries for the production of seedlings, and promote fodder production, processing and storage at community level.

2.2.4.1 Implementation strategies and arrangements

124. The current practice of feeding straw as the main feed, but with high concentrate feed supplementation needs to be replaced. This is important to increase animal productivity and reduce enteric gas production. Therefore, the project aims to increase green forage production by: (i) intensifying terrace risers and bunds in the hills with perennial forage species (super napier, mulato, centro, siratro etc), (ii) promoting agro-forestry system to increase feed supply, minimize soil erosion and increase carbon sequestration, (iii) promoting winter and summer forage crop production, (iv) promoting pasture development in the communal lands including community and leasehold forest lands; (v) promoting community based forage seed production on contract, (vi) importing forage seeds, and (vii) promoting of forage conservation. The project will supply all needed seeds and seedlings/saplings to the farmers. Feed balancing program developed by the project will help the extension agents to quickly respond the farmers to prepare a balanced ration based on locally available feeding materials. The project will also establish national feed database.

125. The municipal livestock extension centres would be the best agents for facilitating implementation of the project forage activities as mentioned above. However, they lack adequate capacity and are overrun with their other responsibilities. Therefore, the project will hire one dedicated Pasture Expert for two DLSUs to work in close coordination with the Veterinary Hospital and Livestock Specialist Service Center on pasture and forage development, among others. The municipal extension agents along with the project social mobilizers will have key roles to identify and mobilize interest groups and sites for forage interventions, and field support and monitoring.

126. The extension staff at municipal level will identify the candidates for FFS Facilitators training. DLSU will use the project developed Mater Trainers to train the FFS facilitators at cluster level. These FFS facilitators will facilitate implementation of forage development activities including agro-pastoral system at municipal level and forage conservation demonstrations. DLSU Pasture Expert will supervise and provide technical backstopping to the FFS Master trainers. The project developed ration balancing system will be linked to all project farmers.

127. To make the above strategies successfully impactful, the **forage intensification programs** will be implemented initially **at demonstration levels (block)**, with priority in areas **where the PPRS** is implemented. With support of the Pasture Experts the Social Mobilizers and the MLSC will identify at least five farmers (implementers) in each municipality, each farmer allocating at least 3 ropani of terrace lands (0.15ha) for perennial forage production and another one to two ropani (0.05 to 0.1ha) for annual fodder production. The land allocated could be own holding or on lease. The purpose is to develop community demonstration-cum resource centres through FFS, where the 4-5 PO leaders (lead farmers) from other communities also take part in the whole FFS process. These sites will be the primary source of genetic materials for future expansion

of forage program in the remaining municipalities of the respective districts. In the following years, the interventions will be extended across the project area.

128. In addition, it would be mandatory that farmers interested in commercial farming under Component C will allocate **at least 1 ropani (0.05ha) of land per adult dairy animal and the same area per 4 adult goats for any project supports**⁵. The project in close cooperation of the municipalities will facilitate land leasing for this purpose, if the interested farmers do not possess adequate land. It is expected that adoption of this approach will reduce straw use by about 50% by end of project. This will result in significant reduction in CH₄ emission.
129. **Promotion of silvi-pasture system:** Upland terraces will be the main focus for forage intensification and development of silvi-pasture system. To promote silvi-pasture system, the VH&LSSC with support from municipal staff and the POs will identify farmers with interest in **fodder tree nursery raising**. DLSU will train the selected farmers using local trainers and provide them support with tree seeds (*Badahar, Kimbu, Kutmiro, Tanki, Koiralo, Khanyu* and so on), nursery construction materials and equipment including polybags. The training will also include business planning. The silvi-pasture system will be the part and parcel of forage intensification of terrace risers and bunds, and will be implemented through FFS.
130. **On-farm fodder production:** On farm fodder production will focus on winter and summer annuals. Important winter crops are oat and berseem; and summer crops are teosinte, perennial sorghum, silage corn, Bajra and so on. Fodder production program will be linked with the fodder seed producer groups and PPRS program to be promoted or strengthened under the project. The project will train the farmers in complete package of fodder cultivation, harvesting and feeding. Where possible the project will work with National Fodder Development Association.
131. **Pasture development:** The project will also support forage/pasture development in communal lands (community/leasehold forests). Interventions in the **communal lands** such as roadsides, wastelands, school area, common grazing lands etc. will require active participation of beneficiaries and municipalities. Similarly, intervention in the community forest/leasehold forest will involve interaction and planning with the forest user groups, District Forest Office (DFO) and other stakeholders such as municipality. The VH&LSSC with support of Project Pasture Expert, social mobilizers and the municipal extension staff will identify the intervention sites/community, assist community or groups to develop pasture development plans, and organize project support for their implementation.
132. In **Mustang and Manang districts (mountains)**, the Pasture Development Expert recruited to work with the Chyangra farmers will be responsible to identify initially two or three pasturelands in each of these districts for project interventions (at pilot scale) with support from the municipal extension staff and the stakeholders. He/she will assist farmers to develop and implement pastureland management plans. Since pasture (range) management in the mountains is governed by both social and technical dimensions, the project will focus on: (a) formation and operation of rangeland multi-stakeholder

⁵ One adult cow weighs 400 kg and eats 3% of BW of which 30% is concentrate feed. Considering there is plenty of green feed available for half of the year, the grantee will have to manage feeding for the rest of the six dry months by preparing corn silage. This will require a minimum of 2.3 ropani of land per adult cows (40 MT of fodder yield per ha). This strategy will replace straw feeding and therefore reducing GHG (enteric methane and CO₂) emission by at least 20%, and at the same time manure NO₂ will be ploughed back into the field. The project aiming at reducing straw use by 50%, the area required will be a minimum of **1 ropani per adult cow**. Similarly, one adult goat weighing 30kg on average eats 4% of BW of which 15% is concentrate feed. Total forage DM requirement is 183kg per year. With average yield of 50MT/ha of improved mixed grasses (30% DM on average), four adult goats would require one ropani of land under fodder production.

management committee comprising of representative of concerned municipalities, local leaders, village chiefs (*Mukhiyas*), local NGOs, local residents (knowledgeable seniors), representative actual users, and organizations concerned with the rangeland management; (b) develop participatory rangeland management plan by using legal and managerial framework; and (c) land development – bush clearing, fencing and land development for seed sowing. The project will finance all these activities including supply of needed seeds/seedlings and associated materials/equipments. As Mustang and Manang also fall under the conservation area, the project will work closely with the Annapurna Area Conservation Project to avoid any conflict.

133. **Forage Seed Production:** Forage seed production will be implemented through the government farms and POs under project contract. The VH&LSSC with support of the municipal staff will identify farmer groups, cooperative or private seed entrepreneurs. These farmers will be provided with complete training package of seed production and marketing for perennial grass and legumes, annual fodder and tree crops, and business planning. The project will support the POs in development of community managed seed processing and storage facilities including preparation of their SOPs. Project may also finance 50% of total cost of water harvesting system and installation of efficient water use system (sprinkler irrigation). If the farmers plan for fertigation, the project may also finance for water pump and manure mixing tanks. These groups/ cooperatives/ private entrepreneurs will be supported with foundation seeds supplied through the NARC system. The project will also support government farms for forage seed production.
134. In the mountain districts, emphasis will be given on seed production of naturalized forage species like Dhimchi (*Pennisetum sp.*) and Kote (*Medicago falcata*). This activity will be implemented in close collaboration and cooperation of the village chiefs (*Mukhiyas*), Annapurna Conservation Project, and local farmers. Based on business plans, the project will finance supply of seeds, micro irrigation and fencing of seed plots.
135. **Seed Importation:** The project will import foundation seeds for seed multiplication as well as certified seeds for extension. These seeds will be stored in modern forage seed storage facility to be initially developed at Ranjitpur Pasture/Fodder Development Farm and later in all 7 States, as needed. These stores will of course be used to store the homegrown seeds also. The imported foundation seeds will be provided to the farmers as well as government farms for multiplication. Import of seeds of climate friendly species like Mulato 2 and 3, drought resistant alfalfa, perennial sorghum, bajra, silage corn varieties and winter fodder especially oats, berseem, winter triticale, annual ryegrass will be given priority. The project will also finance development of forage seed certification system at national level, and breeder seed storage and seed processing facilities at the government farms.
136. **Silage/Hay Making:** The project will promote silage making practices across the project area in the hills and the terai for improved productivity and reduced enteric gas production⁶. To achieve this, the project will finance demonstration of silage making technique at municipal level through FFS. This will be an action-based demonstration cum training activity using whole corn plants with ear at dough stage or surplus napier grass with additives. DLSU Pasture Expert with support from municipal staff will conduct two demonstrations in each selected municipality, except in the mountain districts. For this purpose strong UV stabilized silage bags⁷ or clean 200liter hard plastic diesel drums will be used. The project will finance the procurement of bags, corn silage crusher (not

⁶ Methane production could be reduced up to 30% from dairy animals when fed with corn silage compared to feeding with straw, maize stover or hay. <https://www.climatetechwiki.org/technology/straw-ammoniation-and-silage>

⁷ They are available in India. Alternatively, the local plastic industries could be consulted if they have such technologies.

chaffing machine) (at 50% subsidy) and supplements like molasses or corn powder for demonstration purpose.

137. The project may also facilitate partnerships of the dairy producers with the silage making industries such as, the S. G. Cattle Fodder Industry in Ranighat, Birgunj that has been operating silage making. Parellely, these farmers will be encouraged to produce silage crops and make silage on their own or sell the crops to the above industry and buy back readymade silage from them. To avoid possible monopolistic silage market, forage producer groups or firms will be supported with silage making machines, tractors and accessories for silage making and marketing under matching grant scheme.
138. ***Under matching grant scheme, it will be obligatory for the farmers to include land for silage crop production and trench construction for silage making in case of larger scale of silage making or making silage using baling technique.*** This intervention will help increase animal productivity, reduce cost of production as well as significantly reduce CO₂ and methane production (up to 30%) from dairy production activity.
139. Moreover, since utilization of rainy season surplus green grasses for winter feed deficit period is a major interest of farmers across the country, the project will finance universities or NARC to undertake studies on utilization of surplus summer napier and local grasses for making silage.
140. In the mountain districts, haymaking will be promoted.

2.2.4.2 Ration balancing program and TMR

141. To support farmers in balanced feeding, the project will hire a local expert (Animal Nutritionist - Livestock Feed Formulation Specialist) to develop feed balancing programs for dairy, goat and Chyangra feeding. This will encompass developing program, training the municipal, provincial and central level staff and installation of program at all levels including at ICT platform to promptly respond to the problems of the farmers in feeding. The project will also finance the promotion of total mixed ration (TMR) as guided by the feed balancing programs developed herein through FFS initially in PPRS implementation areas and later across the project area. The use of TMRs as developed through adopting feed balancing program will result in reduced cost of production and improved animal productivity.
142. In remote areas where TMR development is difficult, the project will support supply of mineral blocks like Urea Molasses Blocks (UMB) to address the deficiency of minerals and protein.

2.2.4.3 Local Forage Germplasm Conservation

143. The project will also finance NARC or DLS under an MOU to establish a **forage germplasm conservation centre** at central level. The centre will have the germplasms of local and exotic forage species available or in use in the project area with their botanical characterization and nutritional values (Proximate and Van Soest components). The germplasm will also include the species fed /grazed by goats in the forests which are not yet domesticated. NLSIP will undertake this study by hiring local consultants and publish a booklet with production and nutritional parameters of species under conservation.
144. In addition, the project will be undertaking assessment of national feed balance by employing international and national experts. They will assess the existing feed balance and suggest the future plan along with preparation of SOP and guidelines. NLSIP will also strengthen the DLS feed and fodder analysis laboratory and enhance capacity of the laboratory staff in feed analysis, feed quality control and seed certification.

2.2.3 Strengthening Farmers Training and Extension Services

145. NLSIP training and extension services will focus on: (a) farmer institutional development, (b) enhancing farmers technical and business capacities, such as Dairy Product Diversification training if applicable (the curriculum already developed and approved by CTEVT) (c) linking farmers to input and market information including encouraging farmers to participate in livestock insurance schemes, and (d) facilitating the implementation of activities of public concern such as, one health approach in awareness campaign, and biosecurity and food safety; and compliance to environment and social safeguard measures as well as DFTQC standards in the project area.
146. The staff working with the municipal livestock extension systems, the private paravets and the community animal health workers will serve as the main grassroots-level extension agents to facilitate the implementation of NLSIP activities. The municipal staff will also be responsible for livestock disease surveillance, vaccinations and reporting. In addition they will: (a) facilitate implementation of FFS, FBS and PPRS; (b) feed livestock sector database to LMIS, and (c) monitor and report project results to PMU through VH&LSSC who will act as district coordinator and all concerned. The private paravets, along with the municipal staff, will have a key role in providing treatment, vaccination and artificial insemination services. The Village Animal Health Workers (VAHWs) will be providing veterinary treatment and vaccination services particularly in the remote areas. The laboratory staff provide support in disease diagnosis.
147. Similarly, the project social mobilizers, under the guidance of the Veterinary Hospital and Livestock Specialist Services Centre (VH&LSSC) and in coordination with the municipal extension staff, will facilitate community level planning, group development, facilitating FFS and FBS implementation, and results monitoring and reporting. They will make sure that the vulnerable groups of the communities are active members of the groups and have equitable share on project resources. They will train and coach the newly formed groups in group dynamics, basic accounting and regularize their meetings for accessing NLSIP resources, addressing issues and planning and implementation of group activities.
148. To fully assume the responsibilities stipulated above and achieve the objective of increasing productivity and enhancing value addition, the capacities of the above front line extension workers will need to be upgraded.
149. There is also a need for updating/developing course curricula and manuals for the extension agents in topics such as feeding, breeding, animal health and farm management, and for laboratory technicians, on laboratory protocols/SOPs and disease diagnosis. At the veterinarian level, there is a need for developing knowledge and skills in dairy and meat inspection. Therefore, the project will develop the capacity of frontline extension workers through updating and/or developing training curricula and manuals, and organizing training courses.
150. Farmer Field/Business Schools (FFS/FBS) are considered as one of the most effective approaches of extension, particularly in relatively remote locations and communities where private sector services have not evolved and/or is not effective. Municipal and private paravets are considered the most appropriate facilitators for FBS.
151. Major activities to be undertaken by the project under strengthening farmer training and extension services are discussed in the following sections.

2.2.5.1 Updating curricula and manuals and developing handbook

152. **Updating/developing training curricula:** Based on institutional mapping and specific training need assessment, the NLSIP/IEC Expert will organize review of the existing curricula and update them as appropriate for enhanced capacity of the service providers for effective farm advisory services. Subject matter specialists will be hired for review

and updating. More specific ones are the upgrading of curricula for VAHW training/refresher training, skill development and FFS master trainers.

153. **Updating/developing Manuals:** The NLSIP will develop the following manuals: (a) skill upgradation focusing at improved feeding including silage making, breeding, animal health, heifer rearing and so on; (b) good animal husbandry practices (dairy and goat meat); (c) biological laboratory quality control; (d) laboratory SOP, protocols and format preparation; and (e) disease monitoring and reporting. Activity (c) and (d) are specifically targeted to the laboratory staff of the DLS, and the rest to both public and private sector frontline extension workers in the project area.
154. In addition, NLSIP will develop a comprehensive **handbook** for the use of front-line service providers of both government and private sectors. The handbook will contain (a) technical information (breeding, feeding, forage seed production, silage making, animal health), (b) guidelines for business planning, (c) good veterinary and husbandry practices, (d) rational use of chemicals, hormones and antibiotics, (e) SOPs in breeding and veterinary services, (f) principles of identifying climate change adaptation and mitigation technologies, (g) environment management issues and practices, and (h) the role and responsibilities of the service providers in bringing changes in the livestock systems while delivering services to farmers.

2.2.5.2 Training

155. **Strengthening the POs capacity:** The DLSU will organize training for about 1,500 existing and 1,000 new farmer groups at the Regional Training Centres of the DLS or at an appropriate location in group dynamics, leadership development, group/cooperative management, assessing production costs, basic accounting systems, and so on. With this training, many of the farmer groups are expected to graduate into a legal entity like cooperatives with strengthened capacity, and the cooperatives with added capacity to operate at a scale (business volume, revenue and profit) and with capacity to offer new products to their members. The project will enhance the capacity of about 30 new and about 470 existing cooperatives for enhanced access to improved technologies, market information, and economies of scale to access product markets, financial services, and rural infrastructure. These POs will also be trained and linked with the agriculture insurance companies.
156. In order to develop farmer technical and business capacity, the DLSUs will organize training at the regional training centres by hiring local resource persons. The project will also provide farmer orientation in livestock insurance and link them with the insurers, service suppliers. FFS and FBS will supplement the farmer capacity development initiatives. DLSU will also organize cluster level training for selected farmers from POs in fodder tree nursery establishment and forage seed multiplication. The course will include technical as well business planning aspects in nursery raising.
157. The training will also include public awareness on one health policy, AMR and food quality and food safety compliance.
158. **Strengthening capacity of veterinary practitioners:** NLSIP will organize training of Master Trainers for paravet training and FFS facilitators by using the updated course curriculum. The candidates for master trainers training will be at least Master's degree holders in the respective fields. The Para-vet Master trainers will be used to train fresh or practicing paravets/agro-vets covering areas such as feeding, management, AI, animal health and business management. The training will have a strong practice-oriented character based on the training principle of "LEARNING BY DOING". In these training ample opportunities will be given to discuss and evaluate personal experience with fellow participants, staff and subject matter specialists. The training venue will be a mix of a government livestock farm, a semen bank and a veterinary hospital.

159. The project will also organize training of para veterinarians working in the public and private sector on: (a) food safety, and (b) disease surveillance and prevention. At least one veterinary technician from each municipality will receive training also in veterinary practices covering large and small animals, including companion animals. Similarly, interested VAHWs will receive refresher training based on updated course curriculum. DLSU will be responsible for organization and management of all these training in appropriate sites where the trainees learn by doing. Paravets from the municipal LSC and private sector will be trained also in PPRS where it will be in implementation.
160. In addition, at least 291 veterinarians (one per municipality) will receive meat inspection training and 28 veterinarians (one per district) in dairy inspection. The municipal LSC staff will receive additional training as identified during CENA. They will also be trained in e-extension for which each municipal LSC will receive a tablet with connection to NLSIP ICT platform and subject matter specialists for this purpose.
161. **Strengthening capacity of Social Mobilizers (SMs):** The SMs will be trained in participatory planning, group development, facilitating FFS and FBS implementation, and results monitoring and reporting. DLSU will manage the first two training by hiring expert resource persons at cluster level. Participation in the later two areas will develop them as facilitators.
162. **Farmer field School (FFS):** NLSIP will train at least 400 FFS facilitators who will conduct at least 350 FFS events in its project area for an effective transfer of knowledge, skills, technology and methods in performance recording and evaluation, animal husbandry practices, health care, feeding practices, fodder and forage production and conservation (silage making), and harvesting and marketing techniques and so on. Experience shows that a local on-farm FFS could be a better way to engage farmers for changed/enhanced adoption. Lead farmers could be an FFS facilitator once he/she receives an appropriate training as a trainer/facilitator. FFS will arrange for observing and contributing to demonstrations throughout a production/reproduction cycle of the species in question. A continuous exercise of experimenting, learning, evaluation and adoption will be followed. Farmers will thus own the outcome/results of the experiments and decide which methods to use and adapt for their own farming.
163. PMU will design the FFS model in consultation with the beneficiaries to identify the issues/topics they want to learn and improve based on the experience and the problems they face. Efforts will be made to tap the valid traditional knowledge and experiences to bring the solution of the problems faced by the Farmers. Solutions should always respond to needs farmers have identified. NLSIP will follow AFSP model of FFS, improvise it and implement in the field on the themes identified by the farmers themselves. Some possible areas for FFS are listed in Annex 2.3.
164. While designing and implementing FFS, NLSIP/DLSU need to take care of the following important principles of the FFS.
- The FFS course would provide mainly practical hands-on learning for farmers, so it needs to be designed to allow them to try out methods for themselves on the farm or field locations.
 - FFS is generally run for one production cycle or for a period that would render farmer generate data, evaluate and substantiate the results to internalize in their own understanding.
 - Reach consensus on identifying host farmers and FFS trainees - an FFS host farmer can be among few farmers from a group or PO.
 - Farmers will learn more from doing activities themselves, discussing their own understanding and experience and seeing the results of their work than they do from listening to an FFS trainer.

- The FFS facilitator should be knowledgeable in technical and economic (farmers focus will be on more return or reduced cost) information to support the hands-on learning.
165. NLSIP will provide support for inputs needed (for example, forms and formats, computers, feed, anthelmintic, vaccines, shed construction materials for demonstration, forms and weighing machines for performance records and so on and some incentive for the FFS facilitator) for the entire period of FFS operation. The activities need to be budgeted accordingly.
 166. Farmers will know what they need during the beginning of hands-on practical sessions on the problem they identified and are seeking for the answer. For example, hay feeding exercise may be run for two months during summer/autumn, then interrupted for another three months, and resumed feeding of same hay during winter. This will relate their knowledge base of the hardship they experienced previous year. Facilitation/discussion sessions usually last from a few hours to half a day depending on the need. Building self-confidence and enhancing decision-making capacity based on what they observed is the crux of the school objective.
 167. Private agro-veterinary dealers who can provide inputs such as feeds, vet drug and vaccines might supply some of the inputs needed for the FFS and participate in such discussion. The connection between agro-vets/service providers is essential for continuity and further dissemination of the input/knowledge. Similarly, Government extension agents including municipal technicians and officers if engaged would learn the FFS tools and methods and promote them in the future.
 168. **Farm Business School (FBS):** The FBS is a practice of agriculture extension where farmers themselves are engaged on their own fields and develop their own capacity for running profitable market-oriented farm businesses through improved efficiency, profitability and income (FAO 2015). This leads to changed attitudes of participants and enhanced skills needed for farm commercialization. Therefore, this practice could be of immense value to NLSIP beneficiaries who are expected to move from subsistence farming to commercialization.
 169. FBS helps to identify profitable farm business by analysing expenditures and income of selected enterprise (e.g., dairy farming) and covers the whole production cycle and marketing. The FBS is usually facilitated by trained facilitators, who are generally livestock/veterinary officers and technicians. Therefore, the DLSU will organize FBS facilitators training for 291 municipal LSC staff and 112 Social Mobilizers through resource persons with required expertise in this field. Upon successful completion of the training, these facilitators will be conducting about 350 farm business schools in the communities of their concern, with adequate back up by specialist services from Livestock training establishments and Veterinary Hospital and Livestock Service Specialist Centre (VH&LSSC). The project will finance facilitators training and FBS implementation.
 170. **Monitoring FFS/FBS:** Effective performance monitoring of all FFSs/FBSs needs to be tied up with routine monitoring of other project activities as well. Facilitators may provide monthly reports on FFS performance. Members of District Stakeholders Platforms may jointly visit FFS/FBS sites, of course, with meaningful objectives. The use of phone communications with FFS/FBS host farmers will be useful for the detection of management issues. Quick assessment of transfer of knowledge to neighbors is also an evaluation tool of FFS/FBS since learning results are based on farmers' experiences applicable to their neighbors.
 171. **Training and extension in areas where FFS is not in implementation:** The project will finance farmer training and demonstrations in areas where FFS has not been

implemented. Farmer training will be mostly on-farm, except for specialized courses like business planning, commercial dairy herd management, food safety and hygiene and GAHP. The training will be designed and implemented (ensuring the venue is accessible with user-friendly infrastructure) for active participation of women and other disadvantaged groups. These training will be organized in the DLS Regional Training Centres or at VH&LSSC. The objective will be to disseminate climate friendly technologies for livestock productivity enhancement. The MLSC and SMs with support and guidance from VH&LSSC and DLSU will play important role in planning and implementing these activities. These farmers will be supported also for observation tours in areas where FFS and/or FBS are in implementation. A Technical Guideline for Supporting Dairy Value Chain is given in Annex 2.4. This guideline could also be useful to plan supports for the goat value chain.

2.2.5.3 Livestock Insurance

172. *Beema Samiti* was established in 2013 by the Government of Nepal. It has been implementing insurance schemes under its Crop and Livestock Insurance Directive (CLID) for crop, livestock, birds and fish through Non-life Insurance companies through their field offices and the agents. Presently, seventeen Non-life Insurance Companies are carrying out livestock insurance activities. However, the insurance product covers only the live animals and not the farm infrastructures. And the coverage is insignificant.
173. NLSIP will continue promoting GoN's existing livestock insurance programs (for live animal) by facilitating and engaging POs and individual beneficiary to get their livestock insured. The project will also encourage the insurance companies and their field agents to expand their field offices to cover NLSIP target areas. POs will be encouraged to work as insurance agents of the insurance companies through training and advocacy. DLSU will facilitate to develop and implement an MOU (a field action plan) between the Insurance Field Offices and POs to engage service providers for technical works of the insurance process including identification and tagging of animals, valuation, certification, and support for insurance claims as the events occur. This will also ensure continuity of the insurance and renewal even after the NLSIP.
174. NLSIP will facilitate, through Stakeholders Dialogue Platforms, to influence the change in CLID on how the livestock related assets other than live animal could also be included in the insurance products. At the same time, the project will undertake a comprehensive review of the existing GoN Livestock Insurance Scheme to improve its effectiveness and efficiency.

2.3 Component C: Promoting Inclusive Value Chains for Selected Livestock Commodities

175. This component will contribute to PDO by supporting the integration of smallholder farmers in the selected livestock value chains. The component will focus on improving smallholders' access to markets and on strengthening the backward and forward linkages among value chain actors. NLSIP investments will be tailored to achieve higher standards in handling from the point of production through transport, storage, and marketing to safeguard against post-production losses, enhance shelf life, and meet food safety and hygiene standards demanded by the markets. Specific activities to be carried out under this component are discussed in the following sections.

2.3.1 Development of Productive Partnerships

2.3.1.1 Dialogue Platform

176. The project will finance the operation of dialogue platforms at three levels – central, state and local level governments. At the central level, the Secretary of MOALD (Livestock) will chair the platform while at the state and municipality level the platform will respectively be chaired by the Secretary of Land Management, Agriculture and Cooperative Development and Local Coordination Officer, Municipal Coordination Committee. The composition of dialogue platforms at different layers are given in Annex 2.5 (a), (b) & (c). The project will ensure that women constitute at least 50% in each layer. These platforms will sit at least every four months.
177. The main responsibility of these platforms is to bring the buyer, producers, and service providers under one roof to allow them to identify opportunities for investment in livestock value chain through, where possible, the formation of value chain or rural alliances. The PMU will appoint dedicated staff to establish the dialogue platform in close collaboration with other stakeholders including, amongst others, POs, buyers, traders, processors and BFIs.
178. Specific terms of reference for central-level platform are: (a) provide guidance to NLSIP in planning and implementation by coordinating national level key stakeholders; (b) organize discussions among the stakeholders and provide guidance for production, processing and marketing of healthy and standard livestock products; (c) resolve any issues arising during implementation of value chain activities by taking these issues to the ministerial level problem solving committee; and (d) transmit the decisions of the platform to the state and district level platforms for further discussions and implementation. Similarly, at the state and local level the platform will: (a) facilitate activity planning and implementation by coordinating the key stakeholders from the project areas, (b) discuss with key stakeholders their roles and responsibilities for the production, processing and marketing of healthy and quality livestock products; (c) identify key issues affecting the inclusion of value chain actors such as producers, processors, buyers, suppliers and articulate possible solutions including those requiring collective action and/or requiring local government support, (d) working out actionable agreements; concrete partnerships between specific producer organizations and buyers; concrete commitments by governments to execute prioritized actions
179. These platforms will play a key role in developing productive partnerships between the producers and buyers/traders/processors. They will also: (a) play a key role in linking FFS and genetic improvement to the priorities identified in the platforms, (b) link input supply development actions to key constraints identified by value chain actors and (c) link PO strengthening to the services that are expected to be provided to the members (which would include “production” aspects such as input procurement, quality assurance, aggregation, sorting, packaging, and “managerial” aspects such as price negotiation, market search, accounting, procurement, transparency), and (d) link financing of producers and POs to agreements with downstream buyers through the use of SDP agreements or specific PO-buyers agreements as the basis for designing and approving sub projects. They will also facilitate and guide different activities undertaken under component A.1 (policies and regulatory framework) and be instrumental to implement awareness raising activities on key priority interventions such as food safety and hygiene, and climate smart technologies including waste management and energy efficient technologies for adoption at farm, collection and processing levels.

2.3.1.2 Direct and Sustainable Partnerships Between POs and Buyers

180. The project will encourage direct and sustainable partnership between the producers and the processors particularly under Component C by incorporating a provision of

submission of formal agreement between the producers and buyers in a standard agreement format. In some cases, both producers and buyers may apply for the grant. Even if they do not come together, the buyers may advise the producer to include some critical activities in the business plan and vice versa. In the dairy programme, the PCN and the full proposal will include a copy of the agreement signed by both producers' organization/farm entrepreneurs and the processors/collectors/traders for buyback arrangement⁸ with BFIs and municipal Livestock Service Sections as witnesses. The buy back agreement will contain a minimum of following requirements: (i) quantity of milk to be sold per day; (ii) quality of milk (fat and SNF) to be supplied (without any adulterants and contaminants); (iii) delivery modalities; (iv) payment modalities and price determination criteria; and (v) the buyer's contribution (e.g., establishment of chilling centre). However, in the absence of Contract Farming Act, this partnership will be on "Good Faith Basis". Therefore, NLSIP will be following up the MOALD that the draft Bill on Agriculture Enterprises Promotion, which paves way for contract or lease farming, is passed by the government.

181. In case of Pashmina Chyangra value chain, the project will accept proposal from the buyer/processor, only if the proponent produces a formal buyback agreement with the producer (s) at the time of submission of full proposal. The agreement should define the quantity, quality, delivery modalities, payment modalities and price determination criteria. This condition may not apply in case of producers. For forward linkages, NLSIP may seek active collaboration with the EU funded Trade and Investment Programme (TIP) that will be in implementation from 2019.
182. The value chain actors at all levels will have to follow the Animal Welfare Act and animal transport standards set by DLS while transporting live animals for the project purpose. They may share the costs of the establishments of any animal collection centres. NLSIP will implement value chain actors' awareness raising campaigns in this regard..
183. NLSIP will support the processors/traders/BFIs to develop products in support of POs/entrepreneurs. These services could be mobile banking, facilitating linkage development between POs/entrepreneurs and the insurance companies. In addition, the project will mobilize a professional organization like, Nepal Agriculture Business Incubation Centre (NABIC) to assist the POs to update business plans and provide skills on credit appraisal and risk analysis for livestock farming and agro-enterprises.

2.3.1.3 Food Quality and Safety

184. Misuse of higher antibiotics and pesticides for controlling ecto-parasites, and hormones to improve animal feed efficiency, lack of adoption of good animal husbandry practices (GAHP), good veterinary practices (GAV) and good manufacturing practices (GMP); and inadequacy in enforcement of Food Act are major challenges for achieving product quality and safety in the livestock value chains. Absence of regulatory and monitoring (detection and product rejection) mechanism has led to increased AMR and public health risks. NLSIP will address these issues mainly through training and extension of all value chain actors. Once Animal Health and One Health Policies and Veterinary Drug Act would be in place and respective laboratories strengthened, DLS will be in position to monitor and regulate at farm level all these concerns and promote adoption of GAHP, GVP and GMP in the value chain enterprises. DFTQC is the regulatory body responsible for implementation of the Food Act and mainly takes care of final product at the manufacturing plants itself or while in the market from manufacturing/processing plants distributed/available in the end market for consumption. NLSIP will co-work with DFTQC for ensuring quality and safety of final or processed product at the consumer end.

⁸ The buyback agreement could be between producers and processors even if one of them is operating in different district or state.

DLS institutions will mainly be engaged in monitoring and promotion of adoption of good practices for achieving food quality and safety at production and aggregation. The project will disseminate GAHP, GAV and GMP knowledge and skills through trainings, workshops, distribution of pamphlets, use of media platforms and dialogue platforms and deliver sampling and quality testing services on the ground.

185. While, the DLS State (regional) laboratories will be responsible for milk quality monitoring at farm and collection points, the Veterinary Hospital and Livestock Specialist Service will monitor sub-clinical mastitis at farm level. They will mobilize the Municipal Livestock Service Centres for sample collection. The DLS Livestock Standard and Feed Quality Laboratories and Veterinary Public Health laboratory under CVL will undertake analysis for aflatoxin in animal feeds and AMR in milk and meat products respectively. The Feed Quality Laboratory will also implement food safety monitoring and assessment through the provision of field-level testing kits⁹/technology to track adulteration and contamination in milk. The project will assist these laboratories to develop the SOPs and building their staff and laboratory capacity. These laboratories will have joint planning with NLSIP.
186. In addition, it would be mandatory for the processing enterprises under NLSIP support that they acquire food license for their operation. DFTQC will have a role of issuing licenses to the qualified industries. NLSIP will assist DFTQC to: (a) undertake periodic products quality monitoring at industry points; (b) organize workshops, training, and publicity to encourage the industries for compliance to GMP and implement awareness raising in food quality and standards; (c) undertake a gap analysis in food standards and food safety; (d) conduct training for larger industries on Hazard Analysis and Critical Control Points (HACCP) and implement certification program for traders, butchers, and postharvest facilities; and (e) implement a consumer knowledge and awareness program to stimulate market demand for safe and nutritious (quality) livestock products. During proposal selection, DFTQC or organization like NABIC will ensure that the proponents have right sketch of the product flow design and layout in their proposals.
187. NLSIP/DFTQC/DLS concerned units will identify model farms, collection centers, chilling centers, cheese factories, slaughter places/slabs/houses already developed with government initiatives, Samarth – NMDP, Nepal Agriculture Market Development Project and UNNATI project and use them as learning centers. Exposure of members of dialogue platforms and lead farmers and grant recipients with these initiatives will be valuable for impactful communication of good practices observed in these models to the project beneficiaries.
188. The project will also finance the capacity development of the regional and central DFTQC labs for food safety testing and operationalization of equipment supplied under AFSP and PACT through staff training and supply of chemical standards based on the recommendation of CENA. DFTQC and NLSIP will have joint planning and budgeting annually with DFTQC reporting to NLSIP as per project requirement in an agreed format. The DFTQC will also appoint a dedicated desk officer for the management and coordination of activities indicated above. An MOU will be signed between the DFTQC and NLSIP for financing and activity implementation arrangements.
189. The project will also mobilize the Central Dairy Cooperative of Nepal (CDCAN), Dairy Industries Association (DIA), Nepal Dairy Association (NDA), Dairy Processors, Meat Processors' Association and the like in support of application of Good Animal Husbandry and Veterinary Practices, and Good Manufacturing Practices; and marketing of milk and milk products produced in project areas that are away from metro cities.

⁹ The test kits could be procured from NDDDB India.

190. The activities on financing livestock value chains will center on integrating smallholders in the mainstream markets for improving smallholders' access to markets with functional backward and forward linkages among value chain actors. The project would provide entrepreneurs with grants for either to strengthen the existing VC enterprise or create a new value chain enterprise with enhanced capacity for efficient production and marketing management. ***The most successful experiences are with buyer/producer joint proposals, independent review of proposals and TA/matching grant support to ensure their viability.***

2.3.2.1 Matching grants (MG)

191. **IDA investment area:** The business plans could include, inter alia, innovative infrastructures and machineries and equipment for improved efficiency of production/processing, improved livestock genetics, improved feed and environment performance, and for hygiene and food quality safeguards compliance. NLSIP investment will be limited to fixed investment (physical assets) such as machineries, buildings, installations, vehicles or technology including financing to develop new facilities within the old structures for drudgery reduction, such as automated/semi-automated feeding, watering or waste management. Although the project will support business expansion, which may include expansion of infrastructure, it will not finance maintenance of infrastructures. Similarly, it may support financing of breeding male animals but not the production units (e.g. cows or she-goats). Annex 2.6 indicates the major IDA investment area bundled under each of these objectives.

192. **Participating banks:** NLSIP will provide a list of preferred participating banks and financial institutions (BFIs) where grant applicants may approach for loan. However, grant applicants will be free to select BFIs other than from NLSIP's list if they wish to do so. To ensure all participating BFIs follow project norms and guidelines, including reporting to NLSIP on a format and on a timely basis as agreed upon, an MOU will be signed between NLSIP/DLSUs and the participating BFIs(Annex 2.7).

193. **Grant structure and amount:** The business plans will be financed through a combination of IDA-financing (50 percent), equity contribution from the POs (minimum 20 percent in cash), and credit provided by the participating BFIs (30 percent or more). The IDA-financing portion shall comprise either small scale grants (not exceeding US\$35,000) or medium scale grants (between US\$35,000 and US\$100,000). Of the total grant amount, at least 40% will be allocated for small-scale grant and a maximum of 60% for medium-scale grant.

194. **Grant principles:** NLSIP grant will be available to competitive eligible applicants, who will go through PCN and full proposal screening steps including field verifications as required. Secondly, since NLSIP will follow an output-based financing, grant instalment will be released only upon field appraisal/verification of performance against agreed milestones. For example, the first instalment grant transfer to the bank account of the GR will be made subject to at least 50% GR spending to meeting agreed milestones from its equity and/or goods purchased on credit. Thirdly, NLSIP will not provide any grant to proposals falling under negative list from the perspective of environment and social safeguards. It would be mandatory that the GRs fully complies with environmental code of practices (ECOP) and bear all costs of implementing environment and social safeguard measures recommended by NLSIP during the implementation of sub-project if they were either missed out or did not include such provisions/activities earlier during the grant agreement. Fourthly, grants should reach to all 28 project districts. NLSIP will prepare a separate Grant Operating Manual to facilitate grant management. Fifth, the grantee should not have possession of grant from government or other donor funded projects for a similar nature of work at least for the last 2 years.

195. Eligibility Criteria: MGs will be accessible to eligible smallholder producers in groups or cooperatives, as well as to agro-entrepreneurs to finance productive livestock investment business plans. The producer organizations (farmer group or cooperative) and private firms would be eligible on fulfilment of the following specific conditions:

- 1) Proof of registration with GON authority: (a) Farmer Groups- registered with MLSC or previous DLSO; (b) Producers Association - registered at District Administration Office pursuant to Society Registration Act; (c) Cooperatives - registered under Cooperative Act (1992); and (d) private firms - registered at Company Registrar Office, Department of Cottage and Small Industry or the Department of Commerce.
- 2) Recommendation from the respective local government
- 3) Not black listed by the government and/or by any BFIs.
- 4) Financial standing of grant applicant (i) Farmer Groups¹⁰ /Farmer Associations- recent bank statement and VAT or PAN registration (copies to be attached while submitting full proposal); (ii) Cooperatives - copy of latest audit report (for cooperatives in operation for than one year), VAT or PAN registration, and recent bank statement; and (iii) private firms/entrepreneurs – a copy of latest audit report (for firms in operation for more than one year), a copy of VAT or PAN registration, a copy of recent tax clearance certificate, and a recent bank statement (covering last 6 months of transation). A checklist that is in complince with the above-mentioned conditions will be attached both in PCN and full proposal format so that applicants also check the documents before they submit the proposal.
- 5) An individual will not be allowed to take grants from two sources under the project scheme (for example, as being a group member and a separate grant as being a registered private enterprise). He/she can be a recipient of only one project grant.
- 6) Should not be in possession of any grant from GoN source or from GoN projects in the last two years for similar nature of activities.
- 7) Applicable while submitting of full proposal are:
 - a) An in-principle letter of credit/loan facilityfrom BFI, subject to approval of sub-project;
 - b) Certificate of land resources (for feed development): The grant applicant should ensure to allocate at least one ropani (0.05ha) of land per adult dairy cow or per 4 adult goats for the proposed sub-project. If the applicant's own land is inadequate, he/she can lease land. In case of leased land, the applicant must submit an assurance letter from the landowner that indicates lease term (for at least 5 years); and
 - c) A self-attested letter of commitment to follow (i) Good Animal Husbandry Practices (GAHP); and (ii) manage farm wastes in an environmentally safe way.

196. The interested applicants should submit the above documents (1-5) while submitting PCN and (1-6) while submitting full proposal.

197. In case of Pashmina Chyangra value chain, the project will accept proposal from the buyer/processor, only if the applicant produces a formal buyback agreement with the producer (s) at the time of submission of full proposal.

¹⁰ Farmer groups: Registered at either with previous District Livestock Service Office (DLSO) or MLSC and Producers association: Registered at District Administration Office pursuant to Society Registration Act or Registered at Inland Revenue Office;

198. **Selection of grant recipients:** NLSIP will call for **Project Concept Note (PCN)** with 35 days notice in national papers (can be extended). Interested parties would be able to get the application formats from DLSU, or can be download from NLSIP website. The PCN format will include an Environmental and Social Screening checklist, criteria that will help the sub projects to comply with safeguard requirements and a sample format to submit an Environmental Management Plan. The applicants will submit their PCNs to respective Veterinary Hospital and Specialised Livestock Service Center or DLSUs. Later these submitted PCNs will be collected and documented in the respective DLSUs. These PCNs will be evaluated, in parallel, for technical competence by DLSU expert team (DLSU Chief, Dairy or Meat Value Chain Expert based at DLSU and Environment and Social Expert , and for project viability by participating BFIs based on selection guidelines. The TASP based at DLSUs will facilitate the evaluation Process. For selected PCNs, a team comprising DLSU representative, VH&SLSS, Representative LSC or Livestock Service Section in the respective (rural) municipality, and participating BFIs will then undertake joint field verifications based on project guidelines. During the process, the team will make photographic documentation of the existing infrastructures and machineries and equipment. *These documentations will be used during milestones verification throughout the process of instalment payments to the grant recipients.* Following this process, the team, will decide right in the field if the applicant/s is/are eligible and therefore should proceed for full proposal submission or are rejected with advice to the GA to improve and submit in the next opening of the calls. These institutions will then jointly prepare the list of successful PCNs. The list of the successful PCNs will be submitted to the State Level Coordination Committee for final approval for the submission of sub project full proposals. The approved list of PCNs will be made public by posting it in the Project website. The respective DLSUs will issue the letter to the successful applicant for the submission of full project proposal. The field verification report provided by the field verification team should be attached while submitting the FPPs with a copy to PMU
199. PMU/DLSUs will organize training for the successful candidates covering topics such as business plan preparation, framework for infrastructure design, products flow design (industries), environmental and social safeguards, food quality compliance and writing full proposal. NLSIP will mobilize professional organizations like NABIC for this purpose. This offer from NLSIP to support SMEs with business planning should be an incentive for BFIs to affiliate with the project, as it will reduce their transaction costs.
200. The project will call for **full proposals** with a 35 days' notice in a national daily papers. The full proposal shall be submitted to VHLSSC or respective DLSUs. A Committee comprising of Subject Matter Specialists at DLSUs level will evaluate the micro and small project proposal (up to a grant of USD 35, 000) based on the project guidelines and submit the evaluated proposal to State Level Coordination Committee for final approval. For Medium sized proposal (more than USD 35,000 in grant) the DLSUs will forward the FPPS to PMU for final evaluation which will be carried out by the independent peer reviewers as per the project guidelines.
201. PMU and BFI will jointly compile and study the recommendations of the peer reviewers, undertake field verifications if necessary. A Grant Management Committee formed within the PMU as per the Grant Operating Manual will verify the result and submit it to the Project Director for final approval . The merit list will then be published in the project website as well as in other press media. Following the publication of the result, PMU will invite the successful candidates for grant negotiations at the respective DLSUs.
202. **Grant negotiations and agreement:** The grant negotiations will take place at DLSU level. The DLSU Chief will chair the grant negotiation committee with representatives of BFIs as members. The negotiations will be completed generally within 15 days of invitation to GAs for negotiation. The committee will finalize the details of work plan and budget. It should ensure that the activities planned are in logical order/sequence.

Consideration will be given to include measures for environmental and social safeguards and hygiene and food safety compliance, if any missed out in the full proposal, and any suggestions provided by the reviewers. During grant negotiation, the applicant should produce a **bank statement**, which validates a bank balance equivalent to equity investment as mentioned in the project proposal.

203. ***The Project Director on behalf of NLSIP, BFI representative (offering loan) and the GR (chairperson of the sub-project), with one of the Officers of NLSIP as witness will sign the grant agreement.*** Within 15 days of agreement signed, DLSU/BFI will provide orientation to GRs on grant implementation and grievance management, and will assess their technical support/training needs for future support planning. Based on the training needs, an organization like NABIC will develop training plan for the grant recipients and deliver training. DLSUs will support the training programs.
204. If the milestones require adjustments during sub-project implementation, due to external or internal factors, the GR should make a written request to the BFI with a copy to DLSU. BFI and DLSU will make a joint review by visiting the sub-project and make a joint decision, based on merit of the request without affecting the objective of the sub-project and the total budget. The copy of the adjusted plan should be attached as addendum to the original agreement and recorded at GR, DLSU, BFI and PMU levels.
205. **Effectiveness and termination:** The sub-project will be effective immediately after signing of agreement. The sub-project will be implemented according to the work plan as negotiated. However, under special circumstances, duration could be prolonged upon approval of a written request from the Grant Recipients which is attached as addendum to the agreement. The agreement could be terminated under the following conditions: (a) a breach of any provision specified in the agreement; (b) the grantee organization declares that it is bankrupt or insolvent; and (c) serious misconduct by Grant Recipients. In case of loan default, BFIs will use their own internal mechanism for the loan recovery as they generally do in other default cases.
206. **Transparency:** Transparency is important to maintain internal good governance and sub-project accountability to public concerns and issues. Therefore, it would be obligatory to all GRs to: (a) erect a hoarding board containing project details; (b) erect an Environment and Social code of practices; and (c) organize public hearing at least three times (beginning, mid term and on completion). Project Grant Operating Manual will detail out the contents and the procedures.
207. **Dispute resolution:** Any dispute arising between the GR and the NLSIP will be resolved according to the Grievance Redressing mechanism as described in the Project Grievance Redressing Manual 2075. Similarly, any dispute arising between the BFI and the borrower will be resolved according to the BFI Rule.
208. **Anti-corruption policy:** Anti-corruption policy of both Government of Nepal and World Bank will strictly follow zero tolerance on corruption.
209. **Financial management:** The grant recipient shall open a separate Bank Account for funds to be operated by their authorized representatives in the BFI from where it plans to borrow. The amount deposited in the BFI shall be used only for sub-project related payments as per the grant agreement. The grant recipient shall maintain vouchers/bills/supporting documents for the various payments (systematically numbered), and copies of the Bank Account statement (pass book), annual account statement, audit report etc. The grant recipient shall prepare a report as per the grant agreement. This report should specifically indicate: (i) beneficiaries and project contributions, amount spent on the various eligible expenditures, and balance in the form of Bank balance or cash; and (ii) the details of the works carried out (activities completed), cost incurred, the work already completed and the work-in-progress to be

completed in the forthcoming months). The grant recipient shall provide the account registers/records, supporting documents, and all other information to the Project as and when required.

210. NLSIP grant release will also count for invoices of any specialized equipment/vehicles that are included in the business plan. NLSIP will share the cost of the vehicles only if its use is an integral part of proposed business activity and are included in the grant applicants' business plans. In addition, *the bank will make direct payment to the suppliers for expenditure more than Rs 10 lakhs (USD 10,000).*
211. **Grant Release:** The DLSU team and the concerned BFIs will undertake field visits to monitor the sub-projects on a quarterly basis. Each event will record the physical and financial progress against the agreed milestones. The project will also organize semi-annual business-to-business meetings at the district headquarters, where the DLSU is also invited. ***The organization like NABIC could organize and facilitate such meetings.***
212. PMU will not release any part of the grant proceeds to any GR without properly assessing the documents and recommendations of the participating BFI and DLSU. DLSU will be required to submit reports and recommendations based on field appraisal and checking of bills, invoices and vouchers including sub-project's outputs. Grant will be released in the bank account of the GR opened in the participating BFI in three instalments as given in Table 7 below. Bank instalment payment by the GR/borrower may continue even after the end of project, because the instalment payment will depend on the cash flow of the business proposed.

Table 7: Grant Release Schedule

Stage	Investment of total commitment		Work completed	Grant amount release*
	Equity	Bank loan		
Investment for 1 st milestones	50 %	50%	1st milestones	50% of expenditure as per 1st milestones completed
Investment for 2nd milestones	50 %	Remaining 50%	2nd milestones	50% of expenditure as per 2nd milestones completed
Investment for final milestones			Final milestones	Remaining portion of the grant of the contract agreement after final milestones completed

213. **Procurement management:** All GRs shall follow procurement rules and procedures as prescribed in the Grant Operating Manual 2076. This applies to procurement of equipment, machineries and transport facilities/means (tractors, pick-up vans etc.) and the construction of physical infrastructures.
214. **Risk assessment and mitigation measures:** The project will adopt safeguard measures to ensure that the grant funds are properly managed and likelihood of fund mismanagement may be minimized, or brought down to zero. Project follows zero tolerance policy with regard to the grant fund mismanagement from any level including beneficiaries. The following fiduciary risk management provisions (Table 8) will be incorporated in the GOM, which will be assessed during the grant disbursement.

Table 8: Possible Fiduciary Risks and Mitigation Measures

SN	Risks	Measures
A	With respect to equipment, machineries and transport vehicles	
1	Likelihood of over	a) Payment against receipts from suppliers who are

	invoicing by GR for equipment/ machineries	regsisterd with PAN/VAT. b) PMU/DLSUs will refer to verify proposed cost through national market process or website quoted prices as applicable for major equipment and machineries included in the proposal. (c) Strengthen field appraisal process.
2	Only receipts submitted by GR but no equipment or machineries observed in the site.	(a) Grant payment only after field appraisal for each instalment. (b) Submission of external auditor's report is a precondition for grant settlement (final payment)
3	Procurement of second hand and fabricated equipment and machinery	(a) Grant payment only after field appraisal for each instalment. (b) Strengthen field appraisal process.
4	Equipment not meeting the required specifications, standard and quality	(a) No grant payment without field appraisal of the equipment/machinery procured. (b) GR should get prior approval for procurement of any equipment or machinery with changed specifications and standard.
B With regard to vehicles and tractors		
1	Vehicles or tractors are not procured as per specifications	(a) No grant payment without field appraisal of the vehicle procured. (b) GR should get prior approval for procurement of vehicle or tractor with changed specifications and standard. © Submission of blue book is a pre-condition to payment for vehicle or tractors.
C With regard to physical infrastructure		
1	Low quality construction	(a) Submission of design and estimate of all construction is pre-condition to grant agreement. (b) Construction is qualified only on the land owned or leased by the GR for at least 10 years (copies of lease land agreement or land certificate required during negotiation). (c) New constructions are checked against the old constructions as documented during field verification during PCN selection.
D	General	Matching grants will be available by items not as a gross grant of the sub-project.

2.3.3.2 Market Infrastructure/Slaughterhouse/Stray Cattle Collection Centre

215. The Project will complete the construction of the livestock market in Damak, in addition to financing the development of animal market infrastructures /collection centres in all seven States depending upon the need and the feasibility.

216. Similarly, the project will encourage establishment of municipal slaughterhouses particularly in the terai, as they may solve many of the problems associated with animal transportation, environment and cost. At the same time, it will open matching grant scheme also for the private sector interested to establish a slaughterhouse. Other infrastructure, the project may consider would be pilot funding to development of stray cattle (feral) collection centre. The project will finance these infrastructures subject to the compliance to the following conditions: (a) there is no land ownership issue pending and that the land is owned by the Government of Nepal/municipality or market

board/committee duly formed pursuant to appropriate law of the country. The land could also be on lease or on donations. Possession of the land ownership certificate (Lal Purja) is therefore mandatory for project's support/financing; and (b) the committee submits a commitment letter to comply with the related Acts such as Environment Protection Act with a business plan. If needed, the project may support the concerned agency to prepare the business plan.

217. In case of livestock market, the candidate agency or committee should submit a request letter to participate in the scheme with the commitment to improve the market management which will have provisions for essential services such as veterinary clinics, road access, loading and unloading ramps, power supply, vehicle parking lot, shelters, public conveniences (toilets) for buyers and sellers and adequate human and wealth protection before any joint action will proceed. It should also have adequate provision for solid liquid waste management including the proper disposal of veterinary clinical equipments and glasswares. A commitment letter to comply with animal welfare will also be required for NLSIP support.
218. For support to pilot municipal slaughterhouse construction, the committee should also submit a commitment letter to comply with the relevant national Acts including Nepal Food Act, Animal Welfare Act and Environment Protection Act. The land could be leased for which the agency should submit at least a five-year lease certificate.
219. On meeting the above conditions, the project may provide assistance to prepare detailed project report (DPR) for each activity by recruiting an appropriate consulting firm competitively complying with World Bank procurement guidelines and GoN's Public Procurement Act and Regulations. The DPR will detail out the business case for the candidate slaughterhouse together with environment management plan including detailed engineering design with inputs from a locally hired Meat Processing Expert. The project may account the cost of the land and management costs as matching grant.
220. NLSIP will develop SOPs for livestock market, collection centres, slaughter house and stray cattle collection centre.

2.4 Component D: Project management

221. This component will finance establishment, operationalization and maintenance of PMU and DLSUs, and all aspects of project planning and implementation management, monitoring and evaluation including establishment of LMIS at different layers, and verification and reporting on project execution and impacts thereof. The component will also support the project-related studies, workshops, and seminars, generating knowledge from the project implementation experiences, including but not limited to mainstreaming climate-smart livestock practices, to be communicated to various public and private entities in a timely and effective manner.

2.4.1 Implementation Arrangement

222. A PMU at central level and four DLSUs at cluster level will have the overall responsibility of NLSIP implementation. The project will be working with the VH&LSSC, which will be supported by four social mobilizers in each project district. These staff under the guidance of respective DLSUs will be directly involved in project implementation with support of municipal level livestock service centres, and effectively operationalizing the District Dialogue Platforms.

223. To facilitate project implementation, a **Project Steering Committee (PSC)** at the centre, three layers of **Dialogue Platforms (DP)** (centre, State and district) and a **Project Technical Coordination Committee** at the centre and a **Project Coordination Committee at the State level** will be formed. The PSC will sit at least twice a year and the DPs at least once every quadrimester. The other committees will sit at least twice a year.

224. The central level dialogue platform will be chaired by the Secretary of the MoALD with Project Director as Member Secretary. PSC members comprise of inter-departmental representation from MoALD, National Planning Commission (NPC), Nepal Agriculture Research Council, and Nepal Rastra Bank (Annex 2.8). The DP members comprise of inter-ministerial representation, National Farmers' Commission, Consumers' Forum, livestock producers and processors and Feed Industries (Annex 2.5a). While, the PSC will review project progress and reports, approve project guidelines and provide strategic and policy guidance to the project, the DP will help build productive partnerships between the producers and buyers and provide guidance in coordination and service delivery. This platform may also have a role in project related grievance management. It may request PMU for studies to address some of the pertinent issues related to livestock value chain development.

225. The central level **Project Technical Coordination Committee** will be chaired by the Director General of the Department of Livestock Services, which will provide technical support and help maintain coordination between NLSIP and DLS entities (central, provincial and district) for effective project implementation and service delivery. The committee members will compose of specialists in the area of feeding, breeding and animal health as provided in the Annex 2.9.

226. The State Secretary of Land Development, Agriculture and Cooperative will chair the State level **Project Coordination Committee (PCC)** where as the state level **Dialogue Platform will chair by Director of State livestock and Fisheries**. The composition of PCC is provided in Annex 2.10 and for Dialogue Platform in Annex 2.5(b). The chief of DLSU will work as member secretary in both cases. The DP will help build productive partnerships between the producers and buyers and provide guidance in coordination and service delivery. It may also have a role of project grievance management at State level and forward the unresolved grievances if any to the central level Steering Committee. This platform may also request PMU for studies to address some of the pertinent issues related to livestock value chain development. Similarly, a State level

Technical Coordination Committee will provide technical guidance and help maintain coordination between NLSIP and DLS entities for effective project implementation and service delivery.

227. The Local Coordination Officer of District Coordination Committee will chair the **district Dialogue Platform** and the Chief of District Veterinary Hospital and Livestock Specialist Service Centre will act as member secretary. Other members include the representatives from DLSU, consumer forum, livestock producers and industries, district chamber of commerce and industry and veterinary drug association. The platform will have similar jobs as indicated above for State and Central level DPs.
- iii) **Project Management Unit (PMU)**: PMU will be responsible for the day-to-day project management, implementation, fiduciary management, environmental and social safeguards management, grievance management (at central level), overall communication, monitoring and evaluation and reporting. PMU will prepare the Work Plans, which will be approved by the GON competent authority and shared with the World Bank. It will also be responsible to oversee overall performance of the project, and approve the list of grantees submitted by the DLSU/BFIs and timely disbursement of grant instalments. It will also support knowledge generation and dissemination including implementation of public awareness and outreach campaigns. Hiring experts/firms for specific purpose such as studies and expertise will also be managed by PMU as indicated in the project procurement plan and PIM. PMU will provide guidance to management and operation of four DLSUs located in Biratnagar, Hetauda, Butwal and Pokhara.
228. The PMU will be responsible to organize regular meetings of the Project Steering Committee and the Central Dialogue Platform. It will also have regular interactions with the partner BFIs at central level mainly to expedite project implementation and addressing issues that may arise at field or management level during project implementation.
229. The PMU will consist of one Project Director (Joint Secretary level, class I Officer), Senior Planning Officer (Livestock, class II), Senior Monitoring and Evaluation Officer (Veterinary, class II), Finance Officer (Under Secretary level), Planning Officer (Economist class III), Veterinary and Livestock Officer -2 (class III), JTs -2 and Administrative Assistant, all seconded from the Government. The Project Director will be responsible for project operation and management and will have the authority to make decisions related to project administration and financial management. The PMU will be supported by a project hired Project Technical Expert, Financial Management Specialist, Procurement Specialist on full time basis and a Legal advisor on a part time basis. It will be further supported by a team of specialists comprising of an M&E specialist, a Senior Veterinary Specialist, a Senior Livestock Specialist, a Social Safeguards Specialist, an Agri-business Specialist, a Cooperative Development Specialist, an ICT Specialist, an IEC Specialist and three Data Management Assistants, who will be hired through a consulting firm that will also be providing expert services at DLSU level. The Terms of Reference for PMU is given in Annex 6.8.
230. The project will also hire a dedicated firm to work in the Intensive Pashmina Chyangra Intensive Support Programme in Mustang and Manang districts. The firm will supply one Mountain Pasture Specialist, four veterinary/livestock technicians and four local social mobilizers. While the Pasture expert will be located in one of two pilot sites identified in each of Mustang and Manang districts, the Veterinary/Livestock Technician and the Social Mobilizers will be located in the pilot sites.
231. **Decentralized Local Support Unit (DLSU)**: DLSU will be headed by a Coordinator Livestock/Veterinary (Class II level Officer) who will be supported by Livestock/Veterinary Officer-2 (Class III level), two Veterinary/livestock Technician (non-gazetted class I), one JTA (Veterinary/Livestock; non-gazetted class II), an

Accountant (non-gazetted class I) and an Administrative Assistant, all seconded from the government. An M&E Specialist and a Data Management Assistant will support each DLSU. Further, there will be one Dairy Value Chain Specialist, one Meat Value Chain Specialist, one Fodder and Pasture Development Specialist, one Infrastructure Development Specialist, and an Environment and Social Safeguard Specialist to provide technical support to two DLSUs each.

232. The DLSUs will act as regional representative of the NLSIP and will be responsible to planning, implementing, supervising, monitoring at cluster level and reporting to PMU. They will also be responsible to mobilize municipal LSC, regional veterinary laboratories, Veterinary Hospital and Livestock Specialist Service Centre in support of implementation and monitoring of NLSIP activities. They will contribute to technical screening of PCN and final evaluation of small grant proposals. DLSUs will manage /organize capacity building related activities including workshops at DLSU level and operationalize Grievance Redressing Committee at DLSU level and communicate progress to PMU including any complaints that could not be resolved at DLSU level. They will also be responsible to organize regular meetings of the state level coordination committee and dialogue platform, which will help build productive partnerships between the producers and buyers and provide guidance in coordination and service delivery. Detailed Terms of Reference for DLSU is given in Annex 6.9.

233. **VH&LSSC and Social Mobilizers:** There will be one Mountain Pasture Development Specialist common for Mustang and Manang districts. Four Social Mobilizers and four veterinary/livestock technicians located in each intensive program sites will support this expert. In addition, the project will have provision of 112 Social Mobilizers preferably JTs and JTAs (4 per district). The VH&LSSC will be responsible to the respective DLSUs. Each of them with support of social mobilizers and in close coordination with the municipal LSCs will be 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 high degree of coordination at municipal and district level; (4) facilitate implementation of FFS and FBS; (5) assist the project IEC 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 to: (a) build productive partnerships between the producers and buyers; (b) create conducive environment for investment on livestock sector, and (c) provide guidance in coordination and service delivery. The DLSU will advance the activity budget to MLSC.

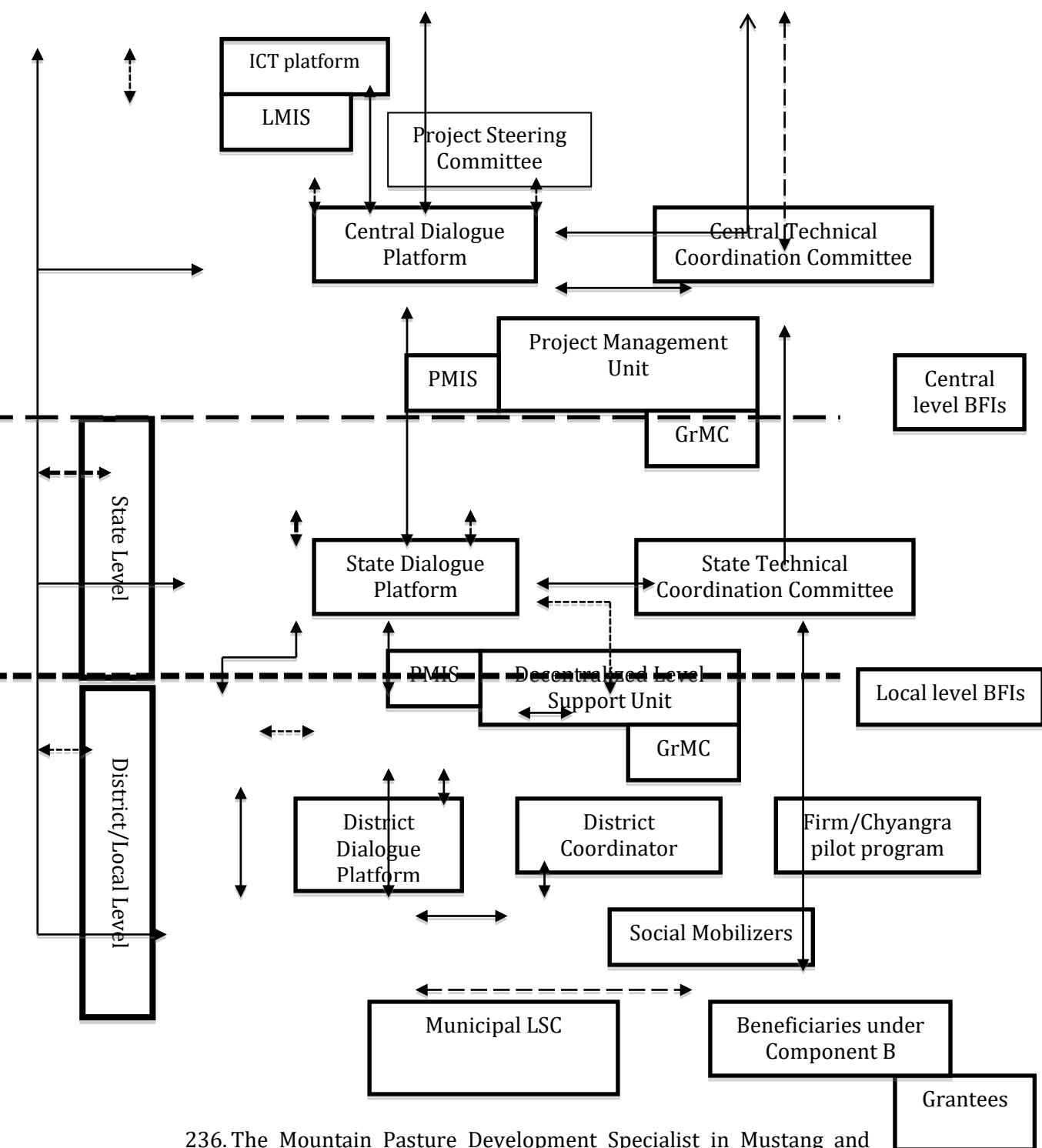
234. **Municipal LSC:** Municipal LSCs will be the grassroots agencies responsible to facilitate project planning, implementation, monitoring and evaluation, and reporting. Each of them will be provided with tablets for communication with the project. The tablet will be used for data collection and transmittal to LMIS at municipal level, which will transmit them to central LMIS for processing, analysis and posting/dissemination.

235. Project management framework is given below in figure 1.

Central Level

Figure 1: Project Management Framework





236. The Mountain Pasture Development Specialist in Mustang and Manang will be specifically responsible to: (a) plan and implement Chyangra/Pashmina intensive programme which will require intensive planning and implementation support at local level; and (b) with the support of locally hired Social Mobilizers and the municipal LSC, assist formation/strengthening farmer groups (two in each district) initially and help them develop and implement intensive Chyangra development programs with focus at capacity development, group strengthening and pasture development through implementation with participation of multi-stakeholders. The Mountain Pasture Development Specialist will be located in one of the municipalities where intensive programme will be implemented and will report the progress to DLSU with a copy to PMU. The TORs for Mountain Pasture Development Specialist,

Veterinary/Livestock Technician and Social Mobilizers are given in Annex 6.10, 6.11 and 6.12 respectively.

2.4.2 Communication

2.4.2.1 Communication Strategy and Materials

237. NLSIP interventions focus on policy adjustments, application of innovative service delivery and provision of matching grants for value chain development by engaging farmer groups, producers/processors' associations, cooperatives, traders and processors, and stakeholders from central to municipal levels. In view of these, the project will develop a communication strategy and action plan by hiring a consulting firm which will inform project management about the specifics of communication activities, timing and implementation methods. It will address the range of target groups relevant to project implementation, including civil servants at central and local levels, project beneficiaries and consumers. The process will involve diagnosing the current level of communication and information environment relevant to the NLSIP and based on this, developing a strategic communication program with plan of action and monitoring and evaluation system. The strategy should outline and define pertinent issues for the development of communication activities, namely: target groups, information products, management and dissemination mechanisms and the relevant approaches for optimization of communication among such target groups. A detailed TOR is given in Annex 6.5.
238. To make the beneficiaries and stakeholders aware of project objectives, scope and implementation modalities, PMU will organize a series of workshops at central and state levels, which will be followed by similar workshops by DLSUs at municipal levels. This awareness campaign will be supplemented by distribution of project brochures. The communications and outreach campaigns will mobilize local level actors, including the community-based organizations, para-veterinarians, and social mobilizers, who are permanently, based in the project locations. Moreover, the VH&LSSC and Social Mobilizers and the municipal LSC staff will play key role in making people aware of the project objectives, its activities, implementation modalities and opportunities for farmer groups and enterprises to participate in project activities.
239. Public opinion will be sought aggressively when updating/formulating the livestock policies and Acts. The stakeholders dialogue platforms at different layers will also play roles in communicating the project basic information. The project will also organize workshops and seminars at different layers on issues related to NLSIP objectives.
240. Similarly, the project will publish calls for PCN and proposals for matching grants in the national newspapers and its administrative manual will be posted in the project website. The applicants with successful PNCs will be trained in proposal writing, business plan preparation, environmental and social safeguards, and food hygiene and food quality compliance. Implementation of sub-projects will maintain transparency through on-site establishment of hoarding board on project investment and activities, and ECOP for public awareness.
241. More than the above, NLSIP will empower the target populations in the livestock sector by providing them with information that enables them to actively engage with project activities and thereby increase productivity, enhance value addition, and improve climate resilience of smallholder farms and agro-enterprises in selected value chains in Nepal. It is envisaged that once key messages are accurately and promptly delivered to the stakeholders and other groups in the communities there will be a smooth roll out of the project to the population within the Project areas. Communication will also raise consumer awareness about the diets, food hygiene and nutritional value of animal source food.

2.4.2.2 Hiring a Public Awareness Firm

242. As discussed above, the project should be creating public awareness about the project activities and bringing into its achievements into public notice. For this, regular collection of information, processing, designing messages in the form of audio-visuals and their broadcasting through radio, TVs and national newspapers are important. These activities are important also to share project lessons. Performing such jobs will require a professional organization that has experience in managing similar tasks in the agriculture or livestock sector. Therefore, the project will hire a local media for this purpose. The TOR for the consulting firm is given in Annex 6.6.

SECTION III: FINANCIAL MANAGEMENT

3.1 General

243. The following paragraphs outline the financial management system of NLSIP that has been visualized in Loan Financing Agreement between Government of Nepal and International Development Association (IDA) and Project Appraisal Document (PAD) of the Project. While the Financing Agreement sets forth the conditions which are to be duly complied with by both the parties i.e., GoN and IDA, the Project Appraisal Document (PAD) articulates the fundamental aspects of financial management within the project framework.

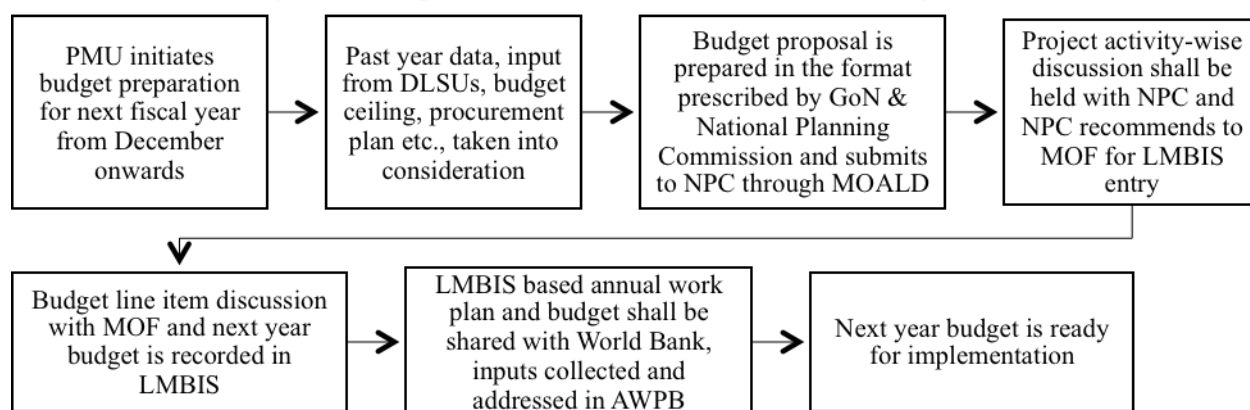
3.2 Financial Management Responsibilities

244. According to Schedule 2, Section I, subsection (b) and (c) of the Financing Agreement between GoN and IDA, PMU is responsible for overall implementation of NLSIP at the central level and the DLSUs for implementation of local level activities related to the Project. Under this delegated task framework, financial management activities at DLSU level will be carried out distinctly by DLSUs in coordination with and guidance of PMU at large. For this purpose PMU has one Under Secretary Finance (Gazetted Class II), and an Accountant (Non-Gazetted Class I), who are supported by a Financial Management Specialist and a Procurement Management Specialist. At DLSU, the project has provisioned four Account Officers (Gazetted Class III), one for each DLSU who will be supported by the Financial Management (Fiduciary Risk) Specialist.

3.3 Annual Planning and Budgeting

245. Schedule 2 Section I B subsection 1(a) to the Financing Agreement has clearly stipulated the need for preparing the protocols and procedures for the preparation of Annual Work Plans and Budget (AWPB) for NLSIP. PMU with inputs from all DLSUs is responsible for AWPB preparation. The AWPB preparation is initiated every year from December and completed by mid-June taking into account the past year data, input from DLSUs and the budget ceiling and procurement plan (Fig 2). Budget proposal is prepared in the format prescribed by GoN and National Planning Commission (NPC) and is submitted to NPC through MOALD. It involves extensive project activity-wise discussions at MOALD and NPC. On endorsement by the NPC, line item budgets are further discussed and finalized at Ministry of Finance (MOF) and eventually recorded in the Line Ministry Budgetary Information System (LMBIS) at MOF. The AWPB so prepared shall be shared with the World Bank and any inputs therefrom shall be addressed accordingly. Once the following year budget is recorded in LMBIS and published in Budget Red Book by MOF, the budget is deemed to be ready for implementation.

Figure 2: Preparation of Annual Work Plan and Budget



3.4 Internal and Financial Control

246. The PMU shall make necessary arrangements in establishing effective internal and financial control system so as to minimize the fiduciary risks of the Project. The following paragraphs summarize the internal and financial control system of the Project.

3.4.1 Maintenance and Operation of Designated Account (DA)

247. The PMU operates a Designated Account with Nepal Rastra Bank, Thapathali, Kathmandu for an initial amount of US\$ two (2) million deposited in advance by World Bank. The Project Director and Under Secretary (Account) are authorized officials to jointly operate this Account. This Account is mainly used for pre-financing IDA eligible expenditure spent in advance by PMU and DLSUs. In addition, this Account can also be used for making direct payment to consultants, contractors etc. As the project implementation gets gradually expedited over the period, the initial ceiling of DA may not be enough to cover the six months' estimated expenditure. In order to meet the increasing requirement of the Project, the Project and World Bank shall mutually agree on increasing the DA threshold.

248. Based on the amount of transfer of DA to GoN treasury and amount withdrawn in the form of direct payment to consultants and contractors, the World Bank will replenish the withdrawn amount to DA. However, the DA fund shall be liquidated during the later period (usually from six months to the project closing date) unless and otherwise the project gets extended beyond the original project closing period. The Project is required to prepare the DA reconciliation statement for every Quadrimester that needs to be included in Interim Unaudited Financial Report (IUFR) and annual DA reconciliation statement while preparing Annual External Audit Report.

3.4.2 Maintenance of Books of Account and Reporting

249. The Project will maintain the books of account as per the GoN prescribed accounting system in compliance with single treasury account and double entry bookkeeping system. The PMU shall maintain separate accounts and records for the project taking into consideration the World Bank prescribed disbursement and reporting books of account as well. It is also required to prepare annual financial statements in accordance with financial reporting standards acceptable to the World Bank.

250. As far as the maintenance of FM books of account is concerned, all the financial statements are automatically generated through the GoN existing TSA system to produce various financial statements. In addition, the Project shall require the DLSUs to prepare Category-wise monthly Statement of Expenditure (SOE) and cumulative Statement of Expenditure (cSOE). The sample SOE formats are given in Annexes 3.4, 3.6 & 3.7. The DLSUs will submit to PMU the monthly and cumulative SOE on a monthly basis along with the TSA generated statement of expenditure not later than 7 days after the completion of a calendar month. Similarly, they are also required to prepare summary of low-cost procurement activities carried out on a monthly basis and submit the same to PMU.

251. Similarly, the Project shall prepare the Interim Unaudited Financial Report (IUFR) for each Quadrimester starting from 15 July – 15 November, 16 November – 15 March and 16 March - 16 July, which shall be submitted to World Bank within 45 days after the completion of each Quadrimester. The sample IUFR formats are given in Annexes 3.1 to 3.7. Usually based on the Quadrimester-wise project expenditure and IUFR, the Project will calculate the eligible amount of IDA expenditure for reimbursement. For the amount withdrawn from DA in the form of direct payment to Consultants and Contractors and amount of transfer to GoN treasury, the PMU shall prepare withdrawal application for IDA eligible expenditure to be replenished to DA. In addition, the PMU shall also submit withdrawal application directly to World Bank either for direct payment to Consultant

and Contractor or direct reimbursement to GoN treasury for IDA eligible expenditure already incurred and spent from GoN reimbursable fund.

252. Moreover, the Project will prepare an Unaudited Project Account within six (6) months after the completion of a Fiscal Year for submission to World Bank. The Audited Project Account along with audit report and management letter shall be submitted to World Bank within nine (9) months after the end of a fiscal year. The sample reporting formats of Unaudited / Audited Project Account are given in Annexes 3.8 to 3.14. Checklist for breakdown of Category-wise expenditure by budget expenditure line item is given in Annex 3.15, and books of accounts in the following table.

Table 9: Checklist for Book of Accounts

Checklists - Books of Account						
S.N.	Types of Books of Account	Responsible Agency		Frequency	Submission to	Remarks
		PMU	DLSUs			
1.	Monthly SOE; Advance Ledger; Retention Ledger; Revenue Ledger; Budget Allocation, Budget Release and Expenditure Statement etc.	√	√	Monthly	DLSUs submit to PMU	TSA generated financial statements.
2.	Category-wise Monthly SOE / Trimester-wise SOE	√	√	Monthly / Trimester-wise	DLSUs prepares for PMU	Specific project requirement to meet Project needs
3.	Quadrimester-wise IUFR	√	X	Quadrimester-wise	PMU prepares for World Bank	Specific project requirement to meet Project needs
4.	DA Reconciliation Statement	√	X	Quadrimester-wise	PMU prepares for World Bank	Specific project requirement to meet Project needs
5.	Withdrawal Applications	√	X	Usually Quadrimester - wise	PMU prepares for World Bank	Specific project requirement to meet Project needs
6.	Annual consolidated category-wise SOE	√	√	Annual	DLSUs prepares fo PMU	Specific project requirement to meet Project needs
7.	Annual Unaudited /Audited Project Account, Audit Report & Management Letter	√	X	Annual	PMU prepares for World Bank	Specific project requirement to meet Project needs

3.4.3 Auditing

253. The project will have Project's financial statements audited by independent Office of Auditor General (OAG) designated auditors in accordance with international auditing standards. Likewise, as part of such audit, the Project will make necessary arrangements that the auditors prepare a report, which includes auditor's opinions on the financial statements and the use of Loan proceeds, and a management letter setting out the deficiencies in the internal control of the Project that were identified in the course of audit, if any. Furthermore, the Project will furnish to World Bank, no later than nine (9) months after the end of each fiscal year, copies of such audited financial statements, audit report and management letter, all in the English language.
254. The Project shall make necessary arrangements in getting the subproject's financial statements audited by OAG appointed auditors in accordance with international auditing standards. The subprojects' audit report forms the basis for providing matching grants to the Grants Recipients.

3.5 Cash Management and Funds Flow

255. The project shall maintain the books of account on cash basis. The NLSIP cash management and funds flow mechanism has been highlighted in the following paragraphs.

3.5.1 Project Expenditure and Disbursement

256. There are two mode of disbursement procedure prescribed by World Bank in the form of report-based disbursement and SOE based disbursement. For NLSIP, SOE based disbursement procedure has been agreed between GoN and IDA for withdrawal from the Loan Account. SOE based disbursement procedure is the simplest procedure of its kind that does not require to submit evidence of payment including bills and invoices of supplier to World Bank either for replenishment or for direct reimbursement or for direct payment from Loan Account while preparing Withdrawal Applications. To this exception, the Project is required to submit the evidence of payment only for prior review procurement contracts. All post review procurement contracts are relieved from submitting evidence of payment with Withdrawal Applications. However, the Project is required to maintain proper record for the expenditures claimed under SOE, which should be subject to be reviewed by World Bank during the World Bank Review Mission or at any time as the World Bank may require such expenditures to be reviewed on a sampling basis. Project disbursement method is given in figure 10 below.
257. All the expenditures incurred at DLSUs are mostly SOE type expenditures and, therefore, World Bank in the form of either direct reimbursement or direct payment or replenishment makes disbursement to DA. Similarly, except the prior review procurement contracts made by the PMU, most of the expenditures are of SOE type and shall be disbursed in the same way. However, the following precautions shall be taken by the PMU and DLSUs while spending SOE type expenditures:
- a. Spend the budget according to funding source and share of expenditure as stated in the Financing Agreement. While spending from Category 1 and Category 2, make sure that the GoN is charged with 15% and IDA 85%. For Category 3 expenditure, GoN is charged with 28% and IDA with 72%. For expenditure under Category 4, there will be no GoN expenditure but IDA shall finance 50%, Grant Recipient bears 20% and Banking Financial Institutions should finance 30%.
 - b. Any expenditure that does not follow the prescribed share of expenditure is subject to source change that need to be approved by Ministry of Finance. Any expenditure in excess of IDA share shall be changed to GoN source and

expenditure in excess of GoN share shall be changed to IDA source.

- c. The IDA does not finance ineligible expenditure caused either by misprocurement due to nonconformity with the IDA procurement rules and regulations or beyond the share of IDA expenditure as stated in Financing Agreement.
- d. Maintain the proper records of SOE expenditures according to actual expenditure incurred on a monthly basis for review by World Bank any time as the Bank may require to review.

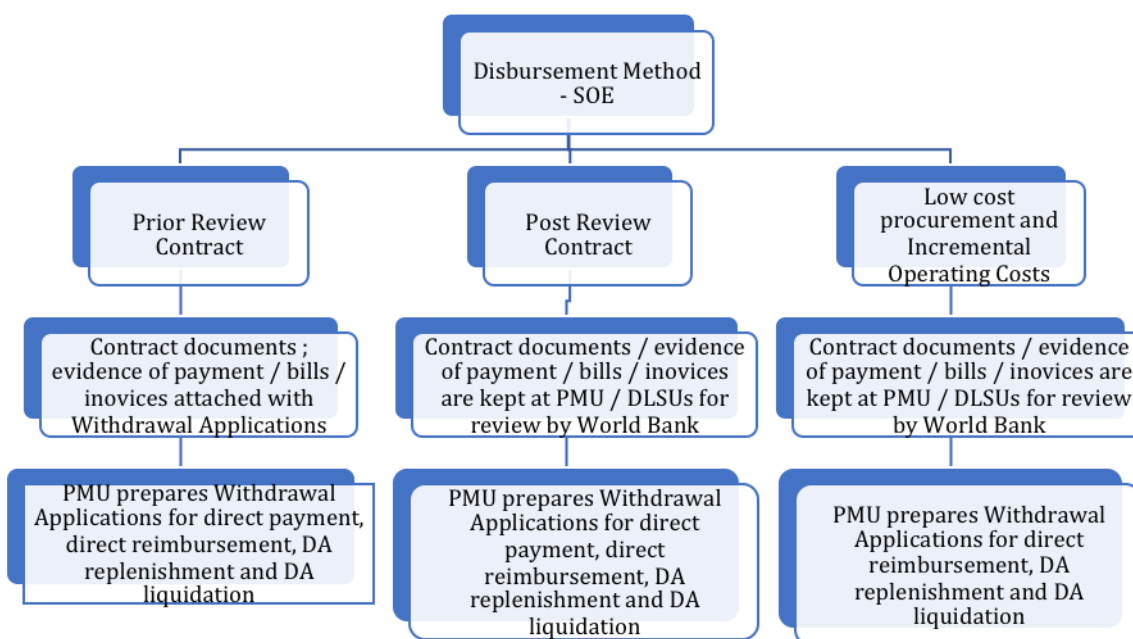


Figure 10: Project disbursement method

258. The table below shows category wise expenditure by budget expenditure head that the Project is required to follow during the course of NLSIP implementation.

Table 10: Breakdown of Category-wise Expenditure by Budget Expenditure Line Item

Disbursement Percentage by Funding Sources							
Category	Bdgt. Item No.	Related Budget Expenditure Item	GoN %	IDA %	MG %	BFI %	Total %
1. Goods and Works	22521	Production materials / services	15	85	-	-	100
	22522	Program expenses					
	29221	Building construction					
	29231	Capital improvement - Buildings					
	29311	Furniture & fixtures					
	29411	Vehicles & equipment					
	29511	Plants & machinery					
29712	Software development & purchase						
2. Non-consulting & consultancy services, training & workshops	22411	Services & consultancy expenses	15	85	-	-	100
	22512	Skill development & training					
	22522	Program expenses					
	27211	Scholarship					

3. Incremental Operating Costs	21111	Salary	100	-	-	-	100
	21113	Dearness allowance					
	21119	Other allowance					
	21121	Uniform					
	22111	Water & electricity	28	72	-	-	100
	22112	Communication					
	22121	Rent					
	22122	Other rent					
	22211	Fuel					
	22212	Operation & maintenance					
	22213	Insurance					
	22311	Office materials					
	22313	Books & magazines					
	22314	Fuel for other use					
	22321	Repair & maintenance of public property					
	22412	Other services					
	22522	Program expenses					
	22611	Monitoring & evaluation					
	22612	Travelling expenses					
22711	Miscellaneous						
4. Matching Grants	26413	Conditional recurrent grants	-	50	20	30	100

3.5.2 NLSIP Funds Flow (General Fund)

259. Budgetary funds flow to NLSIP shall follow the GoN fund allocation and release procedure. Once the NLSIP budget is recorded in Line Ministry Budgetary Information System (LMBIS) and included in Budget Red Book by Ministry of Finance, the budget is ready for implementation. The Project is required to download the LMBIS for its own use, which is regarded as both approved Annual Program and budget authorization as well. The LMBIS detail activities are not subsequently required to be approved by any GoN authority. On the basis of approved LMBIS, the related District Treasury Controller Office (DTCO) facilitates payment to concerned parties / suppliers /contractors of the Project as per the payment order issued by PMU or by DLSUs. The DTCO maintains the Project fund as per the LMBIS recorded financial activities / information and funding sources and as per the Payment Order issued by the Project.

260. The PMU / DLSUs are responsible for making project procurements / purchases and paying salary and allowances of Project employees. All the records and documents concerning to project procurements, salary, allowances and project operating expenditures are properly maintained by PMU / DLSUs primarily in GoN prescribed formats and secondarily in IDA prescribed disbursement formats as stated in earlier paragraphs. Payments to the suppliers/contractors are usually made either using GoN consolidated fund (treasury single account) or DA fund. Direct payment to the suppliers / contractors shall be made mostly from DA fund. However, World Bank could also directly pay to the Project suppliers / Contractors, if requested by the Project for an amount above the threshold of DA fund. Other IDA eligible expenditures except direct payment shall be pre-financed by GoN through its consolidated fund (Single Treasury Account). Such GoN pre-financed expenditures shall be reimbursed to GoN treasury either using DA fund or directly from World Bank.

261. In order to spend the 2nd and 3rd trimester budget, the Project is required to get the budget release order of Ministry of Finance for which the Project needs to submit the following documents to the best satisfaction of MOF and Financial Comptroller General Office (FCGO):

- a. Evidence of reimbursement already done to GoN for all IDA eligible expenditures pre-financed by GoN up to preceding Trimester.
- b. Evidence of submission of Unaudited or Audited Project Account.
- c. Evidence of MOF approval of source change either from GoN to IDA or from IDA to GoN source.
- d. Evidence of% of progress achieved in first trimester and% or progress achieved till second trimester.

3.5.3 Matching Grants (MG) Funds Flow

262. Completion of project selection and its approval by PMU and related Banking Financial Institutions (BFIs) forms the basis for project funding for MG. The release of MG to grant recipient (GR) shall strictly meet the following qualifications in obtaining the matching grant from PMU.

- (a) The Project should have already been approved by PMU and related BFIs and a loan agreement has already been signed between concerned GR and BFIs.
- (b) Project agreement between PMU, BFIs and GR has already been signed.
- (c) The GR has already opened Bank Account with concerned BFIs for matching grant and BFI loan deposits.
- (d) Before applying for matching grant and credit from BFIs, the GR shall initiate the process of implementing primary activities as stipulated in the Project Agreement. The Project Agreement shall clearly spell out the primary activities that the GR must complete from its own equity investment before applying for matching grant from PMU and credit from BFIs.
- (e) It is mandatory that the GR must have spent at least 50% of its equity investment for initiating the primary project activities.
- (f) Upon spending at least 50% of its equity investment for carrying out project activities, the GR shall submit the evidence to concerned DLSU and BFI that he has already spent fifty percent of equity investment as per the Loan Agreement and Final Project Agreement. The DLSU and BFI will jointly carry out the monitoring of GR premises, inspect and evaluate GR's claims and investments. Following the detail monitoring and observation of the project site, the DLSU and BFI shall jointly prepare monitoring and evaluation report qualifying for matching grant release.
- (g) The BFI shall release loan amount in equal two instalments. The 1st instalment shall be released after the completion of primary activities of the Project. Once the BFI releases the 1st instalment loan amount to GR, the GR shall submit the application to PMU for 1st instalment matching grant release along with evidence of 1st instalment release from BFI and joint monitoring and evaluation report issued by concerned DLSU and BFI.
- (h) The PMU shall release the matching grant in three instalments to GR equivalent to 50% of total expenditures (equity and loan investment).
- (i) Upon getting GR application, joint monitoring and evaluation report and evidence of 1st instalment release from concerned BFI, the 1st instalment shall immediately be released by PMU to the Bank Account of GR opened with concerned BFI.
- (j) After getting 1st instalment release from PMU and BFI, the GR shall complete the second set of project activities that should be clearly mentioned in Project Agreement. It is mandatory that the GR shall spend remaining 50% of its equity investment and the amount it has received from PMU and BFI in the form of 1st instalment by the time it completes the second set of project activities.

- (k) The second and the final disbursement will be made by following the processes described above. However, settlement of final instalment will require a brief sub-project completion report from the GR.
- (l) The PMU/DLSUs shall develop the template of books of accounts that need to be maintained by the GR while implementing subproject activities.
- (m) The PMU/DLSUs shall provide orientation to GRs about technical aspects of the project, maintaining the books of accounts; procedures that the GRs need to follow while implementing project activities etc.
- (n) The DLSUs and BFIs are responsible for carrying out regular monitoring and supervision of project activities.
- (o) Payment of matching grant shall be made through GoN consolidated fund by pre-financing the IDA share of eligible expenditures. Such amount shall be reimbursed to GoN treasury either from DA fund or direct reimbursement from World Bank.

3.6 Capacity Development for Financial Management

263. The PMU shall prepare and develop the FM capacity development plan that will be implemented during the course of Project implementation to provide technical knowhow and orientation to Project Officials and GRs. The Financial management Specialist shall develop the appropriate books of accounts that are specifically needed for NLSIP implementation. Likewise, the schedule of training or orientation program shall also be developed by FMS for approval by the Project Director. Similarly, providing regular technical backstopping, ensuring regular monitoring of the subproject activities and effective implementation of FM capacity development plan is believed to minimize the potential fiduciary risks that are visualized while developing the NLSIP.

SECTION IV: PROCUREMENT ARRANGEMENT

4.1 General

264. In Nepal Livestock Sector Innovation Project (NLSIP), major procurement activities are expected to be carried out through the Project Management Unit (PMU) and the procurement of locally available goods and works will be carried out by the respective Decentralised Level Support Units (DLSU).
265. Pursuant to stipulation in Section III of the Financing Agreement between the Government of Nepal and the International Development Association (IDA), procurement of all goods, works, and services required for NLSIP shall be done in accordance with the World Bank's guidelines. In case of National Competitive Bidding, model-bidding documents, including contract conditions agreed with the Association (as revised, amended or supplemented from time to time), shall be used.
266. Details of the item/service specific methods and processes of procurement of goods, works, non-consulting services and consulting services will be specified in the procurement plan agreed with the World Bank.

4.2 Goods, Works and Non-consulting Services

267. All goods (commodities, vaccines, raw material, machinery, equipment, vehicle etc.), works (infrastructure development, construction of biological pits and non-consulting services (review meeting, planning workshop, experience exchange programmes, documentary, mapping etc.) required for the project and to be financed out of the proceeds of the financing shall be procured in accordance with the requirements set forth or referred to in section I of the Procurement guidelines, and with the provisions of this section.

4.3 International Competitive Bidding

268. Except as otherwise provided, goods, works and non-consulting services shall be procured under contracts awarded on the basis of International Competitive Bidding.

4.4 Other Methods of Procurement of Goods, Works and Non-consulting Services

269. The following methods, other than International Competitive Bidding, may be used for procurement of goods, works and non-consulting services for those contracts specified in the Procurement Plan: (a) National Competitive Bidding in accordance with the provisions of the Public Procurement Act (and regulations made thereunder), subject to the additional provisions set out in paragraph 3 below; (b) Shopping; (c) Procurement under Framework Agreements in accordance with procedures which have been found acceptable to the Association; (d) Direct Contracting; (e) Force Account; (f) Procurement from the Food and Agriculture Organization; (g) Well-established Private Sector. Procurement Methods or Commercial Practices which have been found acceptable to the Association; (h) Procurement under Public Private Partnership Arrangements in accordance with procedures which have been found acceptable to the Association; and (i) community participation procedures which have been found acceptable to the Association.

4.5 Consultants' Services

270. All consultants' services (required for the project and to be financed out of the proceeds of the financing shall be procured in accordance with the requirements set forth or referred to in sections I and IV of the Consultants Guidelines.

4.5.1 Quality and Cost-based Selection

271. Except as otherwise provided in paragraph 2 below, consultants' services shall be procured under contracts awarded on the basis of quality-and Cost-based Selection.

4.5.2 Other Methods of Procurement of Consultants' Services

272. The following methods, other than Quality and Cost-based Selection, may be used for procurement of consultants' services for those contracts which are specified in the Procurement Plan: (a) Quality-based Selection; (b) Selection under a Fixed Budget; (c) Least Cost Selection; (d) Selection based on Consultants' Qualifications; (e) Single-source Selection of consulting firms; (f) well- established Private Sector Procurement Methods or Commercial Practices which have been found acceptable to the Association; (g) Procedures set forth in paragraphs 5.2 and 5.3 of the Consultant Guidelines for the Selection of Individual Consultants; and (h) Single-source procedures for the Selection of Individual Consultants.

4.6 Particular Procurement

4.6.1 Procurement of Forage Seeds, Sapling or Planting Sets

273. As per approved programme and budget allocated for relevant FY, Decentralized Level Support Unit will be responsible for the procurement of these types of locally available goods. Based on government approved district rate, DLSU shall prepare and approve the cost estimate. After approval of the cost estimate DLSU will contact possible suppliers such as farmers, cooperatives etc. having Permanent Account Number. DLSU shall enter into the agreement with selected suppliers in a standard form of agreement (Annex 4.1&4.2). District Stakeholders' Dialogue Platform shall be kept informed regularly regarding this type of procurement.

4.6.2 Procurement of Non-consulting services

274. Review meetings, Planning workshops, Experience exchange programmes, trainings etc. type of activities falls under this category of procurement. As per the approved programme and budget for the relevant FY, detail proposal for the activities would be prepared and submitted to the Task Team Leader for this project through PMU. After getting No-objection from The World Bank, activities would be implemented. Detail activity report shall be prepared and submitted to the office for final settlement.

4.7 Procurement by Grant Recipients

275. All GRs shall follow procurement rules and procedures as prescribed in the Grant Operating Manual 2076. This applies to both the procurement of equipment, machineries and transport facilities/means (tractors, pick-up vans etc.) and the construction of physical infrastructures.

4.8 Review by the Association of Procurement Decisions

276. The Procurement Plan shall set forth those contracts, which shall be subject to the Association's Prior Review. All other contracts shall be subject to Post Review by the Association.

SECTION V: ENVIRONMENTAL AND SOCIAL SAFEGUARDS

5.1 General

277. It is expected that NLSIP implementation will generate opportunities for employment and income, which are important to minimize vulnerability of the poor and the disadvantaged and marginalized group/communities such as women, indigenous people, differently able people, dalits and Madeshis from climate change impacts and shocks. This manual intends to ensure that sub-projects identified for implementation are environmentally and socially benign and they have no or limited negative impacts on environment and social fronts, and addressed through mitigation measures.
278. Major NLSIP activities are: (a) Infrastructure and small civil works, (b) farmer institutions development; (c) dairy, meat goat and Chyangra/ Pashmina production; (d) dairy/meat/Pashmina processing; (e) establishment of slaughterhouse and livestock markets; (f) vaccination campaigns; and (g) veterinary drugs and chemicals, and laboratory operation. These activities will not result any major displacement of people or loss of their assets. The support to establishment of licensed slaughterhouses and establishment of livestock markets may require displacement, that shall be assessed and site specific Resettlement Action Plan (SS-RAP) shall be prepared to address this issue if required.
279. The potential activities will have limited adverse environmental or social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily attended through mitigation measures as majority of the above mentioned activities will be executed within the existing land of GoN. Therefore, NLSIP's project activities will be categorized "B" in the risk category.
280. Implementation of above activities may trigger the World Bank environmental and social safeguard policies on Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Pest Management (OP/BP 4.09), Indigenous Peoples (OP/BP 4.10), Physical Cultural Resources (OP/BP 4.11), Involuntary Resettlement (OP/BP 4.12) and Forests (OP/BP 4.36). They may also trigger national policies and Acts such as National Action Plan for Adaptation (2010), Local Action Plan for Adaptation (2011), Environment Protection Act (1997), Animal Slaughterhouse and Meat Inspection Act (1999), Nepal Animal Welfare Act (2011), Nepal Consumer Act (1998), Nepal Animal Health and Livestock Services Act (1999), Nepal Civil Rights Act (2012) and the Nepal Dairy Policy (2007).
281. In compliance to the above policies and Acts possibly triggered by project activities, all major infrastructure development activities will go through environmental screening during pre-feasibility or PCN selection in order to identify relevant environmental concerns as well as suggest any further investigation and assessment. Activities/proposals under negative list (Category 1) and those requiring Environmental Impact Assessment (EIA) will be rejected as mentioned in the ESMF of NLSIP (Annex 4: Environmental and Social Issues to be Checked/Verified during Project Planning and Identification Phase and Annex 6: Criteria for Negative Listing Related or Linked with NLSIP). The sub-projects eligible for project support will be Repair and Maintenance of Public Properties (Category 3) and Matching Grant Scheme (Category 4). Project under both of these categories will be environmentally and socially screened once proposal will be received and based on the E&S screening results, the required actions that need to be adopted further shall be ascertained whether the subproject activity require IEE, ESMP or E&S code of practices. Hence the project will include them in the clauses of the contractual agreements. The project will finance the cost of IEE and facilitate IEE process

upon approval of full proposal. Annexes 5.1 to 5.9 provide formats of different nature related to environmental and social safeguards.

282. During pre-feasibility or PCN selection, the Project will also carry out Free Prior Informed Consultations (FPIC) with the indigenous community and other vulnerable communities to obtain broad consent for the project. Project will prepare Vulnerable Community Development Plan (VCDP) based on community needs of indigenous as well as other vulnerable communities.
283. Similarly, upon negotiation with grant recipients, NLSIP will classify all sub-projects into one of four classifications: High Risk, Substantial Risk, Moderate Risk or Low Risk, depending upon sub-project type, location, sensitivity, and scale of the production/processing. Other features to be included would be nature and magnitude of the potential environmental and social risks and impacts, proposed mitigation technology and the capacity and commitment of the grant recipients to manage the environmental and social risks and impacts in a manner consistent with the project Environment and Social Management Framework (ESMF). These sub-projects with risk categorization will be disclosed on the NLSIP website. NLSIP will review the risk classification assigned to the project on a regular basis, including during implementation, and will change the classification where necessary, to ensure that it continues to be appropriate. Any change to the classification will be disclosed on its website.
284. Project activities that may trigger the World Bank environmental safeguard policies and proposed project measures/activities that will contribute to mitigate the impacts are discussed below.

5.1 Civil Works

285. The project will involve some small-scale civil works such as the construction and renovation of office buildings, community infrastructure such as chilling centers, milk and meat processing facilities, training hall, livestock market, and slaughter houses, which will be carried out on public lands or may require land acquisition. Some infrastructures like establishment of livestock markets or slaughterhouses may cause small displacement of families requiring resettlement and/or rehabilitation, hence triggering the World Bank policies on Involuntary Resettlement (OP/BP 4.12) and its Environmental safeguard policies on Environment Assessment (OP/BP 4.01). In such cases, a Resettlement and Rehabilitation Action Plan will be devised as per the World Bank policy guidelines in an attempt to minimize and/ or mitigate potential adverse social impacts. The policy framework has defined different groups of potentially affected people with varied eligibility criteria. Based on the eligibility criteria and type of losses, the affected families/people will be provided compensation as well as resettlement and rehabilitation assistances. On approval of concept notes, the proponents will be provided "on the ground" training to prepare site specific EMP and to fulfill the requirements of ESMF for NLSIP grant.
286. **Contractor's compliance to ESMF:** The contractors engaged under NLSIP are also principle stakeholders in the project whose roles and responsibilities are to identify and mitigate the adverse impacts right from the beginning. Therefore, contract document will include the following generic requirements:
- Construction materials from approved site, and of standard quality (good house keeping).
 - Reclaim the quarry site and fill up borrow pit after the completion of the work.
 - Maintain health and sanitation of the labor camp (if such camp is envisaged in work).
 - Proper disposal of spoilage along hill slopes, vegetated areas, water bodies and other environmentally sensitive areas.

- Enforce use of recommended disposal sites that are approved by the Project.
- Provide health and safety gears to the labors.
- Restrict labors' use of forest products, hunting and poaching.
- Hire as many local laborer as possible (priority has to be given for poor, marginalized and Dalits).
- Avoid use of child labor (below 16 years age).
- Employ at least 33 percent women labourer in construction.
- Ensure that there will be no disturbance to operate the institution while construction is on-going (i.e. proper construction planning, use of less noisy equipment, storage of materials in a safe manner).
- Adherence with occupational health and safety standards for staff, workers (use of PPE, posting of safety signs, warning signs during construction)

287. DLSU Environment and Social Specialist will monitor and record the contractor's compliance through regular, quarterly and annual monitoring and recommend necessary actions for correction of the non-compliance, if any.

5.2 Livestock Farming

288. Project supports selected livestock farming (dairy cattle/buffalo, goat and Chyangra). These may trigger the World Bank environmental safeguards policies on Pest Management (OP/BP 4.09), Natural Habitats (OP/BP 4.04), Physical Cultural Resources (OP/BP 4.11) and Nepal Environment Protection Act (1997), National Action Plan for Adaptation (2010), Local Action Plan for Adaptation (2011) and National Biodiversity Strategies and Action Plans (2010). Main concerns related to dairy, goat and Chyangra farming would be: (a) forest grazing, (b) effluent/manure management, (c) enteric gas (CO₂ and methane) production; and (d) disease incidence.

289. **Dairy farming:** Promotion of dairy farming will not have any negative impact on forests. However, increased herd size and increased use of straws will cause increased production of enteric gases like methane and CO₂. Therefore, the project will give high attention on breed improvement and promotion of chaffing, and making and feeding silage and replacing straw feeding. Silage feeding including forage chaffing will not only increase animal productivity but will also minimize enteric gas production¹¹. Ploughing back of manure or biogas effluent to crop field will minimize NO₂ escape in the atmosphere. To achieve this, NLSIP will provide financial support for purchase of chaff cutters, silage crushers and balers including tractor, and advisory services on crop selection, seed procurement and making silage. The project will not entertain proposals that do not allocate at least one ropani of land (0.05ha) per adult dairy animal. In addition, the proponents will have to submit EMP that deals with manure (biogas plant installation), effluent management, and safety guards where needed. The project will also promote intensification of terrace risers and bunds in the hills to increase quality feed supply, minimize soil erosions, and enhance carbon sequestration. If the grant applicant does not have adequate land, the project will facilitate land leasing in close coordination with the concerned municipal bodies.

290. To manage disease incidence and any cross contamination, the project will support vaccinations and treatment of animals in timely manner. The grantees will also follow biosecurity measures with construction of an isolation box in each farm to keep the sick animals away from healthy animals and avoid cross disease contaminations. Proper care will be taken in carcass burial in order not to contaminate water sources.

¹¹ Silage feeding reduces methane and CO₂ production by 20% when compared to straw feeding.

291. **Goat farming:** With regard to goat production, the project will emphasize on stall-feeding and/or systems where the goats are raised mainly on cut and carry of planted fodder. To this end, NLSIP will not entertain proposals that do not commit to develop agro-forestry system with at least 1 ropani (0.05ha) of land allocated per 4 adult goats for forage development and at least 5 fodder trees planted per adult goat. To meet requirement of land for feed development, the project in close coordination with the municipalities will promote land-leasing system within the communities. This approach is important to minimize forest degradation, increase carbon sequestration and sustain goat farming. The proponents shall propose Environment Management Plans in their proposals and implement effectively on approval of sub-projects.
292. **Chyangra farming:** Will be supported with development of sustainable pasturelands management plan in coordination with beneficiaries and the stakeholders including the local forestry agencies at local level. The naturalized forage/pasture species will be promoted in the conservation areas. Similarly, the sub-projects related to these farming will mandatorily implement farm effluent including manure management measures as guided by the project Environment and Social Safeguard Specialist.
293. **Forage Production/Processing and Forage Seed Production:** These activities will offer positive impact on climate change.

5.3 Dairy and Meat Processing

294. Project will support sub-projects related to dairy and meat processing and marketing. These facilities will be producing effluents and residual chemicals that may have impact on human health and the environment (soil, water, air). These activities will trigger Animal Slaughterhouse and Meat Inspection Act (1999), Environment Protection Act (1997) and Nepal Dairy Policy 2064 (2007).
295. The major concerns in dairy industries are the processing effluent, use of diesel or fuel wood for heating or milk pasteurization, laboratory chemical wastes, cleanliness and fuel consumed by milk transportation trucks. To manage processing effluent and laboratory chemical wastes, the Project experts (e.g., DFTQC) will assist the grant recipients to machinery/equipment design and layout, including effluent and chemical waste management. They will also advise the grant recipients to adhere with the occupational health and safety standards for staff and workers (e.g., use of PPE), and develop and implement EMP. New plants will be encouraged to replace the diesel or fuel wood system by an electric system. To minimize number of road plies of milk tankers, the project will support the small rural dairies in products development and marketing them to larger dairies rather than supplying fluid milk. The project will also support the value chain in clean milk production, quality products making/processing and marketing through training and workshops. It will also facilitate product standards development and licensing of these industries from the DFTQC.
296. **Meat Processing:** The project will support establishment of slaughter slabs and limited licensed slaughterhouses. The major concerns with regard to meat industries would be the creation of enormous hygienic and environmental problems due to inadequate basic amenities like water supply, proper flooring, ventilation, lairage, transport, etc. In addition, slaughterhouses also suffer from very low hygienic standards posing major public health and environmental hazards due to discrete disposal of wastes and highly polluted effluent discharge. The wastes could be both solid (carcass, bones, hooves, rumen, intestine contents, dung etc.) and liquid waste (blood, urine, internal fluids including water used for washing). They are also reported choking drains containing water with blood and debris, and contamination of drinking water sources. Burning of fats and bones emits pungent odour. To address these issues, the project will support only well developed plans to fully comply with the environment and social safeguards.

5.4 Pashmina processing

297. The pashmina factories use chemical dyes. Many factories lack wastewater treatment plant facilities and therefore dispose off these dyes and chemicals in the municipal sewerage or open drain nearby the water bodies. Therefore, NLSIP will approve grants to those proponents that have realistic business plans and have a clear EMP with commitment to appropriately dispose off the factory effluents.

5.5 Livestock Markets

298. Major concerns in the livestock markets are: (a) lack of road access, (b) lack of loading and unloading ramps, (c) lack of power supply, (d) lack of vehicle parking lot, (e) lack of shelters and public conveniences (toilets) for buyers and sellers, and visitors; and (f) inadequate human and wealth protection. In addition, animals are transported in an inhumane manner (inadequate space, continuous tying animals inhumanely while in transportation and long hour drive in the trucks without food and water). These inactions/actions trigger, the animal welfare and transport standards for animals, Nepal Consumer Act (1998), Animal Health and Livestock Services Act (1999) and Nepal Civil Rights Act (2012). Therefore, NLSIP will grant its supports only when the proposed plans meet the above requirements.

5.6 Veterinary Drugs and Chemicals and Laboratory Operation

299. The Project intervention may involve use of antibiotics and other animal health products in excess of recommended dosages in anticipation of higher returns. This will trigger the World Bank safeguard policy on Pest Management (OP 4.09). To address any potential and unforeseen consequences arising out of their use and disposal of chemicals on both human health and the environment (soil, water, air), the project will prepare and implement a "Guide on Prudent and Safe Use of Animal Health Drugs and Chemicals". For adoption of good laboratory practices such as regular cleaning and disinfection, proper waste disposal (autoclaving), personal protection, washing of lab coats and risk awareness etc. these laboratories will prepare and implement Chemical Hygiene Plan (CHP) which will contain (a) a SOP; (b) exposure control measures; (c) information and training to employee; and (d) provision of medical consultations and examinations of staff/workers. The Environment and Social Specialist at PMU will facilitate DLS laboratories to develop SOPs and will regularly monitor these laboratories and report to PMU. The Specialist will also review and provide feed back on the engineering designs of each laboratory to be supported by NLSIP.

300. To ensure proper management and disposal of solid, liquid and gas wastes including sharp wastes (e.g., needles, scalpel etc.), animal wastes (carcasses, bedding etc.) and hazardous wastes (chemical or pharmaceutical), the laboratories will adopt Health Care Waste Management Guidelines (2014) of the Ministry of Health/GoN and the World Bank Group EHS guidelines (2013). Annex 11 of NLSIP ESMF provides guidance for baseline condition of the existing laboratories and adherence with best environmental practices.

301. Annexes 5.1 to 5.8 include formats, checklists, procedures and concerns related to environmental and social safeguards and hygiene and food safety compliance.

5.7 Capacity Development

302. **Capacity development of project staff and consultants:** NLSIP will provide orientation training to the consultants focusing on: a) GoN and WB safeguard policies; (b) EMP and ECOP preparation; and (c) general introduction to environmental assessment and management. The laboratory officers/technicians will receive training on hazards related to veterinary laboratories based on "Adherence with Best Environmental Practices", and on other areas as identified during CENA.

303. **Capacity Development of local bodies:** For addressing, managing and monitoring environmental and social issues, the capacity of the municipal bodies will be built up through training and workshops. This will result in mass awareness.

5.8 Environment and Social Management Plan

304. Forest grazing, construction of dipping tank near water bodies and without strong enclosures, animal wastes and urine, lack of ventilation, animal dead bodies, chaff cutter without strong safety guard, keeping sick animals together with their mates, uncovered drainage inside the shed, use of non-recommended chemicals in milk etc. will have environmental and social impacts, while undertaking livestock farming.

305. In dairy processing and marketing, use of fuel wood or diesel for pasteurization, construction of toilets close to the processing facilities, uncovered drainage inside the processing facilities, lack of use of apron while working in the laboratories and processing facilities, lack of use of appropriate personal protective equipment (PPE) such as gloves, masks, eye glasses, safety boots, and other PPEs as per nature of work, lack of solid waste and waste water management, lack of ventilation, lack of flat skirting of walls of processing units with appropriate tiles, production and sale of poor quality products are activities causing environmental and social impacts.

306. Similarly, in meat processing, slaughter of sick animals, use of untreated water for cleaning, use of fuel wood or diesel boiled water for scalding, lack of chilling meat, refrigeration and sale of stale meat, lack of solid wastes (hairs, gut fills, bones, hooves) and wastewater management, lack of adequate light, construction of toilets close to the processing facilities, uncovered drainage inside the processing facilities, lack of use of appropriate personal protective equipment (PPE) such as gloves, masks, eye glasses, safety boots, and other PPEs as per nature of work, lack of ventilation, lack of flat skirting of walls of processing units with appropriate tiles etc. are activities causing environmental and social impacts.

307. NLSIP intends to avoid the above to the extent possible. Grant applicants will be encouraged to include the above in their investment plan by sharing the cost as measures to mitigate any environmental or social impacts. All subprojects irrespective of their size and funding will be screened using the environmental and social screening checklists by qualified and trained safeguards experts

308. Annex 5.5 gives a framework for preparation of Environmental and Social Management Plan, and lists key environmental and social safeguard measures to be considered while preparing EMP. Key activities that should be covered in an ESMP will be as follows:

- a) Consultations and communications with the affected people, including free, prior, informed consultations (FPIC) with the indigenous people;
- b) Alternative planning and design to avoid/minimize the adverse impacts;
- c) Impact assessment and predicted measures to address the impacts;
- d) Estimated cost for impact management;
- e) Grievance hearing and management;
- f) Responsible agencies/stakeholders to implement the actions; and
- g) Monitoring and reporting.

5.9 Gender Equality and Social Inclusion (GESI)

309. The Constitution of Nepal (2015) clearly envisions Nepal as an inclusive state and guarantees the right to equality for all its citizens. Nepal, being a signatory to various international conventions, is also legally committed to gender equality and social inclusion. However, the women and disadvantaged people like Dalits suffer from exclusion from development mainstream due to lack of land ownership, voice unheard in

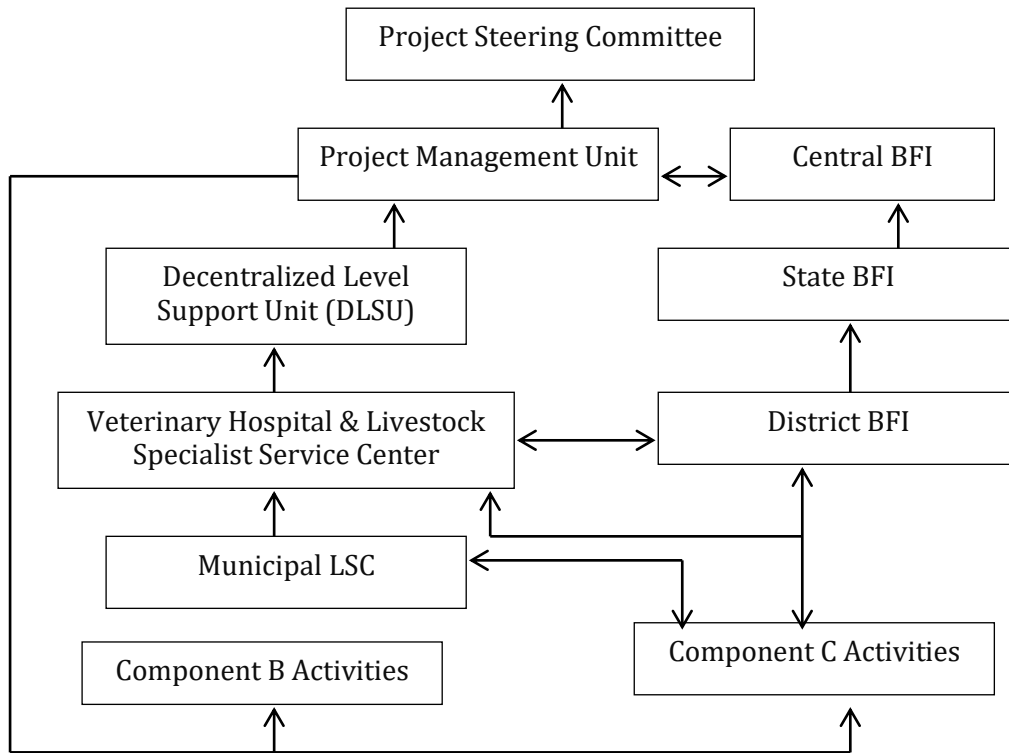
decision making process and restricted access to modern services and facilities. Therefore, the DLSU Environment and Social Expert with support from field-based local Social Mobilizers will make sure that the women and Dalits/IPs are present in the group or community planning and their needs are sufficiently taken care. They will also ensure that they have adequate voice in management of POs/ cooperatives. The project will give due attention to leadership development of these groups of people through training and workshops, and promote technologies for drudgery reduction. The training will be designed and implemented (ensuring the venue is accessible with user-friendly infrastructure) for active participation of women and other disadvantaged groups. Furthermore, the Project will have a clause that the project grant will be cancelled if they use any form of child labor.

310. To ensure women participation at least by 45% in project activities, NLSIP will be reporting gender-desegregated data as indicated in the Monitoring and Evaluation sub-section.

5.9 Monitoring Environment and Social Safeguards, Food Quality Compliance and Grievance Redressal

311. Compliance to ESMF will be monitored and recorded at the beginning and at 4-month interval. In case of infrastructure development, the ESMF will be monitored monthly. Environmental status, mitigations works implemented, difficulties encountered and unforeseen issues etc. will be reported in each progress report. A third party hired by NLSIP will undertake independent annual monitoring, at middle of the project and at last semester of the project.
312. Grievances and objections regarding the environmental and social concerns of the project will be referred to the project Grievances Redressing Committee (GRC) at DLSU level. If the DLSUs could not resolve the complaints, it will forward to the PMU level GRC for their resolutions.
313. The compliance to environment and social safeguards will apply mainly to project components B and C, where NLSIP is solely responsible for component B, and both NLSIP and BFI for component C. For component B, the PMU and DLSU will be responsible to ensure that the E&S safeguards are fully complied by the farmer organizations or the contractors. The VH&LSSC and the MLSC will closely monitor at field level and report to the respective DLSUs, who will ultimately report to the PMU. For component C activities, VH&LSSC and BFIs will have a role to monitor and ensure that the grant recipients have developed Environmental and Social Code of Practices (ESCOP) as per the project guidance and fully comply with them. While the VH&LSSC will report to the DLSU, local BFIs will report to their State and Central BFIs.
314. Environmental and Social Safeguard Specialist will ensure that the Environmental and Social Safeguard measures are fully complied as per project ESMF at all levels. S/He will also support the project to implement GRs' capacity building programs to comply with the safeguard measures. An organogram showing responsibility for E&S Safeguard Execution is given below in figure 2.

Figure 2: An Organogram Showing Environment and Social Safeguard Execution and Monitoring



315. A summary of monitoring requirements regarding safeguard implementation is shown in the table below.

Table 9: Safeguard Implementation Monitoring Plan

Activity	Frequency	Outcomes	Means of Verification
E&S Impacts of ongoing infrastructure and civil works at field level	Bimonthly	Compliance of the safeguard measure	Field observation, ESMF
Safeguards measures on MGS	During the screening of proposal and every month, after the contacted signed with the project	Maintain the safe environment in the community	Training to GR, field observation
Capacity building of GR on safeguard	Once a year	Compliance of safeguard in SP	Training to GR
Assist in Operation and Implementation of GRM at all level	As per complaint received	Issues will be solved through GRM committee	Official records
Monitor of Environmental and Social Audit Report carried out by Third Party	Once a year	Environmental and social mitigation measures followed by SP	Report

SECTION VI: PROJECT MONITORING AND EVALUATION

316. The results framework defines the performance indicators for each component and subcomponent. An MIS linked with all DLSUs will be put in place, hosted and maintained by PMU. The Project Director (PD) with the support of M&E team shall be responsible for overall monitoring and reporting of results for each component.
317. M&E reports with disaggregated (sex and caste/ ethnicity) information of the beneficiaries will be produced on monthly, four monthly and annual basis. While monthly report will be submitted to MOALD, four monthly Implementation Progress Report and annual report will be submitted to MoALD and the WB. The PMU's M&E specialist will be responsible for providing training to the DLSUs M&E staff and the DCs/ VH&LSSC to ensure that required information is made available in a prescribed uniform reporting process and meeting the reporting time line. The DCs/ VH&LSSC with the support of PMU M&E Specialist will help municipal LSCs to establish data collection and reporting system.
318. The project will establish a robust and dynamic web-based Project Management Information System (PMIS) at PMU and at DLSUs. M&E system will also report the physical and financial progress and will support Project supervision by ensuring that baseline and follow-up surveys and data collection for the key performance indicators are available and regularly updated. The PMIS will be linked with the LMIS at the MoALD. Project will develop and implement a communication strategy that will detail out the data points, methodology and instruments and institutional arrangements.
319. The DLSUs shall be responsible for monitoring the results and collection and compilation of data to derive the intermediate results indicators for their respective clusters and updated in the Results Framework for monitoring the deliveries of the project. The DCs/ VH&LSSC with support from the municipal LSCs will collect needed data and report to the DLSU. The DLSUs will submit monthly, four monthly and annual progress reports to the PMU incorporating the data collected for inputs and outputs including physical and financial progress. The PMU will compile the information received and will produce a consolidated report on an annual basis for submission to the Project Steering Committee and the World Bank.
320. A mid-term evaluation will be conducted in April 2020 to assess progress made across the various components, and an impact evaluation will be conducted in the last semester of Project through independent evaluators. Separate independent evaluations will also be commissioned to examine component wise review and evaluation of the project. The impact evaluation will include the institutional performance, service delivery, governance issues, training and capacity building. It will evaluate overall achievement of expected project results. The project will ensure that gender considerations are fully integrated in impact evaluation studies, and will measure the Women's empowerment in agriculture index (WEAI) at mid-term and at the end of the Project implementation period.
321. The details of different studies undertaken will be posted through the project web. Similarly, details of grant implementation will also be posted in the project web where the system will generate a summary graphs and data for management purpose. Individual domains will be established for performance recording, epidemiological surveillance and grievance redressing,
322. Semi-annual joint supervision missions with representatives from the World Bank and PMU will assess the status of key Project outcomes. On project completion, the PMU will prepare and submit to the World Bank a Implementation Completion Result Report

(ICRR) that will detail out the Government's own assessment of the performance of the project.

323. Before project intervention, the project will undertake a baseline survey of project areas by hiring a specialized local firm for periodic impact evaluation focused at key indicators. Basically, the survey will include data for: (a) animal productivity increase (individual and herd – with males and females not in production), (b) annual sales and the value of sales, (c) adoption of climate smart technologies, (d) farmers with agricultural assets/ veterinary services; (e) number of technical and institutional training days, and (f) proportion of HHs with livestock insurance facilities and so on. NLSIP will update these data on annual basis.

SECTION VII: GRIEVANCE MANAGEMENT/REDRESSING

324. The complaints/grievances during project implementation may be categorized as follows but not limited to, and shall be addressed as per the Grievance Redress Procedures, 2075 (2019 AD) prepared, which came into force by exercising power conferred by Rule 9 of the Good Governance (Management and Operation) Rules, 2065 (2009).
325. The objectives of the procedures shall be to: (a) determine hearing of dissatisfaction, complaint and grievances of citizen in order to guarantee good governance by enhancing their access and participation in service and facility and to establish organizational mechanism in three level; (b) make functions, duties, responsibilities and accountabilities of each level of such established institution clear; (c) increase effectiveness in address and management of grievances with enhancing efficiency of all associated by physical and human capacity development of concerned employees in order to make grievance management effective; (d) create conducive environment in risk mitigation management by decreasing operational hurdles of project and program; and (e) systemize record, monitoring, report and review system for address and management of public grievance.
326. Complaints could be related to: (a) verbal (by attending at the office); (b) by registering application; (c) telephone, fax and hotline; (d) email, SMS, social network; (e) post or express delivery; (f) complaint box; (g) newspaper and electronic media; (h) support and suggestions received from public monitoring including Public audit, social audit, public hearing; (i) suggestions and directions received from higher entity.
327. The grievance-hearing officer shall record the complaint, complain or grievance furnished as referred to in Clause (a) and (c) of the Sub-rule (1) of the Grievances Redress Procedures, 2075, by inscribing the same.
328. Given the nature and scope of the project, complaints may also be related to lack of access of women and disadvantaged people over project resources, impact on natural resources due to project intervention, training and advisory services and so on (component B). Timely redressing of these complaints is important to ensure transparency and accountability. Therefore the project will establish a complaint cell at PMU, DLSU and Veterinary Hospital and Livestock Services Specialist Centre (VH&LSSC).
329. The complaints would be accepted whether they are in-person by visiting the project Offices, through designated email or telephone number or SMS, written submissions through postal service or dropped in the NLSIP complaint box, through news papers or electronic media, informed during public hearing or social audit, or feedbacks or directives received from higher authorities. The project-affected people - community members, members of vulnerable groups, project implementers, civil society, and the media will be encouraged to bring grievances and concerns to the attention of the project authorities. The complaint cells will collect complaints and transmit them to the respective Grievance Redressing Committees (GRC).
330. The project will form and operationalize GRCs at PMU, DLSU and district levels. The GRC at the PMU level will be chaired by the Joint Secretary (Livestock and Fisheries) of the MoALD with members comprising of Under Secretary (Admin)/MoALD, representative Agro-enterprise Centre (AEC), representative farmer organization, Under Secretary (Law)/MOALD, Under Secretary (Planning)/MOALD, two representatives of concerned BFI and designated nodal officer for GRC working as member-secretary.
331. At DLSU level, the Regional Director of the Livestock Regional Directorate will chair the GRC with members comprising of representative grantee, Officer representative of the

office of the Regional Food Technology and Quality Control, DLSU chief and a DLSU designated nodal officer for GRC as member secretary.

332. At district level, the chief of the Veterinary Hospital and Livestock Specialist Services Centre will chair the GRC with members comprising of officer representative of the District Coordination Committee, representative district CCI, official designated by the district cooperative federation, BFI representative, farmer entrepreneur and a DVH&LSSC designated nodal officer for GRC as member secretary.
333. The GRC at district level will organize hearings of the complainant in the presence of defenders (where applicable) and send the decisions to the complainant in writing within 15 days of entry of complaints. Similarly, the GRCs at DLSU and central level will have to address the complaints and send the decisions to the complainant in writing within 30 days of entry of complaints. If the complainant did not agree with the decisions of the district level GRC, he/she has every right to appeal to DLSU level GRC and if still unresolved to the central level GRC in a given format. However, the appeal should be registered in the concerned GRC within 15 days of receipt of decision letter from the GRC where the hearing had taken place. NLSIP will finance the cost for each sittings including meeting allowances.
334. The VH&LSSC will report the grievances resolved or unresolved to PMU with a copy to DLSU. DLSU will also report to PMU. The reporting formats will be available at all levels. PMU will document all grievances and their status. It will compile them and report to MOALD and the World Bank on periodic basis. The reports will include types and number of grievances registered, types and number of grievances resolved, and types and number unresolved and actions taken to address the unresolved grievances.

Annex 1.1: Results Framework

Project Development Objective Indicators										
Indicator Name	Core	Unit of measurement	Baseline		Targets					
					YR1	YR2	YR3	YR4	YR5	YR6
Indicator One: Productivity of targeted livestock commodities (milk, goat meat, Chyangra) among beneficiaries	☐	Percentage increase of average milk production per cow/buffalo	0%	0	5	15	25	40	40	
		Percentage increase in off take rate expressed as carcass weight for goats	0%	0	10	20	30	40	40	
		Percentage increase in Chyangra fibre production	0	0	10	30	50	80	80	
Indicator Two: Increased sales of value added products in targeted value chains	☐	Percentage increase of sales value (aggregated over all the targeted value chains) ¹²	0	0	5	10	20	25	30	
Indicator three: Farmers adopting climate smart agricultural technology (of which female)	☒	Number (in thousands, cumulative) (%)	Total	0	0	10	30	60	75	75
			<i>Female</i>	(0)	(0)	(20)	(30)	(45)	(45)	(45)
Indicator four: Farmers reached with agricultural assets or services (of which female) ¹³	☒	Number (in thousands, cumulative) (%)	Total	0	0	25	50	100	150	200
			<i>Female</i>	(0)	(0)	(20)	(30)	(45%)	(45%)	(45%)

¹² Rate of increase of sales in targeted value chains: this indicator will be measured for every targeted value chain. However, only the average value over all the targeted value chains will be reported.

¹³This includes the farmers who would benefit from the vaccination campaign supported by the project.

Annex 1.2: Intermediate Results Indicators

Indicator Name	Core	Unit of measurement	Baseline		Targets					
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6
Component A: Strengthening Critical Regulatory and Institutional Capacity										
A.1 Livestock Master Plan updated and endorsed		Yes/No	No		-	-	-	Yes	Yes	Yes
A.2 Client days of training provided (of which female)		Number (cumulative)	Total	0	5,000	15,000	25,000	35,000	45,000	55,000
		(%)	Female	0	(35)	(35)	(35)	(35)	(35)	(35)
A.3 Livestock Management Information System developed and operational		Yes/No	No		-	-	Yes	Yes	Yes	Yes
Component B: Promoting Sector Innovation and Modernizing Service Delivery										
B.1 Number of Producer Organizations/Cooperatives newly established or formalized and offering an increased range of services to members		Number (cumulative)	0		-	500	1,500	2,500	3,000	3,000
B.2 Incremental number of animals vaccinated against PPR and FMD through the project		FMD for cattle and buffalo (Number in thousands cumulative)	0		1,500	2,500	3,500	4,500	5,000	5,000
		PPR for small ruminants (Number in thousands cumulative)	0		5,000	6,500	7,500	8,500	9,600	9,600
B.3 Beneficiary satisfaction rate with relevance, timeliness and effectiveness of services provided by the project for the livestock sector (of which female)		%	Total	-	-	-	35	-	-	75
		%	Female	-	-	-	35	-	-	75
Component C: Promoting Inclusive Value Chains for Selected Livestock Commodities										
C.1 Dialog platform between actors of targeted value chain established and operational at national and Municipality levels		Number (National)	0		0	1	1	1	1	1
		Number (Municipalities)	0		0	5	15	25	25	25
C.2 Number of business plans financed by the project on a matching grant basis		Number	0		0	50	125	250	400	500
C.3 Share of project beneficiaries with a livestock risk insurance policy (of which female)		%	0		0	5	20	40	60	60
		%	(0%)		0	(20)	(30)	(45)	(45)	(45)
Component D: Project Management and Knowledge Generation										
D.1 Grievances registered related to delivery of project benefits satisfactorily addressed	X	%	Total	0	50	55	60	65	70	75

Annex 1.3: Project Development Objective Indicators

Indicator Name	Description (indicator definition etc.)		Frequency	Data sources and methodology	Responsibility for data collection
Indicator One: Productivity of targeted livestock commodities (milk, goat meat, Chyangra) among beneficiaries	Percentage increase of milk production per cow/buffalo	This indicator measures the productivity of dairy animals (cow, buffalo) at herd level, among project participants. It is computed as the total volume (litres) of milk produced in a year divided by the standing animal population (including males and females not in production). It reflects both productivity at animal and herd level, e.g. the share of animals that are in production.	Annual	Progress report, annual project report, Household Survey, Technical & economic monitoring	NLSIP PMU as well as LMIS function of MoALD
	Percentage increase in off take rate expressed as carcass weight for goats	This indicator measures the productivity increase of meat goats among project participants. It is computed as the total volume (kg) of carcass weight produced in a year, divided by the standing goat population (all cohorts). It reflects productivity at animal (daily weight gains) and herd level (reproduction performance, improved health), as well as improvement in dressing performance.			
	Percentage increase in Chyangra fibre production	This indicator measures the productivity of Chyangra goats. Grams of Chyangra fibre produced per year/baseline value x 100			
Indicator Two: Increased sales of value added products in targeted value chains		This indicator measures the relative increase in the value of sales in targeted value chains. For each targeted value chain, the increase in the value of sales is calculated as the ratio of the value of incremental sales of value added livestock products during the reporting year (the total value of sales by direct beneficiaries during the reporting year minus the total value of	Annual	Progress report, annual project report, Household Survey, Technical & economic monitoring	NLSIP PMU as well as LMIS function of MoALD

		sales in the baseline year) and the value of sales at baseline.			
Indicator Three: Farmers adopting climate smart agricultural technology (of which female)	Total	This indicator measures the number of beneficiaries in target municipalities who have adopted a climate smart agricultural technology promoted by the project and described in the PIM. The baseline value for this indicator will be zero.	Annual	Progress report, annual project report, Household Survey, Technical & economic monitoring	NLSIP PMU as well as LMIS function of MoALD
	Female				
Indicator Four: Farmers reached with agricultural assets or services (of which female) ¹⁴	Total	This indicator measures the number of beneficiaries in targeted municipalities who were provided with agricultural assets or services by the project. The baseline value for this indicator will be zero.	Annual	Progress report, annual project report, Household Survey, Technical & economic monitoring	NLSIP PMU as well as LMIS function of MoALD

¹⁴This includes the farmers who would benefit from the vaccination campaign supported by the project.

Annex 1.2: Project Activity Implementaion Timeline

SN	Activity	Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23	
2.1 Component A: Strengthening Critical Regulatory and Institutional Capacity										
Developing, updating and operationalizing key policies, Acts and Regulations										
2.1.1	Formulation of Plans, Policies and Strategies									
	2.1.1.1	a) Livestock Master Plan (LMP)	0.81	1		X	X			
		b) Livestock Breeding Policy	0.10	1		X				
		c) Animal Health Policy (central and state) including PPR road map	0.12	1		X				
		d) One Health Policy and Approach	0.02	1			X			
	2.1.1.2	Formulation of Acts								
		a) Animal Infectious Disease Control Act	0.04	1		X				
		b) Veterinary Drug Act		1		X				
	c) Animal Welfare Act	0.04	1			X				
	2.1.1.3	Amendment of Existing Acts								
		a) Animal Health and Livestock Services Act (1999)	0.06	1			X			
		b) Animal Slaughterhouse and Meat Inspection Act (1999)		1			X			
		c) Nepal Veterinary Council Act (1999)		1			X			
d) PPR Road map	0.02	1			X					
2.1.2	Institutional Capacity Strengthening									
	Capacity Enhancement Needs Assessment (CENA) and training plan	0.12	1		X	X				
	<i>(i) International Training</i>									
	- Staff - short term technical training	2.2	200		X	X				
	- Workshops	0.16	LS		X	X	X	X		

SN	Activity	Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23
	<i>(ii) National</i>								
	- Short-term technical training	0.184	LS			X	X	X	
	- Long term technical training	0.0627	11		X				
2.1.3	Developing/Establishing a Dedicated Livestock Management Information System				X	X	X	X	
	a) Information and Communications Technologies (ICT) Strategy/LMIS Development, including training	1.61	1		X	X	X	X	
	b) ICT Infrastructure	0.47	1			X			
	c) ICT maintenance	0.15					X	X	X
	d) Animal identification	0.77				X	X	X	X
2.2 Component B: Promoting Sector Innovation and Modernizing Service Delivery									
2.2.1	Support to Producers' Organizations	7.08							
	a) Institutional mapping and capacity need assessment of the existing producer groups (livestock commodity, forage production/processing and seed producers) and cooperatives	0.70	1		X				
	b) New farmer group formation	1.30	1000		X	X	X		
	c) Support to existing groups	0.75	1500			X	X	X	X
	d) Support to existing co-ops (incl. biosecurity)	0.71	470			X	X	X	X
	e) Formation of new co-ops (incl. biosecurity)	0.06	30			X	X		
	f) Farmer's training through FFS	3.00	2000			X	X	X	X
	g) Master trainers of FFS	1.20	2400		X	X	X		
	h) Development of participatory multi-stakeholder pasture development Plans in the mountain districts		8			X	X		
	i) Orientation training of farmers in livestock insurance		8		X	X	X	X	
	j) Facilitation workshop to promote land leasing for forage development (w/-municipalities)		291			X	X	X	X

SN	Activity		Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23		
	k)	PO/Cooperative training in GAHP, GVP and food safety		3000			X	X	X			
2.2.2	Modernizing service and input provision system											
	2.2.2.1	Animal health services										
		2.1.1	Strengthening Livestock Service centres									
		a)	Establishment of new Municipal LSC	2.43	28			X				
		b)	Nepal veterinary council building	0.32	1		X	X				
		c)	Tablets for Vets and technicians	0.26	800			X				
		d)	Supply of anthelmintic for parasite control to remote municipalities	0.2	LS		X	X	X	X		
		e)	Mastitis control programme in dairy pockets with provision of medicine for teat dipping	0.1	LS		X	X	X	X	X	
		f)	Activation of OH approach in developing guidelines and SOPs for disease surveillance of zoonotic nature, food safety awareness materials development etc.	0.1	28			X	X	X	X	
		2.1.2	Capacity enhancement of laboratories and Border quarantine Check-posts									
		a)	Strengthening Vaccine production lab (NVPL)	1.16	LS		X	X	X	X		
		b)	Strengthening VSDRL	0.17	LS		X	X	X	X		
		c)	Strengthening CVL	1.83	LS		X	X	X	X		
		d)	Strengthening FMD&TADs Lab		LS		X	X	X	X		
		e)	New provincial disease diagnostic lab	0.32	2			X	X			
		f)	Strengthening of Animal Quarantine and border check-posts	0.86	LS		X	X	X	X		
		2.1.3	Enhancing disease surveillance and prevention									
		a)	Field epidemiology training level I (15 persons/cohort) 2 weeks duration	0.3		90			X	X	X	
		b)	Field epidemiology training level II (15			105			X	X	X	

SN	Activity	Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23
	persons/cohort) 2 weeks duration								
	c) Training to operate the BSL+ laboratory	0.01	15			X			
	d) Installation of Lab information management system (LIMS) in diagnostic labs (CVL, NADIL, FMD TADs)- budget to be shared from LMIS package		3			X			
	e) Training on LIMS system use-budget to be shared from LMIS package		15			X			
	f) Training to municipal level field animal health technicians on sample collection and dispatch-3days (20 per batch)	0.1	300		X	X			
	2.1.4 Disease control programme and delivery of inputs								
	<i>FMD Vaccination Campaign</i>								
	- Procurement of FMD vaccine(doses)	3.43	13738000		X	X	X	X	
	- Pre and post vaccination sero-surveillance 2%	0.56	LS		X	X	X	X	X
	- Procurement of vaccine carrying cool boxes(5 per municipality)	0.08	1500		X	X	X	X	X
	a) - Automatic vaccinator	0.09	1500		X	X	X	X	X
	-Ear tags and tagging machines for seromonitoring	0.01	LS		X	X	X	X	X
	-Incentives for vaccinators and sero-surveillance	2.68	LS		X	X	X	X	X
	-Incentives for vaccinators and sero-surveillance				X	X	X	X	X
	<i>PPR Vaccination campaign</i>								
	b) - Procurement and supply of logistics for vaccination campaign	1.16	4500000		X	X	X	X	X

SN	Activity		Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23
		- Pre and post vaccination sero-surveillance 2%	0.2	LS		X	X	X	X	X
		- Procurement of vaccine carrying cool boxes (5 per municipality)	0.08	1500		X	X	X	X	X
		- Automatic vaccinator	0.09	1500		X	X	X	X	X
		- Incentives for vaccinators and sero-surveillance	2.79	LS		X	X	X	X	X
		- Ear tags and tagging machine for seromonitoring	0.01	LS		X	X	X	X	X
	2.1.5	Other support activities on disease control programme								
	a)	Preparation of drug use monitoring system	0.01	1			X			
	b)	Establishment of district level storage facility for vaccine and other logistics	0.14	28		X	X			
	c)	Development of Municipal level storage facility for vaccine	0.15	300			X			
	d)	Training to VAHWs and paravets for vaccination campaign works	0.1	400		X	X	X	X	
	e)	Linking with international reference laboratories for accreditation of FMD and PPR testing protocols and procedures	0.15	2			X	X		
	f)	Training on biosecurity to VC stakeholders	0.12	500			X	X	X	
	g)	Development of SOPs for biosecurity at Semen collection centres and field level delivery	0.1	1			X			
	h)	Development of SOPs for milk pooling stations, markets, and slaughter facilities		1			X			
	i)	Procurement and supply of disinfectants and sprayers for field workers and border quarantine points	0.12	LS		X	X	X	X	

SN	Activity		Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23
	j)	Development of preparedness plans to deal with emergencies(disease outbreak, draught, earthquake etc.	0.1	1			X			
	k)	Introduction of herd health programme in commercial farms	0.2	3000			X	X	X	X
	2.1.6	Strengthening National Vaccine Production Laboratory								
	a)	Installation of air handling system at NVPL for enhancing PPR vaccine production capacity	0.5	LS		X	X			
	b)	Support to NVPL for procurement of machineries, equipment, and reagents etc. for PPR vaccine production	0.5	LS		X	X	X	X	X
	c)	Financing to International organization for accreditation of vaccine production facilities	0.1	LS			X	X		
	2.1.7	Laboratory supports								
	a)	Cold room for vaccine storage at state level	0.1	7						
	b)	Dual- temperature vaccine storage facilities at VH&LESC	0.4	47						
	c)	Preparation of manuals, SOPs				X	X			
	2.1.8	Human capacity development								
	a)	Develop/update national standards and curriculum for livestock professionals (veterinarians and para-veterinarians)	0.12	2		X	X			
	b)	Training community animal health workers/local service provider	0.5	1000		X	X	X		
	2.2.2.2	Breeding Services								
	a)	PPRS preparatory work for Genetic Improvement	1.17							

SN	Activity		Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23
		- Institutional mapping and identification of Government farms and POs interested in PPRS (cattle, buffalo and goats)	0.77	1		X	X			
		- Animal identification system (from DT3E)		500,000		X	X	X		
		- Hiring an international/national consultant/firm - its mobilization (Additional to expert consultations in DT 5 F and G)	0.4	2		X	X			
		- Feasibility analysis for semen production investment in regional/provincial centers		1		X				
		- Orientation on PPRS (state and district level DP), one by each DLSU		4		X	X			
		Strengthening AI service system and network	5.68							
		- Dairy pockets mapping at district levels, one by each DLSU	0.74	4		X	X			
		- Strengthening of state and district semen banks - storage and distribution facilities (Manang and Mustang not included)		26		X	X	X		
		- Establishment of new AI centers	1.05	700		X	X	X	X	
	b)	- Strengthening existing AI centers at VH&LSSC and Municipal level	0.81	LS			X	X	X	
		- Fresh AI trainings to paravets (public and private)	0.18	4		X	X	X	X	
		- Refresher training on AI -		4		X	X	X	X	
		- AI incentives in kinds (Refri + liquid nitrogen container and AI logistics to Private service providers)	0.4	4		X	X	X	X	
		- Development of SOPs and their adoption in AI		1			X			

SN	Activity		Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23
		service								
		- Import of frozen semen (Jersey, HF, Murrah and Boer goat)	1.5	5			X	X	X	
		- Import of sexed semen (for commercial dairy cattle farms)				X			X	
		- Procurement of AI consumables	0.4	4		X	X	X	X	X
		- Infertility camps	0.6	4		X	X	X	X	X
		- Heat synchronization in dairy animals		4			X	X	X	X
		Strengthening NLBO and cattle breeding stations - Semen processing centers	4.1							
		- NLBO Pokhara' - Infrastructure - bull mother sheds, bull sheds, labs ET labs	0.75	1		X	X			
		- At Banke	0.5	1						
		- At Lahan	0.6	1		X	X			
	c)	- Frozen semen production facility Lahan	0.5	1						
		- Procurement/induction of germ plasms (semen bulls)	0.7	4		X	X	X	X	X
		- Performance recording	0.4	4		X	X	X	X	X
		- PPRS system design	0.07	1		X	X			
		- Biosecurity facilities art breeding stations	0.36	4			X	X	X	
		- Trainings	0.15	15			X	X		
		- Expert consultations	0.07	4			X		X	
		Genetic improvement of goats - strengthening goat breeding centers	2.6							
	d)	- Strengthening of goat breeding centers	0.5	LS		X	X			
		- Strengthening of Chyangra goat breeding centers	0.1	LS		X				
		- AI piloting in goats	0.32	4		X	X	X		

SN	Activity		Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23
		- Import of live Boer goats	0.7	1			X			
		- Import of Boer frozen semen		1			X		X	
		- Breeder/multiplication herds (Boer)	0.4	4			X	X		
		- Site identification (government farm + OR sites)				X				
		- System design				X	X			
		- Performance record keeping				X	X	X	X	X
		- Data analysis				X	X	X	X	X
		- Trainings farmers record keepers and farmers	0.08	5		X	X	X		
		- Biosecurity in goat stations	0.4	4		X	X			
		- Expert consultations	0.1	4		X	X			
		Animal feed base and animal feed balancing	4.485							
	2.2.2.3	a) Forage seed production (farmers and government farms, on contract)	0.25	5			X	X	X	X
		b) Supply of farmers with seedlings/saplings	0.06	2		X	X	X	X	X
		c) Seed supply to farmers	0.06	2		X	X	X	X	X
		d) Establishment of fodder nurseries management	0.14	70		X	X	X		
		e) Community pasture production, ha	0.20	1,000			X	X	X	X
		f) Seed importation	0.20	4		X	X	X	X	
		g) Densified TMR strengthening	0.10	1			X	X	X	
		h) Feed and fodder analysis, lab strengthening, training	0.16	4			X	X		
		i) Forage gene bank - national	0.05	1				X		
		j) Forage seed storage at community level	1.58	21			X	X	X	
		k) Breeder seed storage and seed processing (govt. farm)	0.19	2			X	X		

SN	Activity		Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23
	l)	Tree Fodder Promotion (through FFS)/silvipasture, ha	0.60	200			X	X	X	X
	m)	Silage and Hay Preservation Demos (through FPS)	0.45	3			X	X	X	X
	n)	Updating country feed data base	0.05	1		X	X			
	o)	Ration balancing program development	0.40	4			X	X		
2.2.3	Strengthening Training and Extension Services									
	Staff training		1.59							
	a)	Master Trainers for Para Vet	0.06	40		X	X			
	b)	Training for livestock service providers/Agro vet	0.06	60		X	X	X		
	c)	Training on food safety	0.03	30		X	X			
	d)	Training on disease surveillance. & prevention	0.30	20		X	X			
	e)	New paravet training	0.09	60		X	X			
	2.2.3.1	f)	Refresher Vet. Training 7 days (1 per municipality)	0.45	300		X	X		
		g)	Refresher VAHW training	0.13	500		X	X		
		h)	Meat inspector training (1per municipality, 270 trained)	0.05	30		X	X		
		i)	Dairy inspection training (1per district)	0.03	30		X	X		
		j)	Training to Co-ops and Producer Groups (PG) - 500 Co-op	0.05	20		X	X		
		k)	Fodder See Production and Fodder Nursery Trng.	0.41	41		X	X		
	2.2.3.2	Curriculum Development and Preparation Manuals		0.36						
		a)	Development and skill upgradation & manual development	0.20	1			X		
	b)	Upgrading VAHW Curriculum (incl. herd	0.01	1			X			

SN	Activity		Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23
		health)								
		c) Manual on good animal husbandry practice (chyangra, dairy, goat meat)	0.10	1			X			
		d) Manual on biological lab. quality control	0.02	1			X			
		e) Laboratory SOP, protocols and format preparation	0.01	1			X			
		f) Developing MOALD Hand Book for Community. Service Providers	0.02	1			X			
		g) Review and update FFS curricula for master trainers	0.01	1			X			
		h) Updating manuals for disease monitoring, reporting	0.01	1			X			
	Component C: Promoting Inclusive Value Chains for Selected Livestock Commodities									
		Development of productive partnership								
		Creation of Dialogue Platform	1.60							
		a) Creation of stakeholders dialogue platforms	0.20	2		X	X			
		b) Studies, review and conduct market, food safety, climate smart studies	0.60	6				X	X	X
		c) Value chain information platform (Market, prices, finance, CC technology, POs)	0.50	1				X		
		d) Seminars, platform meetings to maintain dialogue inc. MG awareness	0.30	6		X	X	X	X	X
		Promoting Sustainable Partnerships	5.80							
		a) Technical expertise to evaluate business plan and follow up assistance	3.00	5		X	X	X		
		b) Capacity building to POs to develop business plans	0.60	3		X	X	X		
		c) Capacity Building to Banks and Micro	0.20	2				X		
3.1	3.1.1									

SN	Activity		Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23	
		Finance Institutions									
		d) Food safety awareness campaign for farmers, processors and consumers	1.00	5			X	X	X	X	
		e) Strengthening food quality monitoring in the field	1.00	5			X	X	X		
	3.1.2	Financing for livestock value chain	47.28								
		3.1.2.1	- Dairy farmer POs MG: sheds, genetics etc.	15.05	151		X	X	X		
		3.1.2.2	- Chyangra farmer POs MGs - sheds, genetics etc.	10.00	200		X	X	X		
		3.1.2.3	- Goat farmers POs MG: sheds, genetics etc.	9.03	151		X	X	X		
		3.1.2.4	- Agro-entrepreneurs, traders, input suppliers, matching grants, milk processing etc.	10.00	100		X	X	X		
		3.1.2.5	- Public, infrastructure, investments	3.20	4			X	X	X	
Component D: Project Management											
1	Community level planning and budgeting										
	1.1	Community level planning and budgeting in 28 districts		224		X	X	X	X		
	1.2	Community level planning and budgeting in 2 mountain districts (2 sites per district)		12		X	X	X	X		
2	Project planning										
	2.1	DLSU level annual planning and budgeting workshops		10		X	X	X	X	X	
	2.2	PMU level annual planning and budgeting		5		X	X	X	X	X	
3	Recruitment of consulting firms/consultants										
	3.1	Recruitment of project TA		2		X					
	3.2	Recruitment of individual consultants for specific jobs				X	X				
	3.3	Engagement of professional organizations like NABIC		1			X				
	3.4	Engagement of expert agency for PO development		1			X	X	X		
4	Publications										

SN	Activity	Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23
	4.1	Publication of PIM	1		X				
	4.2	Preparation and publication of Grant Manual	1		X				
	4.3	Publication of Grievance management procedure	1		X				
	4.4	Publication of Project Brochure	5,000		X	X	X		
	4.5	Publication on processing related technology (making mozzarella cheese)	2,000				X		
	4.6	Publication on production related technology (housing designs, silage making, public health, food and quality compliance, animal welfare)	5,000			X	X	X	
	4.7	Publication of livestock Breeding Policy, Animal Health Policy, One Health Policy and Approach, Animal Infectious Disease Control Act, Veterinary Drug Act, Animal Welfare Act, Peste des petits ruminants (PPR) Control Roadmap)	7,000			X	X		
	4.8	Publication of updated curriculum				X			
	4.90	Development and Publication of SOPs for AI service delivery	5,000			X			
	4.10	Develop and publish GAHP, GVP and GMP	5,000			X		X	
	Studies								
	5.1	Baseline survey	1		X	X			
	5.2	Develop communication strategy	1		X	X			
	5.3	Products demand and supply studies in support of beneficiaries and dialogue platforms	2			X		X	
	5.4	Milk pricing policies studies				X			
	5.5	Develop compendium of climate smart technologies related to livestock production and processing				X	X	X	X
6	Grant recipients and staff training								

SN	Activity	Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23	
6.1	Project staff training in environmental and Social Safeguards		12		X	X	X			
6.2	Training of government and municipality a) GoN and WB safeguard policies; (b) EMP and ECOP preparation; and (c) general introduction to environmental assessment and management		12		X	X	X			
6.3	M&E training to DLSU staff including Veterinary Hospital and Livestock Specialist Service Centres		4		X	X				
6.4	GRs training in technical and financial management		12		X	X	X			
6.5	Preparation of training materials in Chyangra production		1			X				
6.6	Mozzarella cheese making, hygiene and products standards compliance training to dairy cooperatives and small dairies		12			X	X	X		
6.7	Food safety testing of regional laboratory technicians of DFTQC		4			X	X			
6.8	In-country exposure visits of members of dialogue platforms		12			X	X	X	X	
7	Monitoring									
	7.1	Regular monitoring by PMU		Regular		X	X	X	X	X
	7.2	Regular monitoring by DLSU		Regular		X	X	X	X	X
	7.3	Field testing of milk adulterants/contaminants		500			X	X		
	7.4	Field monitoring by stakeholder platforms (central, state and district)		16			X	X	X	X
	7.5	PSC meetings at central level		12	X	X	X	X	X	X
	7.6	Dialogue platform meetings at central level		12	X	X	X	X	X	X
	7.7	Dialogue platform meetings at State level		12	X	X	X	X	X	X
7.8	Dialogue platform meetings at district level		12	X	X	X	X	X	X	

SN	Activity	Budget (US\$), million	Quantity/ Number	17/18	18/19	19/20	20/21	21/22	22/23
	7.9 Technical Coordination meetings at central level		12	X	X	X	X	X	X
	7.10 Technical Coordination meetings at State level		12	X	X	X	X	X	X
	7.11 Grievance redressal meetings		Regular		X	X	X	X	X
	7.12 Procurement of kits for field testing of milk adulterants/contaminants from NDDB India		1,000			X			

Annex 2.1: Roadmap to Accreditation and Supports to Laboratories

The following table presents the extracts of the roadmaps prepared by the laboratory consulting team of PACT to fulfill the gaps and actions to be taken to upgrade the laboratories as per ISO/IEC 17025:2005.

A. Common gaps and actions to be taken by all three laboratories (CVL, VSDRL and NADIL)

SN	Requirements	Major gaps	Action to be taken
1	Management System	No Quality Management System established and implemented	Quality Manual as per ISO/IEC 171025:2005 to be developed & implemented, Quality Policy to be developed
2	Purchasing services and supplies	. All consumables including chemicals and reagents are not sufficiently available.	Consumables including chemicals and reagents are to be procured to ensure availability at all times.
3	Controls of nonconforming testing and / or calibration Work	All requirements of this clause are missing.	All requirements to be documented and implemented. Technical assistance for calibration service is to be provided
4	Internal audits and external audits	Not in place, all requirements of this clause are missing.	All requirements to be documented and implemented.
5	General technical	No general awareness about the requirements of ISO/IEC 171025 among the staff.	Staff to be trained on the requirements of ISO/IEC 171025. Trainer is required to support this gap
6	Personnel	Policy for staff general awareness, staff recruitment and development, technical training, quality management training, job description and specific authorization is not there.	a. Policy for staff general awareness, staff recruitment and development, job description and specific authorization to be developed and implemented. Adequate number of technical staff to be ensured. b. Technical staff to be trained on current and advanced testing methodologies, quality management training
7	Equipment	Equipment are not uniformly identified, labeled, maintained, and calibrated	Identification, labeling, maintenance and calibration of all equipment to be done
8	Measurement traceability	Calibration of all equipment not done, reference standards, reference materials and intermediate checks are not done.	TA for procurement of reference standards, reference materials and Calibration of equipment.
9	Assuring the quality of Test and calibration Results	Most of the requirements are missing.	All requirements to be documented and implemented. Lab should aim to participate in formal proficiency testing programs. TA for PT is to be provided

B: Roadmap for testing of priority poultry vaccines and actions to be taken - VSDRL

SN	Requirements	Major gaps	Action to be taken
1	Reference materials	No reference standards, reference methods and materials	TA for procurement of reference standards, reference materials and reagents and chemicals
2	Training to staff	Training to staff on HPLC and PCR operation	Training to staff to be provided in a suitable institute

C : Roadmap for testing of priority diseases and actions to be taken - CVL

1	Tests for Avian influenza, PPR, Rabies diagnosis	No use of gold standard tests prescribed by OIE	TA for diagnostics and chemicals for use of gold standard tests prescribed by OIE
2	Training to staff	Training to staff on specific test methods/ operation	Training to staff to be provided

D: Roadmap for testing of priority diseases and actions to be taken- NADIL

1	Tests for New Castle Disease and IBD diagnosis	No use of gold standard tests prescribed by OIE	TA for diagnostics and chemicals for use of gold standard tests prescribed by OIE
2	Technical training to staff	No technical training and update	Training to be given by a competent trainer

Annex 2.2: Technical Notes on Genetic Improvement of Dairy Animals and Goats

1. Genetic Improvement of Dairy animals

a) Essential data points for PPRS

- District, Municipality, Farmer with unique codes;
- Herd with unique code;
- Pedigree record of each animal of the herd in the register, with breed, management system (coded);
- Milk yield of each cow (pm and am) – at least once or twice a month;
- Fat content and protein content of each cow;
- Calvings;
- Mating (natural mating and artificial insemination); and
- Major health problems.

b) PPRS outcomes to be achieved for impacting increased productivity of the production herds

- Selection of top ranked bull mother - an output of the evaluation exercise;
- AI of top ranked bull mothers with imported semen (from proven semen or the best one of the available categories);
- Selection of bull calf;
- Rearing of bull calf;
- Bull certification for communicable diseases and chromosomal abnormalities – tie up with CVL and Animal Breeding Division of NARC – for studying genomics, if possible;
- Procurement of young bulls for evaluation and semen collection at NLBO;
- Final selection of bulls for AI and NI;
- Bull training, semen collection, processing and handling;
- Semen distribution to the AI districts and private inseminators;
- Assured back up of liquid Nitrogen (LN2) production / supply; and
- Transfer of knowledge and in-hand skills to all the actors for accomplishment of the entire package.

2. Genetic Improvement of Goats

a) Technical Parameters for Selection:

The PPRS program on goat will focus on selecting does using a simple index of *live litter-weight at three month*. In selecting goats for meat production, the parameters would be (a) growth rate, (b) adaptability to environmental and production conditions, and (c) reproductive rate. The best way to increase adaptability is to select for the desired traits under actual local production conditions. Therefore, the breeding stock will be selected from animals that are maintained under the same natural conditions in which their progenies would be raised. As agro-climatic conditions differ from terai to mountain from east to west, the best choice for breeds will be based on farmers choices evolved by agro-ecological locations through the selection program. Therefore, NLSIP will closely work with government goat farms, their outreach research sites and POs by regions for establishing PPRS for genetic improvement of goats.

b) Criteria for culling of goats

Based on performance records and general examination for health, this has to be undertaken once every four months. Some criteria for culling of females and males may include the following, subject to participatory discussion with the farmers:

Females

Review performance record results (data of all recorded does in ascending /descending order and identify does that are out performing in terms of three month litter weight of the kids a doe produced);

- Set cut off line on three- month litter weight in Kg produced by a doe;
- Consider twinning frequency and cull if it misses to produce twins for three kiddings in a row;
- Barren female--missed two seasons in a row;
- Bad teats or udders--too big or too small (mastitis);
- Bad mouths--smooth or broken mouth or over- or undershot jaw; and
- Structural defects--bad feet and legs or back and other morphological defects, if any.

Males

- Body weight standard by age;
- Unsound buck from mating performance ground;
- Unsound buck from genetic grounds, any morphological deformity of heritable nature;
- Demonstrated infertilities;
- Bad testicles - too small or infected (epididymitis); and
- Unthriftiness - due to old age or disease.

Some recommended activities for initiating a PPRS in a Community Cluster:

a) Identify the cluster with > 1000 does and enlist participating households

- Organize group meetings at several places. Form new groups if necessary to meet the required goat numbers
- Appraise them in details of the objectives, activities, brief methodology, outcomes and benefits of the selection program and establishment of breeder/multiplication herds

b) Train participating farmers: To demonstrate the process of data recording and to ensure they can do it themselves.

- Filling format of individual goat
- Data recording: parameters and schedule
- Demonstrate the methodology of performance recording (tagging, weighing, recording of kidding dates, health records, mortalities etc.)

c) Organize groups/cooperatives as a cluster and set the framework of goat population for recording

- Prepare the list of clusters and sub clusters of participating households. If farmers are already in groups the process will be simple.
- Identify responsible persons among farmers to continue identification of animals and tagging for performance recording. Ensure that within a year at least 1000 does are included in the inventory for recording.

d) Performance Recording and Data Generation

d.1 Identify individual animal's breed

- Majority are *Jamunapari crossbred* in the mid-hills. If farmers have decided to innovate selection program for *Jamunapari* crosses, other exotic breeds such as Boer '*Ajmeri*', '*Barbari*' '*Sanen*' must be excluded from the performance record inventory. If farmers opt for upgrading base flock with Boer, begin crossbreeding with the selected does of the major breed prevailing there. If farmer opt for *Khari* breed, go for the same for both male and female lines.
- Tag the animal and fill individual animal's record card in duplicate (make two copies) immediately requesting the owner to recall all retrospective information of that particular animal as far as possible
- Keep one card at the farmers' house and the other at the site office for entering the data into the computer.

d.2 Plan for materials/service/ inputs that have to be shared among households. Some of the examples of such inputs are:

- Weighing machine: enlist households a weighing machine will be shared among. For example, a weighing machine will be enough for 10 households.
- Registers for group/committee minutes.

d.3 Identify key facilitators from among the community members: The facilitators could be schoolteachers or high school graduated farmer who could voluntarily assist data recording task and help farmers in the event of need.

d.4 A computer for data management of performance records.

d.5 Improve breeding, feeding, husbandry and health practices as per needs in the cluster. Arrange one breeding buck for *every* 30 - 40 goats. Before buying new buck investigate its body weight gain trend retrospectively and its mother's twinning rate, kidding interval and ability to foster kids.

Annex 2.3: Possible Areas for FFS Interventions in Dairy Animals and Goats

SN	Field problems	FFS package	Expected outcome
Dairy Animals			
1.	Infertility/repeat cases	<ul style="list-style-type: none"> • Heat detection • Timely mating/insemination • Mineral supplementation • Green fodder/forage (legumes + non-legumes) 	Increased conception rates
2.	Random mating – absence of selection	<ul style="list-style-type: none"> • PPRS – data recordings 	
3.	Mastitis/ subclinical mastitis	<ul style="list-style-type: none"> • Teat dipping • Feeding post milking to make animal stand up • Hygienic husbandry practices 	Reduced incidence Increased milk yield/animal
4.	Low productivity/animal	<ul style="list-style-type: none"> • Ration formulation and feeding based on potential milk productivity • Mineral supplementation • Green fodder/forage (legumes + non-legumes) 	Increased milk yield/animal
5.	Ill health/low productivity associated with parasitic infestation	<ul style="list-style-type: none"> • Strategic drenching/deworming 	Improved body condition score Increased milk yield/animal
5.	Others as per local problems/needs		
Goat			
1.	In-breeding/random mating	<ul style="list-style-type: none"> • PPRS data recordings and selection 	
2.	Offtake and meat production/goat from grazing flocks is not	<ul style="list-style-type: none"> • Stall feeding vs grazing – compare weight gain live weight at market age. Assess costs and return 	Increased offtake rate and meat yield /goat.
3.	Improper feeding practices	<ul style="list-style-type: none"> • Balanced feeding – green (legumes + non-legumes) • Concentrate supplementation • Assess cost and return 	Increased Average Daily Gain
4.	High incidence of external and internal parasites – retarded growth	<ul style="list-style-type: none"> • Scheduled strategic drenching 	Increased Average Daily Gain
5.	Poor housing conditions	<ul style="list-style-type: none"> • Comparison of improved practices (slatted, floor with litters and conventional sheds) 	Improved Average Daily Gain, reduced diseases incidences
6.	Others as per local problems/needs		

Annex 2.4: Technical Guidelines for Supporting Dairy Value Chain

Quality, quantity and regularity of milk supply are keys to an efficient dairy value chain performance. Quality issue is severe in dairy sub-sector. The impacts of poor milk quality are reflected in short shelf-life of processed products, limited range of finished dairy products that can be manufactured, reduced access of surplus products to export markets, and the additional costs incurred in milk processing that have to be borne by the processors and the consumers (Samarth-NMDP, 2016)¹⁵. Similarly, transmission of zoonotic diseases, milk and water borne diseases, and food poisoning appear to be the direct impact on public health. Industrialization of dairy sector has to address these important shortcomings in the existing dairy value chains. NLSIP interventions will finance for improvement in entire chain through larger sub-projects or through medium and smaller sub-projects for improvement to dairy enterprises and efficiency of functional nodes (inputs, production functions, market channels, transport, processing, distribution and consumer campaign). In such cases, MG recipients would be POs such as MPCs, farmers' groups or individual entrepreneurs.

2.3.1 Production clusters: Priority for Rural Road Corridors:

In recent years, sub-urban and peri-urban “so called commercial/semi-commercial” dairy farms mushroomed to supply raw milk directly from these farms to urban consumers. These farms are operating in an unsustainable manner in all respects - inadequate feed and fodder, high cost of milk production, poor hygiene, spoiled urban sanitation, high number of unproductive animals, and failure in raising young stocks and so on. Growing trend of raising dairy animals in urban and peri-urban areas discourages expansion of milk collection, storage and transport systems from rural areas. This has also discouraged dairy processors to expand their network and investment in rural areas where the bulk of milk is produced. This situation has prevented most smallholder producers of rural areas from being integrated into formal mainstream value chain enterprises. NLSIP will select dairy production clusters where there would be little change in land use patterns and farm will run for at least a decade or more. Moreover, farmers in dairy pocket areas who evolved through learning initially from a small/medium farm and grew/expanded gradually to become a commercial farmer would be more successful and sustainable in the long run. NLSIP will identify potential dairy clusters along the road corridors of the rural areas. It will refrain from supporting/ promoting urban dairy farm. DLSUs will identify such clusters in consultation with respective Municipal Livestock Section of the project area. Stakeholder platform meetings at the district level will endorse such production clusters. NLSIP will adopt a value chain approach that aggregates and mainstreams smallholder producers into the supply chain, attracts youths in self-employed model targeting an annual income of about NPR 400,000 to 500,000/family and modernizes the farm practices¹⁶. In the course, many of such smallholders will evolve as medium and large dairy farmers. Commercial farms already existing in such clusters will qualify to bid for the grants. Prior experience must be valued in entrepreneurship, therefore, would be one of the criteria for scoring the proposal.

2.3.1.1 Farm level interventions

Some of the examples of farm level interventions farmers' groups/POs could include in their proposal for MG are:

- Establishment of new or upgradation of existing farm to a dairy animal genetic resource farm of cattle or buffalo – participation in the national PPRS system with commitment for

¹⁵ Baseline study report, enhancing quality standards of raw milk: validation of good manufacturing practices in its supply chain, Samarth – NMDP.

¹⁶ Dairy VC study report, NLSIP.

selection/culling of the stock and production of seed animals for distribution should be the aim.

- Participation in genetic improvement programs - performance recording and selection system (cattle and/or buffalo by breeds).
- Establishment/upgradation to a commercial milk production farm.
- Support to establish and promote GVHP and GMP adopted model farm (small and medium) in a self-employed ownership and management modality. Support package should include soft loan, business plans and partial capital cost share in farm infrastructure and mechanization (milking machine, water tanks, water supply system and pipes, compost pits, shed construction and drainage system). These could be component activities of the sub-projects.
- Intensive on-site training and awareness programs in dairy pocket areas with focus on increasing productivity, to sensitize and motivate dairy farmers for hygienic milk production and adoption of GVHP and GMP steps.
- Training on aspects of animal husbandry like feed management, shed management, animal care etc. to provide improved animal husbandry skills.
- Training on fodder production, nursery management and seedling production.
- For commercial farms, an assurance of availability of area for the cultivation of forage and fodder – at least 1 *ropani*/adult livestock unit
- Training, demonstrations and scale up plan for fodder and forage conservation and feeding.
- Introduction of two times milk collection/day in areas where it becomes feasible. One time a day collection appears to be the factor that encourages adulteration.
- Adoption of stringent hygienic measures at production level, regular milk testing and pricing system based on quality. Piloting for premium pricing to be paid to farmers for good quality milk.
- Introduction of systematic farm record keeping, pedigree and performance recording system (with commitment for participation in performance recording system, in feasible areas).
- For commercial farms, design of modern dairy sheds with provision for biogas, urine collection, winter yard, working yard, isolation chamber, stores, implement shed, labor quarter and so on.
- Adoption of animal ration formulations and scientific feeding practices.
- Demonstration and scaling up by POs engaging youths in innovative modern technologies complying with GVHP (it is believed that DLS has a draft of this)), GAHP (approved by MOALD) and GMP (NDDDB has a draft of it, DFTQC is working on Food Quality and Safety Act) standards in dairy farming and milk sale.
- Internal inspections across the chain by value chain actors - inspections by processors and CC/MCC personnel at the farm are important and critical steps. Farms must be part of quality management system of the dairy plants (e.g. ISO, HACCP).
- Provision of adequate and affordable veterinary services – support for private sector service providers.
- Awareness campaigns through mass media with the intent to promote/influence the adoption of recommended practices.
- Activities for encouragement for formation/expansion/strengthening farmers' institutions like MPCs that promote service promotion, trade and adoption of technology and change in behaviour.

- Farmers training, extension services and demonstrations based on specific problems/themes/disciplines – FFS.
- On site trainings/demonstrations - action research and technology development.

2.3.1.2 Interventions for improved milk marketing

There are too many intricacies in the milk marketing system, the most important being relationship among the dairy value chain actors and buy back arrangements. Both business relations and behavior are important elements. Formal milk processor - processors having *Anugya Patra* (a license) from DFTQC - are the right actors to expand milk collection network of their own or in partnership with MPCs. Presently, about two-third of the sellable milk is marketed through the informal channel, without a license. NLSIP would seek from Dairy VC actor's business proposals for translating such promising business into a long-term ever growing and regulated business entity. Support could be in the areas of infrastructures, milk chilling and processing facilities and expansion of network for milk collection.

DLS inventory reveals that there are 326 dairy industries operating in the country¹⁷. Most of them are small-scale dairies that handle a few hundreds to less than 5,000 liters of milk a day. The dairy plants that handle 20,000 or more liters of milk a day are just 14 (including four regional milk supply schemes of the DDC). Many dairies are not registered, are operating informally, therefore, might have been omitted in the register. NLSIP would ask for proper registration of the dairy business as one of the requirements for productive partnership. Therefore, a facilitative process in advance must be initiated to encourage registration of all the dairy units with the respective DFTQC office/Municipality as appropriate for them to become qualified for NLSIP partnership.

Crucial elements of a dairy plant, irrespective of their scale of operation, are infrastructures (own building or room on rent), transport means (utensils, storage tanks and road milk tankers), technology used, types of the plant, quality of the raw milk, skill level of the human resource working in the plant, electricity availability and cold chain maintenance, drainage system and waste disposal, and so on. Direct observations reveal that all most all dairy industries are operating in a compromised state with regard to these basic facilities/elements. Quality issues in value addition in the entire milk supply chain are of major concerns. Gaps in knowledge and skill, ignorance, negligence and requirements for additional investments are some of the constraints on adoption of GMP in milk collection, transport, chilling, processing, storage and distribution for retailing¹⁸. Therefore, the NLSIP support for improving dairy value chain enterprises will comprise the following activities

a) Activities at the Collection Center level

- Utensils, transport means, storage facility: time management in milking, collection and chilling is crucial - immediate chilling of milk at the collection center (CC) must be achieved. In CCs where chilling facilities are absent, immediate transportation of raw milk-to-milk chilling center (MCC) as soon as possible (within 2.5 hours of milking) is required.
- Investment for the improvement of CC infrastructure and its premises, water facility, drainage, space for cleaning of farmers' milk utensils, toilets and so on.
- Shared cost for establishment of basic infrastructure and of chilling vats of 500, 1000, 2000 liters capacities as appropriate, in rural milk pocket areas for milk storage.
- Intensive hands-on training while working for milk handling techniques and operation of utensils, equipment, lacto-scan and so on...
- Dress codes, utilities, sanitation accessories and so on.

¹⁷ NLSIP dairy value chain study 2017.

¹⁸ NLSIP dairy value chain study report

- Milk testing facilities (milk analyzer)
- Others as per specific needs of the enterprise in question....

b) Activities at the Milk Chilling Center level

- Expansion of chilling capacity, adoption of new technologies/equipment.
- Alternative electricity backup system to manage chilling operations and storage of milk at 4°C.
- Establishment of the small chilling centers at village level with provision of basic infrastructure and provision of cleanliness of chilling center and its premises.
- Intensive learning while doing trainings to personnel working there - major focus must be on milk handling techniques, personal hygiene and behavioral change.
- Introduction of contractual buy back system: selling milk on formal contractual basis - adopt sale of milk to processors preferably on annual contract basis defining quality, quantity and effective period of the contract. Variation in milk volume based on seasonality might also be considered in the contract.
- Formulation and execution of code of conduct on milk marketing.

c) At Processor Level

- Set and execute quality management systems (QMS) of the factory – set pathway and receive HACCP/GMP/ISO certificate.
- Participate and execute NLSIP sub-projects in the entire milk catchment area that includes an entire package to improve, transport system, CCs, MCCs and farms. Incorporate backward DVC nodes in the QMS (ISO, HACCP, NS as appropriate)
- Product diversification,
- Improvements to products distribution, storage, transport wholesale and retail counters

d) At Consumer Level

- Education and awareness on quality aspects of milk
- Campaign for increased milk consumption to ensure nutrition security

2.3.2 Key roles of Dairy Sub-sector Associations/Alliances in NLSIP dairy value chain programs

2.3.2.1 Dairy Industries Association (DIA)/Nepal Dairy Science Association (NDA)

- Provide business development service to dairy processors, milk producer cooperatives (MPCs) and chilling centers in adoption of Quality Management systems by their member dairy industries.
- Play key role in setting food/milk standards by engaging member dairy processors.
- Formulate, pilot dairy value chain development programs/projects in partnership with GoN and/or donor funded projects and scale them up.
- Partner with NLSIP for the above activities in general and dairy products buy back arrangement from the small dairies located in the remote areas.

2.3.2.2 Central Dairy Cooperatives Association of Nepal (CDCAN)

- Expand membership base of CDCAN.
- Facilitate in merging of smaller MPCs to form large MPCs with capacities for service delivery to its members and expand milk market.
- Support in expansion of milk catchment areas of CCs and form new one in potential areas – co-work with NDA/DIA

- Play key role in safeguard standards of GVHP, GMP, GAHP and its internal audit system in advance so that implementation of national regulations is smooth.
- Facilitate in contract negotiations for milk purchase defining quality, quantity and time - play lead facilitative role in building business trust among them - advocate for price incentives for improved milk quality.
- Provide business development advisory service to MCCs and CCs
- Discourage sale of raw milk through informal channel.
- Plan and execute programs/projects in partnership with NLSIP

2.3.2.3 Milk Processors

- Formulate and execute dairy value chain development projects/programs in partnerships. Invest in partnership, create fund for collaborative works in partnership with GoN/Projects including NLSIP.
- Include backward functional nodes of the dairy value chain as integral parts of the internal research and development or quality control system of the dairy plant.
- Support GoN in setting and enacting mandatory standards of milk for the entire chain, from farms, CC, MCC, dairy processing and marketing.
- Ensure quality of raw milk while in transportation and storage until it is processed.
- Encourage small dairies to produce market driven dairy products than fluid milk through buy back contract arrangement.
- Operationalize voluntary internal auditing system – a pre-requisite for acceptance of mandatory quality standards.

Annex 2.5(a): Central Level Stakeholders Dialogue Platform

1	Secretary, MOALD (Livestock)	Coordinator
2	Joint Secretary, Planning and Aid coordination Division, MOALD	Member
3	Joint Secretary, Livestock, Poultry and Fishery Division, MOALD	Member
4	Joint Secretary, Animal Health Division, MOALD	Member
5	Director General, Department for Livestock Services	Member
6	Director General, DFTQC	Member
7	Chief, Livestock Projects Coordination Unit, DLS	Member
8	Representative, Ministry of Finance	Member
9	Representative, Ministry of Industries, Commerce and Supplies	Member
10	Representative, Ministry of Federal Affairs and General Administration	Member
11	Representative, National Planning Commission	Member
12	Director, Livestock and Fisheries Research, NARC	Member
13	Representative, National Farmers' Commission	Member
14	Executive Director, National Dairy Development Board	Member
15	General Manager, DDC	Member
16	Representative, Nepal Veterinary Council	Member
17	Representative, Consumers' forum (one position)	Member
18	Representative, Meat Entrepreneurs' Association (one)	Member
19	Representative, Nepal Pashmina Industries Association (one)	Member
20	Representative, FNCCI (one)	Member
21	Representative, CDCAN (one)	Member
22	Representative, Federation of Dairy Cattle Farmers' Association (one)	Member
23	Representative, Federation of Dairy Buffalo Farmers' Association (one)	Member
24	Representative, National Buffalo Society	Member
25	Representative, Federation of Goats/Chyangra Farmers' Associations	Member
26	Representative, Veterinary Drug/Pharma/ Entrepreneurs Association	Member
27	Representative, Nepal Feed Industries Association	Member
28	Representatives as per need	Member
29	Project Director, NLSIP	Member secretary

Annex 2.5(b): State Level Stakeholders Dialogue Platform

1.	Ministry of Land Management, Agriculture and Cooperative	Secretary, Coordinator
2.	Directorate of Livestock Services and Fishery Development,	Director, Member
3.	, Office of the Chief Minister	Representative Member
4.	Veterinary Hospital and Livestock Specialist Service Office (NLSIP district)	Chief, Member
5.	Animal Disease Investigation Laboratory	Chief, Regional Member
6.	Food Tech. and Quality control Laboratory	Chief, Regional Member
7.	, Consumers' Forum	Representative Member
8.	Milk Supply scheme (DDC),	Chief, Regional Member
9.	, Meat entrepreneurs' Association (one person)	Representative Member
10.	, Dairy Cattle Farmers' Association (one person)	Representative Member
11.	, Buffalo Farmers' Association (one person)	Representative Member
12.	, wool/Pashmina Industries Association (one person)	Representative Member
13.	, FNCCI (one person)	Representative Member
14.	, Milk Producers' Cooperative/District Union (1 person)	Representative Member
15.	, Goat/ <i>Chyangra</i> Farmers' Association (one person)	Representative Member
16.	, Veterinary Drug/Pharmacists Association (1 person)	Representative Member
17.	, Feed Association (one person)	Representative Member
18.	members as per need	Invitee Member
19.	Chief, Decentralized Level Support Unit (DLSU, NLSIP)	Member Secretary

Annex 2.5(c): District Level Stakeholder Dialogue Platform

1.	Coordination Officer (former LDO)	District Coordinator
2.	, DLSU, NLSIP	Representative Member
3.	, consumers' Forum	Representative Member
4.	, Meat Entrepreneurs' Association (one person)	Representative Member
5.	, Dairy Entrepreneurs' Association Or District Milk Cooperatives Union (one person)	Representative Member
6.	, dairy Cattle Farmers' association (one person)	Representative Member
7.	, Dairy Buffalo Farmers' Association (one person)	Representative Member
8.	, Fibre/Pashmina Industries Association (one person)	Representative Member
9.	, District Chamber of Commerce and Industries (1 person)Member	Representative
10.	, Milk Producers' Cooperative/District Union (1 person)	Representative Member
11.	, Goat/Chyangra Farmers' Association (one person)	Representative Member
12.	, Veterinary drugs Entrepreneurs' Association (1 person)Member	Representative
13.	need	Invitees as per Member
14.	Hospital and Livestock Specialist Service Centre	Chief, Veterinary Member-Secretary

Annex 2.6: Major Areas for IDA Investment

Objective	Dairy production	Goat production	Chyangra production	Dairy and meat processing including cheese making
Improved Infrastructures	Livestock handling facilities, (Animal shed, store house, fencing, farm equipment's, bio security arrangements) farm milk cooling and processing equipment, milk collection/ chilling centers, milk quality testing equipment, silage crusher and baler, silage production, cooperative level feed plant including procurement of chelatong materials (against aflatoxin), tractor, feed compounding and packaging equipment, solar water heating system, power connection to the farms and so on. Milking parlour Bio gas Bio fertilizer Milking Machine Milk transport tanker Boring facilities Health tool kits and AI equipment. Breeding male animal.	Establishment of goat market/ collection centre, goat handling facilities, goat collection centre, goat weighing machines, feed pelleting and packaging machines/ equipment including procurement of chelatong materials (against aflatoxin), specialized goat transportation vehicle, solar water heating system, power connection to the farms and so on. Boring facilities Farm equipment's Health tool kits, and equipment's including Burdizzo castrator and AI equipment, dipping tank, seed processing and storage facilities. Breeding male animal.	Chyangra handling facilities, pasture and irrigation facilities, feed pelleting and packaging machines/ equipment including procurement of chelatong materials (against aflatoxin), pen improvement, weighing balances, solar for light and and other utilities, power connection to the farms and so on. Dipping tank Health tool kits and Drecnching equipment Portable shed Trail and track Yarn facilities and other fiber processing equipment, seed processing and storage facilities. Breeding male animal.	Dairy processing facilities (processing house, equipment, and machineries including milk transportation vehicle), milk collection /chilling centres, cool boxes for dairy products transportation, milk quality testing equipment, solar water heating system, development of slaughter houses/ slaughter slab facilities, weighing machines and balances and so on. Cold room /chilling facilities Water treatment facilities Waste management facilities
Improved livestock	a) Procurement of improved	a) Procurement of improved	a) Procurement of improved	

Objective	Dairy production	Goat production	Chyangra production	Dairy and meat processing including cheese making
genetics	bulls/AI	bucks	bucks	
Feed development and improved environmental performance	b) Fodder development on farm and on communal lands including CF and LHF. c) seed processing and storage facilities	b) Fodder development on farm and on communal lands including CF and LHF. c) seed processing and storage facilities	b) Development of pastureland management plan, pasture development on farm and on pasturelands. c) seed processing and storage facilities	a) Solid and waste management system development.
	d) Solid and waste management system development.	d) Solid and waste management system development.	d) Solid and waste management system development.	b) Chemical waste management
	e) Feed modifying machineries	e) Feed modifying machineries	e) Feed modifying machineries	c) Waste water and cleaning water management,
	f) Drudgery reduction technologies (automated/semi-automated drinking water trough, grass harvester, jet cleaner, tractor, mini tractor, wheel barrow etc.)	f) Drudgery reduction technologies (automated/semi-automated drinking water trough, grass harvester, jet cleaner, tractor, mini tractor, wheel barrow etc.)	f) Drudgery reduction technologies (automated/semi-automated drinking water trough, grass harvester, jet cleaner, tractor, mini tractor, wheelbarrow etc.)	
Compliance to hygiene and food quality safeguards	a) Adequate ventilation, natural lighting and sanitation	a) Adequate ventilation, natural lighting and sanitation	a) Adequate ventilation, natural lighting and sanitation	a) Adequate ventilation, natural lighting and sanitation
	b) Adoption of clean milk production, storage and transportation			b) Water treatment plant

Annex 2.7: Memorandum of Understanding (MOU) Between..... Bank and Nepal Livestock Innovation Project (NLSIP)

This document constitutes an agreement between BANK (referred to hereafter as.....) with a head office located at AND Nepal Livestock Innovation Project (Referred to hereafter as NLSIP) located at Harihar Bhawan, Lalitpur. Both parties assume that this agreement does not go against the rules and regulations of the Government of Nepal.

A. Objective

The objective of this MOU is to express the willingness of both parties to engage in an effort to promote competitive businesses in dairy, goat meat and Pashmina-Chyangra value chains, where productive partnerships (PPs) are developed between the producers and the buyers, traders and processors through access to investment.

B. Background

NLSIP, a Government of Nepal project, with an IDA loan assistance of USD80 million became effective from 28 February 2018 with a development objective of “increasing productivity, enhancing value addition, and improving climate resilience of smallholder farms and agro-enterprises in selected livestock value chains in Nepal”. It will end on 30 June 2023. It is implemented by the Ministry of Agriculture and Livestock Development. The project will work with 200,000 livestock producers and at least 500 small and medium sized agro-enterprises in 291 municipalities of 28 districts¹⁹. The Project has four components: (A) Strengthening Critical Regulatory and Institutional Capacity; (B) Promoting Sector Innovation and Modernizing Service Delivery; (C) Promoting Inclusive Value Chains for Selected Livestock Commodities; and (D) Project Management and Knowledge Generation.

It is the Component C, which will be implemented in partnership with the Banks and Financial Institutions. This component envisages to establishing PPs between Producer Organizations (POs) such as cooperatives; buyers such as agri-businesses; micro, small, and medium enterprises; and finance and insurance institutions. The productive partnerships will be supported through the establishment of a matching grant (MG) mechanism, while facilitating access to financing and risk insurance for investing in business plans developed by the POs and livestock agro-entrepreneurs.

The business plans will be financed through a combination of an IDA-financing (50 percent), a contribution from the POs (minimum 20 percent in cash), and short to medium-term credit provided by participating BFIs (30 percent or more). The project will provide small grants (not exceeding US\$35,000) and medium grants (between US\$35,000 and US\$100,000). Of total grant, 40% will be allocated for small grant and 60% for medium grant.

NLSIP investment will be limited to fixed investment including financing to develop new facilities within the old structures for drudgery reduction, such as automated/semi-automated feeding, watering or waste management. However, neither it will finance the renovation/maintenance of infrastructures as such, nor will it finance for recurrent costs. Full business proposals will be selected on competitive basis with 60% score for financial criteria and 40% for technical.

NLSIP grant is an output based financing to reach all 28 districts and will be available to competitive eligible applicants but not to proposals falling under negative list from the perspective of environment and social safeguards (Ref PIM).

C. Roles and Responsibilities

C.1 Roles and Responsibilities of NLSIP

1. Preparation of Grant Operating Manual in alignment with Project Implementation Manual

¹⁹ Panchthar, Ilam, Jhapa, Dhankuta, Udayapur, Morang, Sunsari, Saptari, Dhanusha, Siraha, Kavrepalanchowk, Kathmandu, Makawanpur, Chitwan, Syangja, Kaski, Mustang, Manang, Tanahu, Myagdi, Nawalparasi (East), Rupandehi, Nawalparasi (W), Gulmi, Palpa, Arghakhanchi, Kapilbastu and Bardiya.

2075.

2. Call for Project Concept Notes (PCN) followed by full proposals, and their evaluations as per Grant Operating Manual.
3. During joint field verification, make photo documentation of the existing infrastructures and machineries and equipment, which shall be used during milestones verification before instalment payments.
4. Train successful PNC applicants covering topics such as business plan preparation, shed design, products flow design (industries), environmental and social safeguards, food quality compliance and writing full proposal.
5. DLSU to assist BFIs to process the successful full proposals and make a list to submit to PMU for final approval. PMU to finalize the proposals based on review and allocated grant budget.
6. Invite successful grant applicants for negotiation, where DLSU in collaboration with the BFIs will assist the grant applicants to finalize the work plan and budget in a logical order. Consideration will be given to include measures for environmental and social safeguards and hygiene and food safety compliance, if any missed out in the full proposal.
7. The negotiation process will define the specific milestones for each grant installment payment. Number of grant installments and grant payment schedule will also be pinned down at the same time.
8. The Project Director on behalf of NLSIP and the GR (chairperson of the sub-project), with one of the Senior Officers of NLSIP and representative BFI as witnesses will sign the grant agreement.
9. Within 15 days of agreement signed, DLSU/BFI will provide orientation to GRs on grant implementation, grievance management and will assess their technical support/training needs for future support planning.
10. Monitor sub-projects at least once in a month, document progress and provide technical inputs to the GRs and share with BFIs. During the visits, make sure that the GRs erect hoarding boards, environmental and social code of practices (ESCOP) and organize public hearings as planned.
11. Participate in public hearings organized by the GRs.
12. Make grant instalment payments based on invoices and field verifications.
13. Undertake once a year survey for results documentation and share with the participating BFIs and the World Bank
14. NLSIP will follow a set of format agreeable to the World Bank for reporting the grant status, which will be applicable to both parties.
15. Make final grant disbursement based on overall progress against planned activities and submission of brief project completion report.

C.2 Roles and Responsibilities of BFIs

1. Provide inputs in preparation of Grant Operating Manual.
2. Entry/registration of PCNs and full proposals and working together with the DLSUs for technical evaluation as per Grant Operating Manual.
3. During joint field verification with DLSU, make photo documentation of the existing infrastructures and machineries and equipment, which will be used during milestones verification throughout instalment payments.
4. Assist NLSIP/DLSU during the training of the successful PNC applicants in preparation of submission of full proposals and on grant implementation, grievance management and assessing their technical support/training needs for future project support after grant agreement
5. Evaluate PCN and full proposals based on project viability. Undertake joint field verification with respective DLSU, if necessary.
6. Collate the assessment scores obtained from DLSU and its own assessment scores and

prepare a list of successful proponents and submit to PMU (in priority order) with budget sharing details for finalization of the successful candidates.

7. During negotiation, together with DLSU, assist the grant applicants to finalize the work plan and budget in a logical order. Consideration will be given to include measures for environmental and social safeguards and hygiene and food safety compliance, if any missed out in the full proposal.
8. The negotiation process will define the specific milestones for each grant installment payment. Number of grant installments and grant payment schedule as well as number of loan installments, lending schedule and loan repayment schedule will also be pinned down at the same time.
9. Assist NLSIP in grant agreement and training of grant recipients on grant implementation, grievance management and assessing their technical support/training needs for future project support.
10. Monitor sub-projects at least once in a month, document progress and provide technical inputs to the GRs, and share with the respective DLSU. During the field monitoring, make sure that the GRs erect hoarding boards, environmental and social code of practices (ES COP) and organize public hearings as planned.
11. Participate in public hearings.
12. Make first loan instalment payments on 20% progress of work and based on invoices and their field verifications. The following loan disbursement will follow the same principle.
13. The Bank (BFI) will report the NLSIP in a set format developed jointly by NLSIP and BFI and approved by the World Bank for reporting the grant status on monthly basis. BFI will also be responsible to provide any other relevant information to NLSIP as requested by the government or the World Bank.
14. BFI will be proactively involved on promotion of livestock insurance schemes in support of project beneficiaries.
15. Participate with NLSIP in WB supervision missions.

D. General Terms of MOU

1. Duration of MOU

This MOU shall be operational upon signing and will have an initial duration of **three years**. All activities conducted before this date within the vision of the joint collaboration will be deemed to fall under this MOU.

2. Gran fund flow

NLSIP will directly disburse the grant to the Bank Account of GR opened with the concerned BFI as per the schedule agreed in the agreement with the GRs. NLSIP and the BFI will follow the following loan and grant disbursement schedule.

Loan and Grant Release Schedule

Stage	Work completion	Bank loan disbursed	Grant disbursed
Investment for 1 st milestones	20% work completion	50%	50% of expenditure as per 1st milestones completed
Investment for 2nd milestones	50% work completion	Remaining 50%	50% of expenditure as per 2nd milestones completed
Investment for final milestones	100% work completion		50% of final milestones completed

3. Coordination

In order to carry out and fulfill the aims of this agreement, each party will appoint an appropriate person(s) to represent its organization and to coordinate the implementation of activities. The

parties will meet regularly (preferably with two days' notice) to discuss progress and plan activities.

4. Confidentiality

Neither of the Parties nor its personnel shall communicate to any other person or entity any confidential information made known to it by the other Party (Parties) in the course of the implementation of this MOU nor shall it use this information to private or company advantage. This provision shall survive the expiration or termination of this MOU.

5. Termination of MOU

The partnership covered by this MOU shall terminate upon completion of the agreed upon period. The agreement may also be terminated with a written one-month notice from either side. In the event of non-compliance or breach by one of the parties of the obligations binding upon it, the other party may terminate the agreement with immediate effect.

6. Dispute settlement

Any dispute between NLSIP and relating to the interpretation or application of this MOU, or any document or arrangement relating thereto, shall be resolved by mutual negotiation between the Parties.

7. Extension of Agreement: The MOU may be extended provided the parties agree upon, and can provide the necessary resources.

8. Communications: All notice, demands and other communication under this agreement in connection herewith shall be written in English language and shall be sent to the last known address, e-mail, or fax of the concerned party. Any notice shall be effective from the date on which it reaches the other party.

9. Addendum: Any Addendum to this MOU shall be in writing and signed by both parties. The terms and provisions in this MOU also apply to any subsequent Addendum to this agreement.

IN WITNESS WHEREOF, the parties hereto have executed this MOU on theday of, 20..... at PMU of NLSIP, Harihar Bhawan, Lalitpur, Nepal.

Name.....
Project Director
Nepal Livestock Innovation Project
Harihar Bhawan, Lalitpur

Signature:
Date:.....

Witness
Name:
Position:
Organization:

Signature:
Date:

Name.....
Position.....
..... (Bank)
Address.....
Signature:

Date:.....

Witness
Name:
Position:
Organization:
Signature:

Date:

Annex 2.8: Composition of Project Steering Committee

1	Secretary, Ministry of Agriculture and Livestock Development	Chairperson
2	Joint Secretary, Planning and Development Cooperation Coordination Division, Ministry of Agriculture and Livestock Development	Member
3	Joint Secretary, Administration Division, Ministry of Agriculture and Livestock Development	Member
4	Joint Secretary, Animal Health Division, Ministry of Agriculture and Livestock Development	Member
5	Joint Secretary, Livestock and Fisheries Development Division, Ministry of Agriculture and Livestock Development	Member
6	Joint Secretary, Infrastructure and Production Division, National Planning Commission	Member
7	Joint Secretary, International Economic Cooperation Coordination Division, Ministry of Finance	Member
8	Executive Director, Nepal Agricultural Research Council	Member
9	Director General, Department of Livestock Services	Member
10	Director General, Department of Agriculture	Member
11	Director General, Department of Food Technology and Quality Control	Member
12	Registrar, Department of Cooperatives	Member
13	Representative, Nepal Rastra Bank	Member
14	Project Director, NLSIP	Member-Secretary
15	Invitees as required	

Annex 2.9: Composition of Central Level Project Technical Coordination Committee

Chairman: Director General, Department of Livestock Services

Members: Deputy Director Generals, DLS
Chief, Project Coordination Unit, DLS
Chief, Central Veterinary Referral Hospital
Chief, Central Veterinary Laboratory

Chief, National Animal Feed and Livestock Quality Management Laboratory

Chief, National Livestock Resource Management and Promotion Office

Chief, National Livestock Breeding Office

Chief, Veterinary Standards & Drug Regulatory Laboratory

Chief, National Vaccine Production Laboratory

Member Secretary: Projector Director, NLSIP

In addition to this up to three experts can be invited as invitee member if necessary

Annex 2.10: Composition of State Level Project Coordination Committee

Chairman: Secretary, Ministry of Land Management, Agriculture and Cooperative
Members: Director, Directorate of Livestock and Fisheries Development
Director; Directorate of Agriculture
Chief, Veterinary Laboratory
Chief, State Level Livestock Services Training Center
Chief, Quarantine Office
Chief, National Livestock Breeding Office
Chief, Fishery Center
Chief, Veterinary Hospital and Livestock Services Specialist Center
Member secretary: Chief, DLSU

In addition to this, up to five Experts can be invited as invitee member if necessary

Annex 3.1: Implementation Progress Report -Trimester IUFR - FY 2018/19 (2075/76)

Government of Nepal
Ministry of Agriculture and Livestock Development
Nepal Livestock Sector Innovation Project
Summary of Sources and Uses of Funds
Fiscal Year:

Period:

Budget Head: 3121673/74

IDA Credit: 61490
In NPR

Description	Notes to Account	Cumulative upto FY 2017/18 (2074/75)	FY: 2018/19 (2075/76)				Cumulative-to-Date	
			1st Trimester	2nd Trimester	3rd Trimester	Year-to-Date		
Approved Budget Allocation:		#REF!	-	-	-	#REF!	#REF!	
A	Opening Cash/Bank Balance:							
	Cash Balance of Previous Trimester	-	-	-	-	-	-	
B	Sources of Funds							
	GoN Fund	Note 1						
	GoN Reimbursable Fund							
	IDA Credit	Note 2						
	DA Replenishable	Report 2						
	MG Recipient Contribution							
	Bank Contribution							
Sub Total B: Sources of Funds		-	-	-	-	-	-	
C. Total - Sources of Funds (A + B)		-	-	-	-	-	-	
D	Uses of Funds:							
	Goods & Works	Report 3						
	Non-consulting & Consultant's Services, Training & Workshops							
	Incremental Operating Costs							
	Matching Grants							
	MG Recipient Contribution							
	Bank Contribution							
Sub Total D: Uses of Funds		-	-	-	-	-	-	
E	Closing Balance	-	-	-	-	-	-	
F	Grand Total - Uses of Funds (D + E)	-	-	-	-	-	-	
Designated (USD) Account Reconciliation Statement:(A/C No:1204659)								
S.N.	Particulars	Note	Cumulative upto FY 2017/18 (2074/75)	FY 2018/19 (2075/76)				Cumulative to Date
				1st Trimester	2nd Trimester	3rd Trimester	Year to date	
1	1. Opening Cash Balance	Report 2						
2	Add : Receipt of Funds							
3	Add: Exchange Gain Loss (+ / -)							
4	Total Cash Balance (1 + 2 + 3)		-	-	-	-	-	
5	Less: Refund Back to IDA from DA	Report 2						
6	Less : Transfer to GON Treasury							
7	Less Direct Payment from Designated Account							
8	Closing DA Balance at the End of the Reporting Period (4 - 5 - 6 - 7)		-	-	-	-	-	

Annex 3.2: Implementation Progress Report: Trimester IUFR - FY

Government of Nepal
Ministry of Agriculture and Livestock Development
Nepal Livestock Sector Innovation Project
GoN Fund, GoN Reimbursable Fund & DA Replenishable Fund
As of Trimester - FY
IUFR Period: -

Budget Head: 3121673/74

IDA Credit: 61490
In "NPR"

PARTICULARS		Referenc e	Cumulative upto FY 2017/18 (2074/75)	FY 2018/19 (2075/76)				Cumulative to Date
				1st Trimester	2nd Trimester	3rd Trimester	Year to Date	
1.1. GON Fund								
A	GON Fund Released							
B	Add: Source to be changed from IDA to GoN							
C	Less: Source to be changed from GoN to IDA							
D	Less: Freeze / Unspent Amount							
1.1. Net GoN Fund (A+B-C-D)			-	-	-	-	-	-
1.2. Reimbursable Fund (IDA)								
A	GON Reimbursable fund Release (IDA Source)							
B	Add: Source to be changed from GoN to IDA							
C	Less: Source to be changed from IDA to GoN							
D	Less: Transferred to GoN Treasury from DA	Report 2						
E	Less: Direct Reimbursement to GoN Treasury from IDA							
F	Less: Freeze / Unspent Amount							
1.2. Net GON Reimbursable (IDA) (A-B-C-D-E-F)			-	-	-	-	-	-
1.3. Total Fund (1.1. + 1.2.)			-	-	-	-	-	-
Particulars			Cumulative upto FY 2017/18 (2074/75)	FY 2018/19 (2075/76)				Cumulative to Date
				1st Trimester	2nd Trimester	3rd Trimester	Year to Date	
1.4. DA Replenishable								
1	Transfer to GoN Treasury Account from DA	Report 2						
2	Direct Payment from DA	Report 2						
A	Total payment from DA (1+2)							
B	DA Replenished / Liquidation (Documented)	Note 2						
1.4. Net IDA Replenishable (A-B)			-	-	-	-	-	-
Particulars			Cumulative upto FY 2017/18 (2074/75)	FY 2018/19 (2075/76)				Cumulative to Date
				1st Trimester	2nd Trimester	3rd Trimester	Year to Date	
1.5. IDA Credit (Documented from IDA)								
A	Documented from IDA (DA Liquidation)	Note 6						
B	Documented from IDA (Direct Reimbursement))							
1.5. Total IDA Credit			-	-	-	-	-	-

Annex 3.3: Implementation Progress Report - Trimester IUFR - FY

Government of Nepal
 Ministry of Agriculture and Livestock Development
 Nepal Livestock Sector Innovation Project
 Designated Account Reconciliation Statement & Cash Projection
 US Dollar A/C No: 1204659
 FY

Period: July - November 2018

Budget Head: 3121673/74

IDA Credit: 61490
 Amount in NPR

S.N	Particulars	Cumulative upto FY 2017/18 (2074/75)	FY 2018/19 (2075/76)				Cumulative to Date	Remarks
			1st Trimester	2nd Trimester	3rd Trimester	Year to date		
Amount in NPR								
1	Opening Cash Balance							
2	Add : Receipt of Fund							
3	Add: Exchange Gain / Loss (+ / -)							
4	Total Cash Balance (1 + 2 + 3)	-	-	-	-	-	-	
5	Less: Refund Back to IDA from DA							
6	Less : Transfer to GON Treasury							
7	Less: Direct Payment from DA							
8	Closing DA Balance at the End of the Reporting Period (4 - 5 - 6 - 7)	-	-	-	-	-	-	

Amount in USD								
S.N.	Particulars	Cumulative upto FY 2017/18 (2074/75)	FY 2018/19 (2075/76)				Cumulative to Date	Remarks
			1st Trimester	2nd Trimester	3rd Trimester	Year to date		
1	1. Opening Cash Balance							
2	Add : Receipt of Funds							
3	Add: Exchange Gain Loss (+ / -)							
4	Total Cash Balance (1 + 2 + 3)	-	-	-	-	-	-	
5	Less: Refund Back to IDA from DA							
6	Less : Transfer to GON Treasury							
7	Less Direct Payment from Designated Account							
8	Closing DA Balance at the End of the Reporting Period (4 - 5 - 6 - 7)	-	-	-	-	-	-	

Annex 3.4: Implementation Progress Report: Trimester IUFR FY

Government of Nepal
 Ministry of Agriculture and Livestock Development
 Nepal Livestock Sector Innovation Project
 Statement of Expenditure
 As of Trimester - FY
 IUFR Period: -

Budget Head: 3121673/74

IDA Credit:
61490
In "NPR"

Budget Item No.	IDA Cat. No.	Description	Total Project Cost (NPR)	Cumulative Expenditure upto FY 2017/18 (2074/75)			Annual Budget Allocation	Expenditure- 2018/19												% Exp.	Balance Budget		Cumulative Expenditure to Date					
				Go N	ID A	Tot al		1st Trimester			2nd Trimester			3rd Trimester			Year-to-Date				Total	%	Go N	IDA	Tot al			
								Go N	ID A	Tot al	Go N	ID A	Tot al	Go N	ID A	Tot al	Go N	ID A	Tot al									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26			
A. Category 1: Goods and Works																												
22521	1	Production Materials / Services																										
22522		Program Expenses																										
29221		Building Construction																										
29231		Capital Improvement - Building																										
29311		Furniture & Fixtures																										
29411		Vehicles																										
29511		Plants & Machinery																										
29712	Software Development and Purchase																											
Sub Total A: Category 1																												
B. Category 2: Non-Consulting and Consultants' Services, Training & Workshops																												
22411	2	Services & Consultancy Expenses																										
22512		Skill Development & Training																										
22522		Program Expenses																										
27211		Scholarship																										
Sub Total B: Category 2																												
C. Category 3: Incremental Operating Costs																												
21111	3	Salary																										
21113		Dearness Allowance																										
21119		Other Allowance																										
21121		Uniform																										
22111		Water & Electricity																										
22112		Communication																										
22121		House Rent																										
22122		Other Rent																										
22211		Fuel																										
22212		Operation & Maintenance																										
22213		Insurance																										
22311		Office Materials																										
22313		Books & Materials																										
22314		Fuel for Other Use																										

Annex 3.6: Implementation Progress Report: Trimester IUFY FY

Government of Nepal
 Ministry of Agriculture and Livestock Development
 Nepal Livestock Sector Innovation Project
 Statement of Expenditure
 As ofTrimester - FY
 IUFY Period: -

Budget Head:
3121673/74

IDA Credit:
61490
In "NPR"

Budget Item No.	ID A Ca t. N o.	Description	Annual Budget			Virement (+ / -)			Adjusted Budget			Expenditure- 2018/19												% Ex p.	Balance Budget				
			Go N	ID A	Tot al	Go N	ID A	Tot al	Go N	ID A	Tot al	1st Trimester			2nd Trimester			3rd Trimester			Year-to-Date				GoN	IDA	Tot al	%	
												GoN	IDA	Tot al	GoN	IDA	Tot al	GoN	IDA	Tot al	GoN	IDA	Tot al						
1	2	3	5	6	7						8	9	10	11	12	13	14	15	16	17	18	19	20	21			22	23	
A. Category 1: Goods and Works																													
22521	1	Production Materials / Services																											
22522		Program Expenses																											
29221		Building Construction																											
29231		Capital Improvement - Building																											
29311		Furniture & Fixtures																											
29411		Vehicles																											
29511		Plants & Machinery																											
29712		Software Development and Purchase																											
Sub Total A: Category 1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV /0!	
B. Category 2: Non-Consulting and Consultants' Services, Training & Workshops																													
22411	2	Services & Consultancy Expenses																											
22512		Skill Development & Training																											
22522		Program Expenses																											
27211		Scholarship																											
Sub Total B: Category 2			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV /0!	
C. Category 3: Incremental Operating Costs																													
21111	3	Salary																											
21113		Dearness Allowance																											
21119		Other Allowance																											

Annex 3.7: Implementation Progress Report: Trimester IUFY FY 2018/19 (2075/76)

**Government of Nepal
Ministry of Agriculture and Livestock Development
Nepal Livestock Sector Innovation Project
Statement of Expenditure
As ofTrimester - 2018/19 (2075/76)
IUFY Period: - 2018**

Budget Head: 3121673/74

Budget Item No.	IDA Cat. No.	Description	Share of Expenditure				Expenditure																
							1st Trimester			2nd Trimester			3rd Trimester			Grand Total							
			GoN	IDA	MGR	BFI	GoN	IDA	Total	GoN	IDA	Total	GoN	IDA	Total	GoN	IDA	Total					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19					
A. Category 1: Goods and Works																							
22521	1	Production Materials / Services	15%	85%	0%	0%																	
22522		Program Expenses																					
29221		Building Construction																					
29231		Capital Improvement - Building																					
29311		Furniture & Fixtures																					
29411		Vehicles																					
29511		Plants & Machinery																					
29712		Software Development and Purchase																					
Sub Total A: Category 1							-	-	-	-	-	-	-	-	-	-	-	-					
B. Category 2: Non-Consulting and Consultants' Services, Training & Workshops																							
22411	2	Services & Consultancy Expenses	15%	85%	0%	0%																	
22512		Skill Development & Training																					
22522		Program Expenses																					
27211		Scholarship																					
Sub Total B: Category 2							-	-	-	-	-	-	-	-	-	-	-	-					
C. Category 3: Incremental Operating Costs																							
21111	3	Salary	100%	0%	0%	0%																	
21113		Dearness Allowance																					
21119		Other Allowance																					
21121		Uniform																					

22111		Water & Electricity																
22112		Communication																
22121		House Rent																
22122		Other Rent																
22211		Fuel																
22212		Operation & Maintenance																
22213		Insurance																
22311		Office Materials																
22313		Books & Materials	28%	72%	0%	0%												
22314		Fuel for Other Use																
22321		Repair & Maintenance of Public Property																
22412		Other Services																
22522		Program Expenses																
22611		Monitoring & Evaluation																
22612		Travelling Expenses																
22711		Miscellaneous																
Sub Total: Category 3																		
D. Category 4: Matching Grants																		
26413	4	Conditional Recurrent Grants	0%	50%	0%	0%												
Sub Total: Category 4																		
E. MG Recipient & Bank's Contribution																		
26413	4	MG Recipient Contribution (20%)	0%	0%	20%	0%	-	-	-	-	-							
26413		Bank Contribution (30%)			0%	30%	-	-	-	-	-							
Sub Total: MG Recipient & Bank's Contribution																		
Grand Total (A+B+C+D+E+F) Including GR & Bank's Contribution																		
Grand Total (A+B+C+D+F) Excluding GR & Bank's Contribution																		

Annex 3.8: Summary of Sources and Uses of Funds

Government of Nepal
Ministry of Agriculture and Livestock Development
Nepal Livestock Sector Innovation Project
Summary of Sources and Uses of Funds
IDA Credit - 61490
Audited Project Account
Fiscal Year:

Budget Head: 3121673/74

In NPR

Description	Notes to Account	Up to FY.....	FY	As of FY
Approved Budget Allocation:				
A	Opening Cash/Bank Balance:			
	Cash Balance of Previous Trimester	-	-	-
B	Sources of Funds			
	GoN Fund	Note 2		
	GoN Reimbursable Fund			
	IDA Credit	Note 5		
	DA Replenishable	Note 2		
	MG Recipient Contribution			
	Bank Contribution			
Sub Total B: Sources of Funds			-	-
C. Total - Sources of Funds (A + B)			-	-
D	Uses of Funds:			
	Goods & Works	Note 1		
	Non-consulting & Consultant's Services, Training & Workshops			
	Incremental Operating Costs			
	Matching Grants			
	MG Recipient Contribution			
	Bank Contribution			
Sub Total D: Uses of Funds			-	-
E	Closing Balance		-	-
F	Grand Total - Uses of Funds (D + E)		-	-

Designated Account Reconciliation Statement: (A/C No:1204659) - IN NPR					
S.N.	Particulars	Note	As of 2016/17 (2073/74)	FY 2017/18 (2074/75)	As of 2017/18 (2074/75)
1	1. Opening Cash Balance	Note 4			
2	Add : Receipt of Funds				
3	Add: Exchange Gain Loss (+ / -)				
4	Total Cash Balance (1 + 2 + 3)		-	-	-
5	Less: Refund Back to IDA from DA	Note 4			
6	Less : Transfer to GON Treasury				
7	Less Direct Payment from Designated Account				
8	Closing DA Balance		-	-	-

Annex 3.9: Statement of Expenditure

Government of Nepal
Ministry of Agriculture and Livestock Development
Nepal Livestock Sector Innovation Project
Statement of Expenditure
IDA Credit - 61490
Audited Project Account
FY

Notes to Account - 1

Accounting Policy:

The project has maintained accounts as per the government of Nepal Accounting System i.e. on cash basis. Under the Nepal's existing Government Accounting System, all disbursements including advances are treated as expenditure. The Project Account has been compiled from the GoN records.

In "NPR"

Budget Item No.	IDA Cat. No.	Description	Up to FY	FY	As of FY
1	2	3	4	5	6
A. Category 1: Goods and Works					
22521	1	Production Materials / Services			
22522		Program Expenses			
29221		Building Construction			
29231		Capital Improvement - Building			
29311		Furniture & Fixtures			
29411		Vehicles			
29511		Plants & Machinery			
29712		Software Development and Purchase			
Sub Total A: Category 1			-	-	-
B. Category 2: Non-Consulting and Consultants' Services, Training & Workshops					
22411	2	Services & Consultancy Expenses			
22512		Skill Development & Training			
22522		Program Expenses			
27211		Scholarship			
Sub Total B: Category 2			-	-	-
C. Category 3: Incremental Operating Costs					
21111	3	Salary			
21113		Dearness Allowance			
21119		Other Allowance			
21121		Uniform			
22111		Water & Electricity			
22112		Communication			
22121		House Rent			
22122		Other Rent			
22211		Fuel			
22212		Operation & Maintenance			
22213		Insurance			
22311		Office Materials			
22313		Books & Materials			
22314		Fuel for Other Use			

22321		Repair & Maintenance of Public Property			
22412		Other Services			
22522		Program Expenses			
22611		Monitoring & Evaluation			
22612		Travelling Expenses			
22711		Miscellaneous			
Sub Total: Category 3			-	-	-
D. Category 4: Matching Grants					
26413	4	Conditional Recurrent Grants	#REF!	#REF!	#REF!
Sub Total: Category 4			#REF!	#REF!	#REF!
E. MG Recipient & Bank's Contribution					
26413	4	MG Recipient Contribution	-	#REF!	#REF!
26413		Bank Contribution	-	#REF!	#REF!
Sub Total: MG Recipient & Bank's Contribution			-	#REF!	#REF!
Grand Total (A+B+C+D+E) Including GR & Bank's Contribution			#REF!	#REF!	#REF!
Grand Total (A+B+C+D) Excluding GR & Bank's Contribution			#REF!	#REF!	#REF!

Annex 3.10: GoN Fund, GoN Reimbursable Fund & DA Replenishable Fund

Government of Nepal
Ministry of Agriculture and Livestock Development
Nepal Livestock Sector Innovation Project
GoN Fund, GoN Reimbursable Fund & DA Replenishable Fund
IDA Credit - 61490
Audited Project Account
FY

Notes to Account - 2
In "NPR"

Budget Head: 3121673/74

PARTICULARS		Reference	As of FY	FY	As of FY
1.1. GON Fund					
A	GON Fund Released	Note 3			
B	Add: Source to be changed from IDA to GoN				
C	Less: Source to be changed from GoN to IDA				
D	Less: Freeze / Unspent Amount				
1.1. Net GoN Fund (A+B-C-D)			-	-	-
1.2. Reimbursable Fund (IDA)					
A	GON Reimbursable fund Release (IDA Source)	Note 3			
B	Add: Source to be changed from GoN to IDA				
C	Less: Source to be changed from IDA to GoN				
D	Less: Transferred to GoN Treasury from DA	Note 4			
E	Less: Direct Reimbursement to GoN Treasury from IDA				
F	Less: Freeze / Unspent Amount				
1.2. Net GON Reimbursable (IDA) (A-B-C-D-E-F)			-	-	-
1.3. Total Fund (1.1. + 1.2.)			-	-	-
Particulars			As at 15 July 2017	FY 2017/18	As at 16 July 2018
1.4. DA Replenishable					
1	Transfer to GoN Treasury Account from DA	Note 4	-	-	-
2	Direct Payment from DA	Note 4	-	-	-
A	Total payment from DA (1+2)		-	-	-
B	DA Replenished / Liquidation (Documented)	Note 5	-	-	-
1.4. Net DA Replenishable (A-B)			-	-	-
Particulars			Cumulative upto FY 2017/18 (2074/75)	FY 2018/19 (2075/76) 1st Trimester	Cumulative to Date
1.5. IDA Credit (Documented from IDA)					
A	Documented from IDA (DA Liquidation)	Note 6	-	-	-
B	Documented from IDA (Direct Reimbursement)		-	-	-
1.5. Total IDA Credit			-	-	-

Annex 3.11: Statement of Budget Release as per FCGO Record

Government of Nepal
Ministry of Agriculture and Livestock Development
Nepal Livestock Sector Innovation Project
Statement of Budget Release as per FCGO Record
FY

Budget Head: 3121673/74

IDA Credit: 61490
In NPR

S.N.	Budget Head	Source	Approved Annual Budget	Virement (+/-)	Adjusted Budget	Released Amount NPR					Balance Budget	
						1st Trimester	2nd Trimester	3rd Trimester	Year-to-Date	%	Amount	%
1	3121673	GON										
2	3121673	IDA Reimbursable (Loan)										
3	3121673	IDA Direct Payment (Loan)										
Sub total			-	-	-	-	-	-	-	-	-	-
4	3121674	GON										
5	3121674	IDA Reimbursable (Loan)										
6	3121674	IDA Direct Payment (Loan)										
Sub total			-	-	-	-	-	-	-	-	-	-
Grand Total (Budgetary Contribution)			-	-	-	-	-	-	-	-	-	-
7	MG Recipient Contribution		-	-	-	-	-	-	-	-	-	-
8	Bank Contribution		-	-	-	-	-	-	-	-	-	-
Total (Beneficiary and FIs Contribution)			-	-	-	-	-	-	-	-	-	-
Grand Total (Including Budgetary, Beneficiary & Bank Contribution)			-	-	-	-	-	-	-	-	-	-

Annex 3.12: Memorandum of Designated Account

Government of Nepal
Ministry of Agriculture and Livestock Development
Nepal Livestock Sector Innovation Project
Memorandum of Designated Account
IDA Credit - 61490
Audited Project Account
FY

Notes to Account - 4
Amount in NPR

Budget Head: 3121673/74

S.N	Particulars	Up to FY	FY	As of FY
Amount in NPR				
1	Opening Cash Balance			
2	Add : Receipt of Fund			
3	Add: Exchange Gain / Loss (+ / -)			
4	Total Cash Balance (1 + 2 + 3)	-	-	-
5	Less: Refund Back to IDA from DA			
6	Less : Transfer to GON Treasury			
7	Less: Direct Payment from DA			
8	Closing DA Balance	-	-	-

Amount in USD				
S.N.	Particulars	Cumulative upto FY 2017/18 (2074/75)	FY 2018/19 (2075/76)	Cumulative to Date
			1st Trimester	
1	1. Opening Cash Balance	-	42,164.86	-
2	Add : Receipt of Funds	100,000.00	2,000,000.00	2,100,000.00
3	Add: Exchange Gain Loss (+ / -)	-		-
4	Total Cash Balance (1 + 2 + 3)	100,000.00	2,042,164.86	2,100,000.00
5	Less: Refund Back to IDA from DA	-	42,164.86	42,164.86
6	Less : Transfer to GON Treasury	57,835.14	412,729.42	470,564.56
7	Less Direct Payment from Designated Account	-	-	-
8	Closing DA Balance	42,164.86	1,587,270.58	1,587,270.58

Annex 3.13: Statement of Loan Disbursement

Note - 6

Government of Nepal
Ministry of Agriculture and Livestock Development
Nepal Livestock Sector Innovation Project
Statement of Loan Disbursement
IDA Credit: 61490
Audited Project Account
FY

Notes to Account - 5

Loan Category		Value Date	Up to FY			FY			As of FY		
			NPR	US\$	SDR	NPR	US\$	SDR	NPR	US\$	SDR
1	Goods & Works										
2	Non-consulting Services, Consultants' Services, Training & Workshop										
3	Incremental Operating Costs										
4	Matching Grant										
Sub Total: All Category			-	-	-	-	-	-	-	-	-
5	Refund of Preparation Advance		-	-	-						
NA	Capitalization		-	-	-						
NA	Initial Advance		-	-	-						
Sub Total: Initial Advance & Capitalization			-	-	-	-	-	-	-	-	-
Grand Total: Loan Disbursement			-	-	-	-	-	-	-	-	-

Annex 3.14: Statement of Expenditure

Government of Nepal
Ministry of Agriculture and Livestock Development
Nepal Livestock Sector Innovation Project
Statement of Expenditure
IDA Credit - 61490
Audited Project Account
FY 2017/18 (2074/75)

Notes to Account - 6
In "NPR"

Budget Head: 3121673/74

Budget Item No.	IDA Cat. No.	Description	Up to FY			FY			As of FY		
			GoN	IDA	Total	GoN	IDA	Total	GoN	IDA	Total
1	2	3	5	6	7	9	10	11	24	25	26
A. Category 1: Goods and Works											
22521	1	Production Materials / Services									
22522		Program Expenses									
29221		Building Construction									
29231		Capital Improvement - Building									
29311		Furniture & Fixtures									
29411		Vehicles									
29511		Plants & Machinery									
29712		Software Development and Purchase									
Sub Total A: Category 1			-	-	-	-	-	-	-	-	-
B. Category 2: Non-Consulting and Consultants' Services, Training & Workshops											
22411	2	Services & Consultancy Expenses									
22512		Skill Development & Training									
22522		Program Expenses									
27211		Scholarship									
Sub Total B: Category 2			-	-	-	-	-	-	-	-	-
C. Category 3: Incremental Operating Costs											
21111	3	Salary									
21113		Dearness Allowance									
21119		Other Allowance									
21121		Uniform									
22111		Water & Electricity									
22112		Communication									
22121		House Rent									
22122		Other Rent									
22211		Fuel									
22212		Operation & Maintenance									
22213		Insurance									
22311		Office Materials									
22313		Books & Materials									

22314		Fuel for Other Use										
22321		Repair & Maintenance of Public Property										
22412		Other Services										
22522		Program Expenses										
22611		Monitoring & Evaluation										
22612		Travelling Expenses										
22711		Miscellaneous										
Sub Total: Category 3			-	-	-	-	-	-	-	-	-	-
D. Category 4: Matching Grants												
26413	4	Conditional Recurrent Grants	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
Sub Total: Category 4			#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
E. MG Recipient & Bank's Contribution												
26413	4	MG Recipient Contribution	-	-	-	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
26413		Bank Contribution	-	-	-	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
Sub Total: MG Recipient & Bank's Contribution			-	-	-	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
Grand Total (A+B+C+D+E) Including GR & Bank's Contribution			#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
Grand Total (A+B+C+D) Excluding GR & Bank's Contribution			#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!

Annex 3.15: Breakdown of Category-wise Expenditure by Budget Expenditure Line Item

Category	Bdgt. Item	Related Budget Expenditure Item	Disbursement Percentage by Funding Sources				Total %
			GoN %	IDA %	MG %	BFI %	
5. Goods and Works	No. 22521	Production materials / services					
	22522	Program expenses					
	29221	Building construction					
	29231	Capital improvement - Buildings	15	85	-	-	100
	29311	Furniture & fixtures					
	29411	Vehicles & equipment					
	29511	Plants & machinery					
	29712	Software development & purchase					
6. Non-consulting & consultancy services, training & workshops	22411	Services & consultancy expenses					
	22512	Skill development & training	15	85	-	-	100
	22522	Program expenses					
	27211	Scholarship					
7. Incremental Operating Costs	21111	Salary					
	21113	Dearness allowance	100	-	-	-	100
	21119	Other allowance					
	21121	Uniform					
	22111	Water & electricity					
	22112	Communication					
	22121	Rent					
	22122	Other rent					
	22211	Fuel					
	22212	Operation & maintenance					
	22213	Insurance					
	22311	Office materials					
	22313	Books & magazines	28	72	-	-	100
	22314	Fuel for other use					
	22321	Repair & maintenance of public property					
	22412	Other services					
22522	Program expenses						
22611	Monitoring & evaluation						
22612	Travelling expenses						
22711	Miscellaneous						
8. Matching Grants	26413	Conditional recurrent grants	-	50	20	30	100

Annex 3.16: Checklists - Books of Account

S.N.	Types of Books of Account	Responsible Agency		Frequency	Submission to	Remarks
		PMU	DLSUs			
1.	Monthly SOE; Advance Ledger; Retention Ledger; Revenue Ledger; Budget Allocation, Budget Release and Expenditure Statement etc.	√	√	Monthly	DLSUs submit to PMU	TSA generated financial statements.
2.	Category-wise Monthly SOE / Trimester-wise SOE	√	√	Monthly / Trimester-wise	DLSUs prepares for PMU	Specific project requirement to meet Project needs
3.	Quadrimester-wise IUFR	√	X	Quadrimester-wise	PMU prepares for World Bank	Specific project requirement to meet Project needs
4.	DA Reconciliation Statement	√	X	Quadrimester-wise	PMU prepares for World Bank	Specific project requirement to meet Project needs
5.	Withdrawal Applications	√	X	Usually Quadrimester - wise	PMU prepares for World Bank	Specific project requirement to meet Project needs
6.	Annual consolidated category-wise SOE	√	√	Annual	DLSUs prepares fo PMU	Specific project requirement to meet Project needs
7.	Annual Unaudited /Audited Project Account, Audit Report & Management Letter	√	X	Annual	PMU prepares for World Bank	Specific project requirement to meet Project needs

Annex 4.1: Agreement Form Between NLSIP and Supplier

THIS AGREEMENT made on the ... day of, 20.., between Nepal Livestock Sector Innovation Project,(Address of office) (Hereinafter “the Purchaser”), of the one part, and(Name and address of supplier) (hereinafter “the Supplier”), of the other part:

WHEREAS the Purchaser invited for the supply of(Name of goods) and has accepted the rate quoted by the Supplier for the supply of those Goods and Related Services in the sum of NRs [In words:including taxes applicable if any] (hereinafter “the Contract Price”).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:
 - (a) the Purchaser’s Notification to the Supplier of Award of Contract;
 - (b) Price Schedules submitted by the Supplier;
 - (c) the Schedule of Requirements; and
 - (d) Payment Conditions

This Contract shall prevail over all other Contract documents. In the event of any discrepancy or inconsistency within the Contract documents, then the documents shall prevail in the order listed above.

3. In consideration of the payments to be made by the Purchaser to the Supplier as indicated in this Agreement, the Supplier hereby covenants with the Purchaser to provide the Goods and Related Services and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Goods and Related Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of “**Nepal**” on the day, month, and year indicated above.

On behalf of the Purchaser

Name:

Designation:

Sign:

Seal:

On behalf of the Supplier

Name:

Designation:

Sign:

Seal:

Annex 4.2: Schedule of Delivery of Goods

The delivery schedule expressed as days/weeks/months stipulates hereafter a delivery date which is the date of delivery to the final destination where the Goods is required to be delivered.

S. N.	Description of Goods	Quantity	Unit	Place of Delivery	Delivery schedule days/weeks/months from the date of signing the agreement

Payments Schedule

On Delivery and acceptance: One Hundred (100) percent of the Contract Price of the Goods and related services delivered shall be paid within thirty (30) days of receipt of the Goods and related services and upon submission of a claim supported by the relevant documents.

Annex 5.1: Proposals Falling under Negative List (Funding not Available from the NLSIP)

1. Proposals using or depending for its resources on national parks and protected areas or any critical aquatic and terrestrial habitat area.
2. Proposals that use pesticides prohibited by the World Bank Operational Policy (OP 4.09 Pest Management. These include WHO Class IA and IB. WHO Class II pesticides are permitted only if the prescribed conditions for distribution and use are met).
3. Sub-project activities that are located in high-risk zone such as landslide prone area, steep slopes, highly degraded land in hills, riverine area susceptible to annually flooding, and in areas causing large-scale soil erosion.
4. Any activity that involves land clearance on slopes greater than 45 degree.
5. Proposal affecting the heritage site.
6. Proposal involved in logging or causing any major environmental harm.
7. Proposal that is likely to eliminate indigenous plant species of ecological significance.
8. Any activity of the subproject that is likely to make irreversible adverse impact on indigenous communities, women and vulnerable groups.
9. Proposals that promote or involve incidence of child labour.

Annex 5.2(a): Environmental and Social Screening Checklist

Any proposals that are found not conforming to safeguard screening checklist given below will be rejected during the field appraisal. The field appraisal team may provide further suggestions to the selected applicants to be observed during the implementation.

Environment and Social Screening checklist

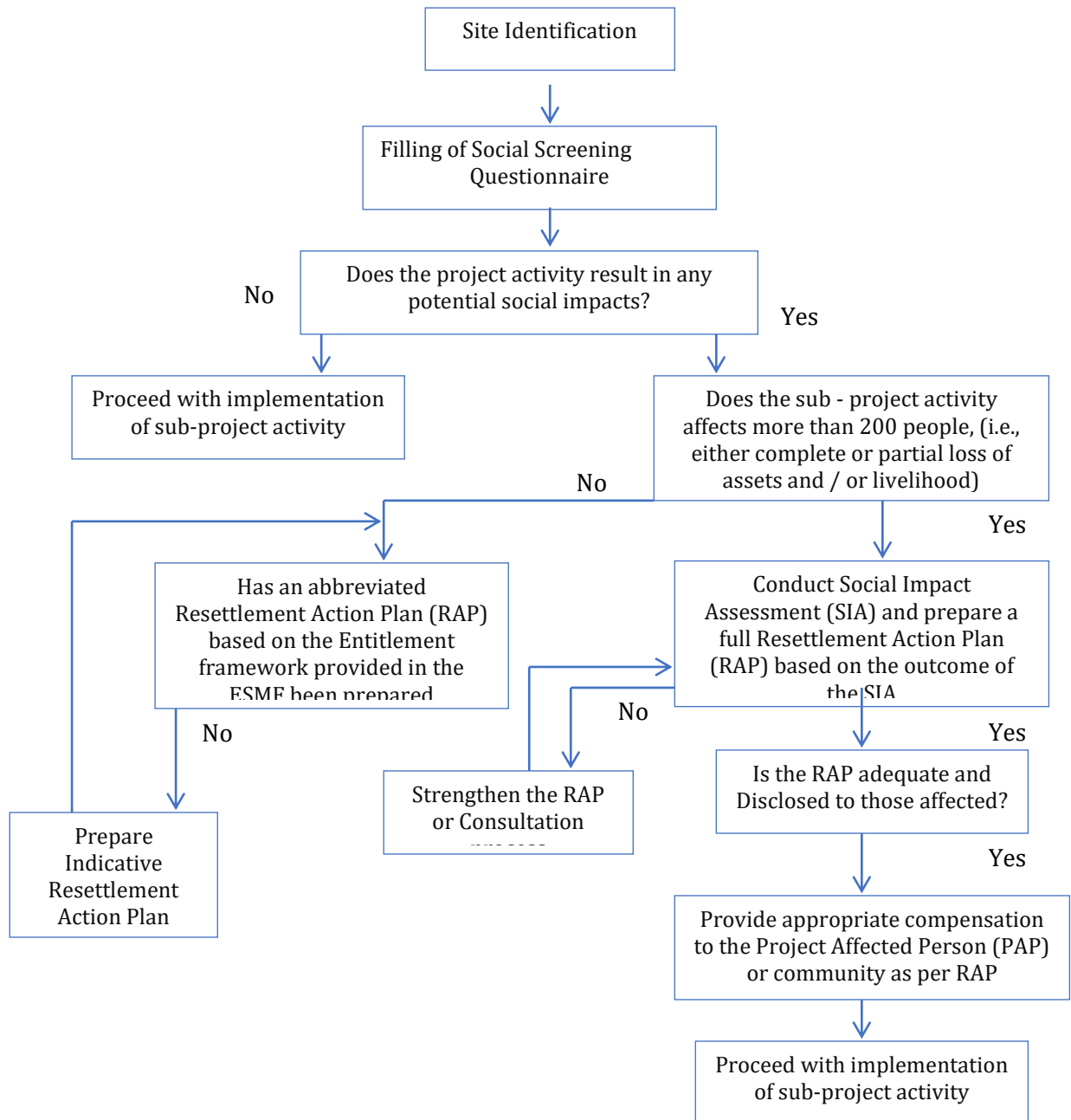
Questions	Response (Yes/No)	If yes please specify, how far (approx. km) it is located?
1. Does the proposed proposal intend to use or depend on any resources of national parks and protected areas or any critical aquatic and terrestrial habitat area?		
2. Will the proposed proposal be implemented in areas surrounding national parks or protected areas?		
3. Will the proposed proposal be implemented in areas surrounding forest or wildlife areas other than national parks and protected areas?		
4. Will the proposed proposal be implemented in the areas surrounding water bodies, lakes and ponds and intend to use or depend on them for the implementation?		
5. Will the proposed proposal be implemented in areas located in high risk zone such as landslide prone area, steep slopes, highly degraded land in hills, riverine area susceptible to annually flooding, or in areas causing large-scale soil erosion?		
6. Will the proposed proposal involve land clearance on very steep slopes?		
7. Will the proposed sub-project be implemented in the areas surrounding heritage site/religious temple/religious site/grave yard?		
8. Will the proposed proposal involve logging?		
9. Will the proposed proposal endanger indigenous plant species of ecological significance?		
10. Will the proposed proposal involve activities that are likely to make irreversible adverse impact on indigenous communities, women and vulnerable groups?		
11. Will the proposed proposal include any activity that promotes or involves incidence of child labour?		
12. Will the proposed proposal require some families losing their farmland and assets on the land?		
13. Will the proposed proposal cause displacement of families due to implementation or construction of infrastructure?		
14. Will the proposed proposal use pesticides and chemicals?		

15. If yes to the question number 14, please give the names of major pesticides and chemicals		
16. Will the proposed sub-project benefit ethnic groups living in the surrounding of the subproject?		
17. If yes to the question number 16, please provide approximate proportion by ethnic groups		

Annex 5.2(b): Rapid Environmental and Social Assessment

Activity	Possible impacts	Impacts on	Probability of Impacts	Significance of impacts
Livestock Production				
Feeding	(a) Natural resources likely to be affected	Water/Soils/Forests/Communal grazing lands	High/Medium/Low	High/Medium/Low
	(b) Likely affected population due to impact on (a)	Poor/Indigenous	High/Medium/Low	High/Medium/Low
Dipping tank	(a) Natural resources likely to be affected	Water/Soils/Forests/Communal grazing lands	High/Medium/Low	High/Medium/Low
	(b) Likely affected population due to impact on (a)	Poor/Indigenous	High/Medium/Low	High/Medium/Low
Solid, liquid and gas wastes	Likely affected population due to lack of management	Percent HHs in the community	High/Medium/Low	High/Medium/Low
Economic effects	Change in income		High/Medium/Low	High/Medium/Low
	Employment creation		High/Medium/Low	High/Medium/Low
Dairy/meat processing				
	(a) Natural resources likely to be affected	Water/Soils/Forests/Communal grazing lands	High/Medium/Low	High/Medium/Low
	(b) Likely affected population due to impact on (a)	Percent HHs in the community	High/Medium/Low	High/Medium/Low

Annex 5.3: Flow Chart Showing Key Steps for Social Screening



Annex 5.4: Indigenous People and Vulnerable Groups Impact Screening & Categorization Form

A. Project Data

Sub-project Title:

B. Identification of Impact on IPs/ Vulnerable Group in Sub-project Area

Impact on Indigenous Peoples (IPs)/ Ethnic Minority (EM)/ Vulnerable Group	Not known	Yes	No	Remarks or identified problems, if any
Are there Dalits, Janjatis, or ethnic minorities present in project locations?				
Do they maintain distinctive customs and traditions and economic activities in their locality?				
Will the project in any way affect their economic and social activity and make them more vulnerable?				
Will the project affect their socioeconomic and cultural integrity?				
Will the project disrupt their community life?				
Will the project positively affect their health, education, livelihood or social security status?				
Will the project negatively affect their health, education, livelihood or social security status?				
Will the project alter or undermine their local knowledge, customary behaviors or institutions?				
Are IP and VC households likely to lose customary rights over, access to land?				
Are IPs and VCs likely to lose shelter/business and be displaced?				
In case no disruption of indigenous community life as a whole, will there be loss of housing, strip of land, crops, trees and other fixed assets owned or controlled by individual indigenous households?				

C. Specific Impacts on IPs and VCs

No of IP families losing land	No VC families losing land	No of IP HHs losing house over 10% of their residen	Govt land required in Sq. mts.	Forest land required in Sq mts	No of IP/VC houses affected	No of IP/VC shops affected	No of other IP/VC structures affected	No of IP/VC Squatters affected	Public utilities affected

		ce							

D. Anticipated project impacts on indigenous peoples

Project activity and output Anticipated positive effect Anticipated negative effect

- 1.
- 2.
- 3.
- 4.
- 5.

E. Decision on Categorization

After reviewing the above, it is determined that the sub-project is:

Categorized as an A project, an Indigenous Peoples Development Plan (IPDP) is required

Categorized as a B project, a specific action favourable to indigenous peoples is required and addressed through a specific provision in related plans such as a Resettlement Plan, or a general Social Action Plan

Categorized as a C project, no IPDP or specific action required.

Prepared by
Position:
Date:

Reviewed by
Position:
Date:

Approved by
Position:
Date:

Endorsed by
Position:
Date:

Annex 5.5 (a): Environmental and Social Management Plan

Format for simple Site Specific Environmental Management Plan

Impacts	Mitigation Measures	Responsibility	Timing of Action	Mitigation Cost
----------------	----------------------------	-----------------------	-------------------------	------------------------

Note: explain the content of the table.

Sketch map of the proposed infrastructure location, surroundings, layout plan of the infrastructure facilities, and waste disposal system/sites.

Guidance for monitoring. What are the main issues / parameters to be checked during implementation (what issue/ parameter at what stage/when)?

Annex 5.5(b): Key Environmental and Social Safeguard Measures to be Considered While Preparing EMP

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

Annex 5.5(c): Key Food Quality Compliance Measures to be Considered While Preparing EMP

Safeguard measures	Dairy and meat processing	Dairy production	Goat production
Clean milk production practice (clean utensils, clean water, good drainage, good personal hygiene)		√	
Regular health check up by a veterinarian		√	
Construction of appropriate manure/compost/ urinal pits		√	√
Construction of biogas plant	√	√	√
Follow withdrawal period after antibiotics treatment		√	√
Use of dead animal body disposal pit		√	√
Milk from mastitis infected teats are rejected		√	√
Obtain food license from DFTQC	√		
Products packaged and labelled with food quality standards with accurate weight	√		
Biosecurity measures applied	√	√	√
Chemical laboratory is in a separate chamber	√		
Participation in hygiene and food safety training	√	√	√

**Annex 5.6: Integrated Environmental and Social Management Framework
(Environment Management/Safeguards Action Plan)**

Environment and Social Step	Responsibility
1. Rapid Social and Environmental Review/Analysis of proposals for Matching Grants (during concept note assessment)	DLSU and BFIs will jointly undertake Rapid Social Environmental Review / Analysis during field verification of the concept notes (PCN) submitted for matching grant.
	Without environmental and social screening signed off by designated official the proposal/application will not be considered for grant.
2. Environmental and social screening (required for approval of full proposal)	DLSU and BFIs will stringently check the Environment and Social Screening Checklists for approval of the full proposal. They will take up field verification where required.
	Without environmental and social screening signed off by designated official the proposal/application will not be considered for grant.
3. Environmental and Social Assessment and Management Plan	
(a) EIA requiring subproject/ Activity	PMU with the support of the related specialists prepares draft scoping document as well as TOR
	Scoping document and TOR reviewed by MoALD (with support from PMU) and will be consulted/forwarded to MoF&E for necessary action.
	As per the approved TOR, proponent will do EIA. Proponent may outsource the work to expert agency including private sector (can access pre-investment advisory support or detail proposal may include cost for such assessment).
	EIA field process such as information dissemination, stakeholder consultations, public hearing etc. is monitored by DLSU and reported to MoALD through PMU.
	MoALD, with support from Gender Equity and Environment Division (GEED)/MOALD and PMU, reviews EIA report, receives comments from Peer Reviewers and DLSU.
	MoALD submits EIA Report to MoF&E for approval.
IEE requiring subproject/ activity (to be done in parallel with preparation of detailed subproject proposal, providing feedbacks).	Draft TOR prepared by PMU, and approved by GEED of MoALD with technical support from PMU.
	The proponent (through expert agency/ private sector does IEE. Proponent can access preinvestment advisory support or detail proposal may include cost for IEE). DLSU monitors the IEE process followed and provides comments on the draft IEE report.
	Proponent submits IEE report to PMU and PMU forward to MoALD for approval.
Subproject/activity requiring Environmental and Social Codes of Practice (to be done in parallel with preparation of detailed subproject proposal, providing feedbacks).	DLSU will support proponent to prepare draft Codes of Practice for use in the subproject/activity. Stakeholders (including potentially affected parties) will be consulted while preparing Code of Practice.
	The Code of Practice will be approved by PMU.

Environment and Social Step	Responsibility
4. Incorporation of social and environmental mitigation measures into subproject detailed documents (to be done in parallel with preparation of detailed plans, designs & estimates, contracts, and bid documents)	PMU checks subproject/ activity documents to ensure incorporation of the mitigation measures recommended by the EIA or IEE or Code of Practice.
	MoALD/ PMU prepares model documents and contract / agreement clauses for incorporation of social and environmental mitigation measures.
5. Environmental and social monitoring and auditing (during implementation)	DLSUs regularly monitor environmental and social performance of each subproject/ activity, keeps record and reports four-monthly to PMU. DLSUs will share monitoring findings at district and regional meetings attended by stakeholders.
	DLSUs visits high-risk subproject/activity and randomly selected sample subprojects/ activities periodically (four-monthly) – findings debriefed/ reported to PMU, and feedback provided to the relevant implementer(s).

Annex 5.7: Proposals requiring Initial Environmental Examination (IEE) (Rule 3 of the Environment Protection Regulation, 1997)

Agricultural Sector:

1. Clearing of national forests for agricultural farming purposes covering up to one hectare in the hills and five hectares in the Terai.
2. Following Construction activities.
 - a) Construction activities for farming more than 30,000 domestic fowl.
 - b) Construction activities for farming more than 1,000 large ruminants.
 - c) Construction activities for farming more than 5,000 small ruminants (sheep and goats).
 - d) Establishment of agricultural wholesale market in the metro and sub-metro cities covering more than one hectare in the Terai and more than 0.5ha in other areas.
 - e) Establishment of licensed slaughterhouse.
 - f) Sale, supply, storage and disposal of date expired pesticides (applicable only to classified pesticides).
 - g) Establishment of chemical fertilizer (blending) factory and pesticide production, formulation, repackaging, storage and disposal factory.

Annex 5.8: Proposals requiring Environmental Impact Assessment (EIA) (Relating to Rule 3 of the Environment Protection Regulation, 1997)

Agriculture Sector:

- (1) Clearing of forest for agricultural farming proposes covering more than one hectare in the hills and five hectare in the terai.
- (2) Urbanization plan in cultivable lands.
- (3) Establishment of pesticide production (classified) factory.

Annex 5.9: Banned Pesticides in Nepal

SN	Name of pesticide	Remarks
1	Chlordane	Persistent Organic Pollutants (POPs)
2	DDT	Persistent Organic Pollutants (POPs)
3	Aldrin	Persistent Organic Pollutants (POPs)
4	Dialdrin	Persistent Organic Pollutants (POPs)
5	Endrin	Persistent Organic Pollutants (POPs)
6	Toxaphane	Persistent Organic Pollutants (POPs)
7	Merex	Persistent Organic Pollutants (POPs)
7	Heptachlor	
8	BHC	
10	Lindane	
11	Phosphamidane	
12	Organomercury fungicides	
13	Methyl Parathion	
14	Monocrotophos	

ANNEX 6: TERMS OF REFERENCE

Annex 6.1: Terms of Reference

Development of Livestock Master Plan

A. Background

The Government of Nepal (GoN) has expressed a strong commitment to agriculture and livestock sector development by adopting the Agriculture Development Strategy (ADS), which provides a conducive environment for private sector involvement and transformational change in Nepal's agriculture and livestock sectors. The ADS identifies actions across four strategic pillars: (i) improving governance; (ii) increasing productivity; (iii) profitable commercialization; and (iv) enhancing competitiveness. Further, the ADS identifies key roles for the livestock sector, both as an engine of agricultural and economic growth and as a resource for reducing poverty and improving food and nutrition security.

The “National Livestock Sector Innovation Project” aligns with this strategy. The Project Development Objectives (PDO) are to increase productivity, enhance value addition, and improve climate resilience of smallholder farms and agro-enterprises in selected livestock value-chains in Nepal. The project will be implemented across the mountains, hills and the Tarai plains in four clusters along the road corridor encompassing five newly established States. It operates along four components:

- Component A: Strengthening Critical Regulatory and Institutional Capacity
- Component B: Promoting Sector Innovation and Modernizing Service Delivery
- Component C: Promoting Smallholder Inclusive Value Chains for Selected Livestock Commodities
- Component D: Project Management and Knowledge Generation

In an integrated way, the project aims at addressing some of the most crucial bottlenecks to sustainable livestock development in Nepal, including: (i) feed and fodder shortages further complicated by seasonality and climate change; (ii) shortage of productive livestock and lack of access to high-quality breeding stock and breeding services; (iii) significant disease pressure and inadequate grass root level animal health services; (iv) lack of appropriate farmer targeted technologies and limited farmer skills development and advisory; (v) dysfunctional supply chains, especially in the goat meat sector (vi) lack of product diversification and value addition activities; and (vii) limited DLS capacity in manpower, knowledge and infrastructure.

The Project Appraisal Document is available on request.

B. Objective of the assignment

The overall objective of the consultancy assignment is to develop a medium and long-term vision and associated investment plan for the livestock sector in the country, in the form of “**Livestock Master Plan - LMP**”.

The LMP will address all major species (e.g. cattle, goat, sheep, buffaloes, pigs, chicken, fish) and related commodities (meat, milk, eggs, fibre).

The LMP will be developed at central level and include guidance for state governments to develop their own livestock development plans.

The LMP will provide guidance for action in the areas of: (i) federal policies at all tiers of government (central district and local levels), including zoning (ii) extension services, training and education in the livestock sector (iii) governance of the livestock sector at all tiers of government, including cross ministry collaboration (iv) public and private infrastructure development, including information technology (v) capacity development among private and

public stakeholders; (v) research and; vi) engagement with private sector and development partners.

The LMP will address the key themes below (not exhaustive):

- a. Animal breeding and animal identification system;
- b. Feed and forage base, including seasonality and feed quality standards;
- c. Veterinary and animal health, diagnostic bio-security, prevention and control of contagious, zoonotic and transboundary animal diseases, transmission from/to wildlife;
- d. Animal husbandry practices (on-farm feed production, housing, level of technology, labor saving technology, renewable energy production, energy efficient technology);
- e. Animal welfare;
- f. Livestock products, traceability, quality control, diversification;
- g. Food safety and hygiene;
- h. Climate change adaptation and mitigation;
- i. Natural resource management, under common and private ownership;
- j. Trade, import regulations, quarantine, phytosanitary regulations;
- k. Livestock credit and insurance;
- l. Innovation in production and processing;
- m. Market linkage and forms of cooperation between primary producers, processors, traders and off takers;
- n. Commercialization, private sector engagement and agri-business promotion;
- o. Application of Information technology for the livestock sector development and monitoring;
- p. Inclusive growth, e.g. with regard to small-holder farms, gender, remote communities and youth.

C. Scope of work and deliverables

The vendor will carry out analytical, consultation and communication tasks required to deliver a final draft of the LMP, for GoN approval. This may include (not exhaustive):

- a. Desktop assessment of the existing Livestock Master Plan -1993, national plans, policies and strategies relevant to the livestock sector (including ADS) , as well as other relevant literature;
- b. Preparation and discussion of a detailed note on the proposed approached and work plan for LMP preparation;
- c. Data collection and modelling. It is advised to use tools and frameworks that combines the parameterization of production-level herd models with simulations using an economic sector model for each value chain and has been used in a growing number of countries to support the development of LMPs;
- d. Consultations and meetings with representatives of GoN at national and local levels (including sectors related to livestock, e.g. nutrition, trade, health, forest and environment, local development), and other stakeholders (e.g. farmers, aggregators, processors, private veterinary and breeding service providers, credit and insurance agencies, research institutions, NGOs);

- e. Awareness raising and training activities related to the preparation and implementation of the LMP, e.g. involving GoN staff in charge of data management and modelling, and senior policymaking staff who are investment decisionmakers. This will also include organizing an observation tour for TAG members and officers at PMU to one of the countries where the LMP prepared by using Livestock Sector Investment and Policy Toolkit (LSIPT) framework is being successfully implemented.
- f. Production of draft LMP documents, including investment plan and action plan for initial 5 years, follow up discussions;
- g. Preparation and implementation of a national information and consultation strategy towards the adoption of the LMP;
- h. Finalization of the LMP.

Several elements will ensure successful preparation of the LMP and will be part of the LMP process:

- a. A Technical Advisory Group (TAG) set up by the DLS of the Agriculture Ministry to provide technical guidance and oversight to the vendor;
- b. Continuous consultations and sharing of results with state governments (7 provinces) and key livestock sector stakeholders;
- c. Regular interactions with the project steering committee and other high-level policymakers to assess the long-term effects of proposed policies and technology interventions;
- d. Mentorship of a team of government livestock planning experts able to use quantitative tools and models for ex-ante analysis;
- e. Provide recommendations for future data collection, sector analysis, and planning efforts, as well as research on gaps identified.

List of deliverables and timeline

S. No	Activity	Timeline
01	Inception report, including detailed approach and work plan	Two months after signing the agreement
02	Report on the preliminary findings	Six months after signing the agreement
03	First draft of the Master Plan	Twelve months after signing the agreement
04	Second draft incorporating suggestions of the validation workshop	Thirteen months after signing the agreement
05	Training events	Six to Sixteen months after signing the agreement
06	Full-fledged final Master Plan draft	No later than 18 months after signing the agreement

D. Implementation and reporting

The team should have expertise as follows (not exhaustive):

- a. Senior Livestock Expert/economist with at least 10-year experience and demonstrable technical, economic and financial assessments of the livestock sector/ value chain analysis and experience preparing LSA and LMP.
- b. Experts in breeding, feeding and nutrition, animal health, agricultural economics, environment, agri-business, market development, gender, youth and social inclusion, agricultural systems.
- c. Expert(s) herd and sector modelling, with LSIPT experience.

d. Experts in communications and stakeholder engagement.

The consultancy will report to the NLSIP Project Director.

E. Budget and payment schedule

Indicative cost of the assignment is US\$ 700,000.

The prospective consultant firm will indicate the cost of services for each deliverable in US dollar all-inclusive lump-sum contract amount when applying for this consultancy. The consultant firm shall receive the lump sum service fees upon certification of the completed tasks satisfactorily, as per the following payment schedule:

Instalment	Deliverables	Approving authority	% payment
1 st instalment	Inception report		
2 nd instalment	First draft of the Master Plan		
3 rd instalment	Final draft of the Master Plan		

Annex 6.2: Terms of Reference

Capacity Enhancement Needs Assessment

1. Background/Context

The Government of Nepal has requested a loan assistance of USD 80 million for the implementation of Nepal Livestock Sector Innovation Project with the Ministry of Agriculture and Livestock Development (MoALD) as the executing agency. The project development objective is to *“increase productivity, enhance value addition, and improve climate resilience of smallholder farms and agro-enterprises in selected livestock value chains in Nepal”*.

The project, with four components, (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, D. Project Management and Knowledge Generation) is designed to invest on productive assets, livestock services, market infrastructure, capacity building, institutional and regulatory strengthening. A dedicated Project Management Unit (PMU) within the MoALD and four decentralized-level support units (DLSU) will be responsible for the project implementation. The project will be implemented in 28 districts in five states (1, 2, 3, 4 and 5) of the country. Two hundred thousand livestock producers will be the primary beneficiaries of the project. In addition, 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 in the Nepal livestock sector value chain (with a focus on dairy, goat meat and Chyangara wool) is critical for the successful implementation and sustenance of the livestock development in the country. In order to achieve this goal, identifying the key technical and functional capacity gaps and prioritize the key training needs so as to develop an efficient training plans in alignment with the Project Implementation Manual (PIM) are imperative. Hence, the NLSIP under MoALD is desirous of engaging a consulting firm having experience in Capacity Enhancement Needs Assessment (CENA) with an expected outcomes on (i) existing technical and functional capacities of the stakeholders concerned with the project (ii) gaps on the existing capacities (iii) training needs to effectively undertake the functions and roles within the scope of NLSIP.

2. Objective/Purpose of the Assignment

The overall objective of the assignment is to: (i) Undertake a Capacity Enhancement Needs Assessment (CENA) of DLS, livestock sectors of MoALD, and state and local governments to implement NLSIP and (ii) to propose appropriate capacity development plan and budget. The assessment and development plan should include human, physical and financial resources. The assignment will also identify recommendations regarding enabling environment and institutional arrangements which would impact retention as well as utilization of acquired skills.

3. Scope of Work

The CENA has to focus on assessing the gaps and training plans in respect (but not limited) to:

- i. NLSIP team: capacity to undertake all tasks related to project management and implementation. In this regard, it is expected that the Consulting firm will assess capacity in regarding: (a) project management and monitoring; (b) implementation of safeguard measures; (c) operation of information management system; (d) communication; and (d) value chain development.

- ii. Livestock Sector in MoALD and DLS with regard to their capacity to implement project activities and deliver required services.
- iii. Organizations associate with NLSIP implementation, with regard to their capacity to contribute to achieving project development objectives, e.g. BFIs, NABIC, DFTQC, Dialogue platforms,.

To help measure the effectiveness of ensuing capacity building programs, a set of impact indicators will be developed as part of the assessment, building on the list below:

1. Identify the extent of existing level of capacity of all stakeholders as mentioned above;
2. Identify the barriers that prohibit or limit the participation of stakeholders in NLSIP;
3. Identify the different strengths and limitations of each stakeholder group; and
4. Develop a multi-year plan of capacity enhancement action based on this analysis.

4. Duties and Responsibilities of the Consulting firm

The incumbent will be responsible for, but not limited to, the following duties:

- Review relevant assessments and reports on the given areas of assignment in coordination with the Project Management Unit.
- Work with the Project Management Unit to prepare a draft document delineating appropriate methodology, processes, approach, roadmap and time line for carrying out the tasks in consultation with the senior officials of MoALD, and related government organizations and finalize the entire document.
- Identify and map the institutions and stakeholders that play a critical role in the implementation of the project and in the livestock development sector of the country. This will include developing a plan that will also detail out number of service agents at the grassroots level, estimated number of farmers covered by each service agent (veterinarians, agrovets, community animal health workers and the MLSC in the field).
- Design a detailed assessment that addresses the type of skills and information needed by each of the stakeholder groups.
- Perform a strategic assessment of capacity strengths and gaps in relation to proposed implementation roles.
- Identify the technical assistance, and training required to enable the institutions and stakeholders to perform their roles effectively.
- Write a summary of findings and recommendations for capacity enhancement for each stakeholder, and synthesize these findings and recommendations into a final report.
- Validate the findings with the concerned stakeholder groups and MoALD.
- Revise and submit the final report by incorporating comments and suggestions.
- Any other tasks related to Capacity Enhancement Needs Assessment as requested by Project Director.

5. Locations of the Work Performance

Kathmandu based, with field visits as required.

6. Selection Criteria

The Consulting Firm shall be selected based on World Bank's consultant selection guidelines, January 2011 (revised July 2014). The main criteria for selection will be relevant work experience and qualifications.

7. Duration of Services (Schedule for Completion of Assignment/Tasks)

Six months

8. Deliverables

- Inception report, with method and work plan - within 4 weeks from the start of consulting assignment upon signing of contract
- Progress review meeting - by the 12th week of the signing of contract
- Draft CENA – by the 18th week of the signing of contract
- Validation of the findings through a validation workshop - by the 22th Week
- Final report after incorporating comments and feedback from the workshop and from NLSIP project team, MoALD and other relevant stakeholders –by 24^h week

9. Qualifications of Key Consultants

The qualifications of the key consultants required to carry out the job are listed in the following paragraphs. However, the consulting firm can hire some other supporting experts and staff as per the demand of the job.

A. Team Leader:

- The Team Leader should have at least a Master's Degree in HR Management, public administration, public policy, local governance or other fields related to the assignment.
- At least 10 years of experience in Capacity Enhancement Needs Assessment and capacity development planning.
- Proficiency in spoken and written Nepali and English is required.

B. Team, including expertise in the following areas:

- Animal health
- Producer groups and cooperatives
- Livestock value chains
- Project management
- Social sciences
- Statistics

Indicative cost of the assignment is US\$ 120,000.

Annex 6.3: Terms of Reference

Development of Strategy for the Development of a Livestock Management Information System (LMIS) and Information and Communications Technologies (ICT) Platform.

1. Background

The Government of Nepal (GoN) has expressed a strong commitment to agriculture and livestock sector development by adopting the Agriculture Development Strategy (ADS), which provides a conducive environment for private sector involvement and transformational change in Nepal's agriculture and livestock sectors. The ADS identifies actions across four strategic pillars: (i) improving governance; (ii) increasing productivity; (iii) profitable commercialization; and (iv) enhancing competitiveness. Further, the ADS identifies key roles for the livestock sector, both as an engine of agricultural and economic growth and as a resource for reducing poverty and improving food and nutrition security.

The “National Livestock Sector Innovation Project” aligns with this strategy. The Project Development Objectives (PDO) are to increase productivity, enhance value addition, and improve climate resilience of smallholder farms and agro-enterprises in selected livestock value-chains in Nepal. The project will be implemented across the mountains, hills and the Tarai plains in four clusters along the road corridor encompassing five States. It operates along four components:

- Component A: Strengthening Critical Regulatory and Institutional Capacity (US\$5 million IDA)
- Component B: Promoting Sector Innovation and Modernizing Service Delivery (US\$40 million IDA)
- Component C: Promoting Smallholder Inclusive Value Chains for Selected Livestock Commodities (US\$30 million IDA)
- Component D: Project Management and Knowledge Generation (\$5 million IDA)

In an integrated way, the project aims at addressing some of the most crucial bottlenecks to sustainable livestock development in Nepal, including: (i) feed and fodder shortages further complicated by seasonality and climate change; (ii) shortage of productive livestock and lack of access to high-quality breeding stock and breeding services; (iii) significant disease pressure and inadequate grass root level animal health services; (iv) lack of appropriate farmer targeted technologies and limited farmer skills development and advisory; (v) poorly established supply chains, especially in the goat meat sector (vi) lack of product diversification and value addition activities; and (vii) limited DLS capacity in manpower, knowledge and infrastructure.

2. Rationale

Information relevant to the livestock sector and related value chains is limited, often outdated and stored under diverse formats, by several organizations. As a consequence, decision made in regard to the development of the sector, whether by public or private decision makers, is often made on scarce evidence. To address this issue, NLSIP will develop a comprehensive and unified Livestock Management Information System (LMIS), and supporting Information and Communications Technologies (ICT) platform.

The present ToRs aim at guiding the preparation of a strategy for the development of the LMIS and ICT.

In addition to the LMIS, the ICT platform may support the development of the following: (a) National Livestock Identification Database, (b) Laboratory MIS, (c) Disease surveillance and animal health, (e) ICT platform to support the dialogue platform and Value Chain

strengthening, (f) Digital apps to support market linkages, transport logistics, etc. (g) ICT enabled advisory services, (h) Food and Environmental safety, (i) Project Management Information System, (j) Financial Management system, (k) Mobile platform based M & E, (l) Citizen feedback and Grievance Redressal Mechanism, (m) Staffing, and (n) ICT capacity building for DLS staff and project staff.

The Strategy will delineate the legal and regulatory issues pertaining to the livestock sector, diagnose the data and information requirements for some of the systems, delineate the technical architecture and the required information systems, prioritize the activities, help prepare the TORs, and prepare an implementation plan to guide the implementation of the ICT function within NLSIP.

3. Objective

The objective of the strategy is to identify the medium term and long-term information needs of the livestock sector and to establish a plan for developing an Information System as well as the technical standards for its development. The Strategy study should address the following:

- a) Identification of users and communication products to be delivered;
- b) Data management and analysis;
- c) Technical issues of wide area networking in light of the communication needs;
- d) Use of mobile phone and INTRANET technologies to develop a plan of action to ensure complete compatibility of various digital systems;
- e) Development and maintenance of links with other agencies that deal with NLSIP project activities and associated services issues.

4. Scope of NLSIP ICT Strategy

The preparation of the Strategy will require the consultants and the NLSIP Working Group to:

1. *Cary out an assessment of existing data, information and information flows.*
 - Assess the current situation of the Nepal Livestock Sector information systems, (in MOALD, other associated ministries and local governments and other related agencies – both in Kathmandu and in the relevant project areas) including identified users, hardware and software utilization, organization, resources, staff skills, status of current application systems, and ongoing development activities.
 - Take stock on existing sources of data and information (e.g. statistical information on Nepal Agriculture, disease monitoring, epidemiology, laboratory diagnostic, markets, weather forecast, and export/import) available at a range of institutions (e.g. DLS, Central bureau of statistics, MoAL, ICIMOD, Department of Meteorology and hydrology, WFP, Sector Professional Associations).
 - Diagnose data and information requirements, particularly those that are not currently adequately addressed but that are necessary to carry out the major functional processes of NLSIP and related institutions and agencies.
 - Identify the key issues related to IS policies on matters such as responsibility for data administration, responsibilities of functional managers and data processing department, and security standards for data and systems.
 - Assess the human resources and skills requirements, short-term and long-term training needs for the technical staff and end-users and the associated costs with a view to preparing a short-term training plan
2. *Propose a strategy to develop the LMIS*
 - Identify, categorize and prioritize expected users of the LMIS and assess their information needs.
 - For each user group above, define the most adapted information supports and formats, and

ways of dissemination.

- Propose institutional arrangements for data collection, sharing and analysis.
- Evaluate capacity development and resource needs for the development of the LMIS

3. Propose a strategy for the development of the ICT platform

- The ICT Strategy should broadly delineate the Network, Software, Hardware, Training, Security, Backup and Disaster Recovery policies.
- Design a system architecture that defines standards for databases, information flows and information systems
- Design a technology and networking architecture that guides future procurement, maintenance and operation.
- Identify, based upon desktop computing needs in the NLSIP, a standard set of core applications for common business functions (eg. word processing, document storage and retrieval, e-mail etc.)
- Prepare detailed plans for technology acquisition, system development, staff training, and system deployment.
- Develop investment and operating cost estimates for ICT in NSLIP during a 4-year period.

5. Deliverables

- An inception report including detailed description of proposed approach and work plan, 4 weeks after signature of contract
- Assessment of existing data, information and information flows: three months after approval of the above
- Draft LMIS Strategy: two months after approval of the above
- Draft ICT Strategy: two months after approval of the above
- Final LMIS and ICT strategies, one month after discussion of the above with PMU and project steering committee

6. Inputs to the Strategy

The consultants will need to study, among others, the following:

- The Ministry of Communication and Information Technology (MoCIT) has developed a national ICT strategy that is applicable to all public-sector ministries and agencies.
- All relevant NLSIP documents will be furnished to the Consultants to enable them to produce the LMIS and ICT Strategy for the project. The consultants should review the ICT Annex to of the September 2018 Implementation Support Mission. This document is titled “Leveraging ICT to support the Nepal Livestock Sector Innovation project”.
- The consultants will prepare the Strategy with the assistance of a Working Group of knowledgeable individuals drawn from the various functional areas of the NLSIP and associated local governments, district administration, line ministries and agencies.
- The consultants must provide any specialized software and hardware technology needed to document the Strategy.

7. Qualifications

The lead consultant should have:

- At least ten years of practical experience in Information Management Systems (IMS) and ICT industry, including five years of practical experience in the design, implementation and operation of corporate or enterprise IMS and ICT infrastructure.
- Demonstrable experience of having undertaken similar work, with solid success.

- Sound knowledge and expertise in relevant ICTs, including networking (LAN and WAN), internet and web-related technologies, web-based applications, desktop hardware and software, mobile ICTs, etc.
- Excellent interpersonal and communication skills, in English.
- Excellent report-writing skills.

Annex 6.4: Terms of Reference

Establishment of Pedigree and Performance Recording System (PPRS)

For designing and establishing a robust PPRS system, NLSIP will hire an International/national consulting firm. Separate database management systems will be designed for PPRS system for cattle, buffalo and goats). The consulting firm will work with Nepali counterparts (NLBO and POs) to achieve the following two outcomes and then handover the program as a joint venture of POs and NLBO for its continuation.

- Establish, operationalize and demonstrate a sustainable pedigree performance recording scheme for selection of superior animals of Jersey and Holstein breeds of cattle and Murrah of buffalo in public private partnership model (POs and NLBO as key partners).
- Establish, operationalize and demonstrate goat performance recording system in government farm, and in their outreach sites as breeder herds and multiplication herds.

The specific TOR of the consulting firm will include, but not limited to:

- i. Design/prepare separate computerized PPRS systems for cattle (Jersey, HF) and Murrah buffalo and goats. Design database management system/subsystem for genetic evaluation of performance records.
- ii. Co-work with NLBO in preparation of specifications, and NLSIP to import and utilize proven/high merit semen for achieving swift genetic progress in PPR herds for further multiplication and distribution through AI and natural service.
- iii. Build capacity and train Nepali personnel for assured perpetuation of the breed improvement program.
- iv. Pilot herd and individual animal registration by breed categories– for dairy animals aim for registering at least 5,000 animals for each breed/species by year two. Types of herds available would be:
 - a) Government/NARC farms
 - b) Larger numbers of farmers with smaller herd size – more tedious
 - c) More commercialized herders in less number of districts.

NLSIP might need to include all the three categories of herds by breeds to reach the target number in the register from within NLSIP district.

- v. Build technical capacity of respective staff of municipal/VHLSSC)/NLBO/government farms and NARC/University staff.
 - a) Specialist level training for data management and analysis (for NARC, DLS, NLBO and AFU scientists).
 - b) Mid-skill training for PPRS operation for VJLSSC and municipal technicians, private paravets/inseminators, lead farmers selected by POs for record keeping, milk analysis, data entry, monitoring, data storage, minor data editing and reporting.
- vi. Conduct TOT for producing adequate trainers to run the program at the grass-root level.
- vii. Assist and mobilize NLBO experts, DLS trainers and TOTs to conduct intensive on site trainings to participating farmers.
 - a) Performance record keeping and reporting.
 - b) Milk analysis records.

- c) Internal audit system on data recordings.
- d) Husbandry practices.
- e) Breeding practices.
- f) Health care practices.
- viii. Demonstrate selection of bull mothers from the evaluation and subject them to AI from imported semen of proven bulls of the same breed.
- ix. Establish and operationalize systems in regional government/NARC for production of bull mothers/bulls.
 - x. Establish and operationalize system at state level semen production units and government farms.
 - xi. Undertake activities as deemed necessary.

Annex 6.5: Terms of Reference (TOR)

Development of a Communication Strategy

Rationale

NLSIP communication goal is to empower the target populations in the livestock sector by providing them with information that enables them to actively engage with project activities and thereby increase productivity, enhance value addition, and improve climate resilience of smallholder farms and agro-enterprises in selected value chains in Nepal. It is envisaged that once key messages are accurately and promptly delivered to the stakeholders and other groups in the communities there will be a smooth roll out of the project to the population within the Project areas. Communication will also address a wider public of consumer of livestock products to raise awareness about the diets, food hygiene and nutritional value of animal source food.

The Nepal Livestock Sector Innovation Project (NLSIP) being a new intervention will need a comprehensive communication strategy so that beneficiaries are well informed about project objectives and interventions, as well as how they may engage, including roles and responsibilities. It has often been raised that insufficient communication on project operations and modes of implementation contributes to misunderstanding among communities about what the project can offer.

The strategy will serve as a framework for NLSIP communication activities aimed at supporting its work programs and facilitating the achievement of the Project Development Objectives.

The required communication strategy must provide operational guidance on effective ways of disseminating information about the Project with the aim of generating popular support, empowering communities, accountability and building the livestock sector's image.

The strategy should outline and define pertinent issues for the development of communication activities, namely: target groups, information products, management and dissemination mechanisms and the relevant approaches for optimization of communication among such target groups.

3. Key Objective

The main objective of the assignment is to develop a communication strategy and action plan that will contribute to achieving the development objective of NLSIP. The consultancy will inform project management about the specifics of communication activities, timing and implementation methods. It will address the range of target groups relevant to project implementation, including civil servants at central and local levels, project beneficiaries and consumers.

4. Key Activities

4.1 Conduct a Communication Baseline Assessment (CBA): Carry out an overall diagnostic of current communication and information environment relevant to the NLSIP. Some of the major elements of the exercise:

- a) Map different stakeholders and identify their levels of influence - positive and negative, interests, and how to effectively communicate with them;
- b) Analyse the media and communication environment that will be critical to sharing information, build consensus and support for innovation/reform, and promote transparency and accountability;
- c) Assess the socio-political context, identifying risks, and ways to eliminate/mitigate them;

- d) Assess the existing communication dynamics – such as how the stakeholders receive and process information, traditional forms of information dissemination practices, new media and technology, social interaction, etc.
- e) Evaluate the communication capacity of the relevant target groups;
- f) Identify strategic approach for engaging stakeholders including institutions through various communication channels in order to build a climate conducive to the achievement of project objectives;
- g) Review of existing and previous communication activities that were and/or being implemented in the livestock sector over the years;
- h) Identify the linkages and areas of collaboration with other relevant ongoing or upcoming development projects/programs.
- i) Undertake an opinion research/ KAP survey and set a baseline indicator that can be tracked over time as part of the strategy development process

4.2 Develop a Strategic Communication Program: The NLSIP Strategic Communication Program will primarily be based on the findings of the CBA. Some of the major elements of the exercise are:

- a) Set a communication vision, identify challenges, and elaborate a plan of action to achieve the communication objectives contributing to the successful implementation of the project objectives
- b) Identify specific communication objectives, internal and external audiences, messages, communication channels, type of media, frequency, etc.
- c) Outline, amongst others, the methodology, timeline, budget, activities, responsible parties, and coordination mechanisms to carry out the communication program;
- d) Identify a monitoring and evaluation system that may include, for example, opinion survey, tracking system, media monitoring, focus groups, and evaluation of each communication activities as listed in the Communication Action Plan

5. Approach/Methodology

The consultants will conduct key informant interviews, focus group discussions, and questionnaires to collect baseline data on information flow and current knowledge about project key messages.

The consultants will undertake interviews and focus group meetings with stakeholders - Provincial/District and communities to develop findings that will further provide insight to the strategy.

The consultants will ensure that the focus groups and interviewed stakeholders are representative of the various geographical areas and value chains targeted by the project. Cross-cutting consideration such as gender and age and how these might influence communication need to be taken into consideration.

6. Deliverables and Timelines

The consultant is expected, but not limited, to submit:

Deliverables	Timeline
(i) An inception report	Two week after the signing of contract
(ii) A draft Communication Baseline Assessment	Thirty days after approval of inception report
(iii) A Draft communication strategy with	Forty five days after approval of

Communication Action Plan and monitoring and evaluation system	the CBA
(iv) A final Communication strategy and a communication action plan that includes Annexes, graphs, charts and CNA (Communication Needs Assessment) report	Fifteen days after feedback of draft report

7. Obligations of NLSIP

- NLSIP will guide and direct the consultant to key relevant documents
- Facilitate Consultants to undertake field work by introducing them to Decentralized level Support Units (DLSU) and/or any other institutions.
- Form a Reference/Review Group for study to review the study progress.
- Facilitate to organize stakeholders' workshops for the consultants to present their findings.

8. Required Competencies

- A team leader with Master's degree in communication with 10 to 15 years of experience in the field of study area.
- Other professionals in the team to have a minimum of five years of professional experience in social sciences, journalism, livestock sector experience, opinion research, statistical data analysis
- Demonstrated ability to deliver quality results within strict deadlines.

Annex 6.6: Terms of Reference

Media Firm (Consultant)

Under the direct supervision of the Project Director, the firm (consultant) will be working in close coordination with the DLSUs. Following are the specific responsibilities.

1. Design public awareness-raising strategy for the project in consultation with the PMU, DLSUs and other key stakeholders focusing on: target groups, messages, means of communication, and means of monitoring;
2. Ensure that NLSIP activities are covered regularly in major national TVs, newspapers and radios in effective manner, and contribute to the achievement of the project's objectives and results;
3. Work with the PMU, DLSU, municipal/district authorities and grant recipients to clearly communicate results, success stories and key messages from project;
4. Assist the sub-projects to implement activities in a transparent way. This will include encouraging grant recipients to erect hoarding boards on sub-project sites and participate during public hearings;
5. Provide informational support and prepare regular updates for the project web site in English and prepare web in Nepali language as well;
6. Assist/prepare and publish the project reports, newsletters, brochures, booklets, leaflets, calendars and any other promotional materials intended to publicize project activities, performance and impacts;
7. Prepare video clips of the workshops and visit programs organized by the project as per project's instructions;
8. Assist the project to organize press conferences as per project's request and prepare short conference reports;
9. Assist in preparation of audio-videos on success stories and lessons learned before the closure of the project; and
10. Undertake any other duties reasonably assigned by the Project Director.

Annex 6.8: Terms of Reference

Project Management Unit (PMU)

Project Management Unit (PMU) will be responsible for day-to-day project management and to facilitate and coordinate project activities among various implementing partners, as well as to supervise project implementation and report to the MoALD and the WB.

Main tasks

- Prepare annual plans with inputs from beneficiaries, key stakeholders and partners and get approval from National Planning Commission (NPC);
- Provide guidance to DLSU in planning, implementation, supervision and monitoring;
- Ensure that the DLSUs receive adequate budgets as planned and authority to manage the funds as per the prevailing financial laws and rules.
- Coordinate project activities among the implementing agencies at the national, cluster and municipal levels;
- Prepare and issue trimester and annual progress reports;
- Prepare and distribute necessary guidelines related to project implementation management;
- Approve Code of Practice for Environmental and Social Safeguard Compliance.
- Recruit consulting companies/forms/agencies to accomplish specific tasks as outlined in the project procurement plan and cost tab;
- Approval of sub-projects under matching grants on recommendation of BFI and DLSU;
- Guide DLSU and BFI in monitoring and instalment payment to the sub-project grantees;
- Monitor sub-projects implementation;
- Ensure that the financial reports are made available in time to the World Bank as agreed;
- Assist joint review missions;
- Implement public awareness campaigns;
- Ensure that LMIS is operational and is being used effectively by the beneficiaries;
- Ensure that the e-extension services are effectively implemented;
- Ensure that construction works are completed in time with due diligence;
- Ensure that complaints with respect to project activities are effectively handled in a fair, timely and transparent manner; and
- Ensure that the crosscutting issues like women participation, environmental and social safeguards and food safety compliance, and good governance are embedded in the project activities.

Annex 6.9: Terms of Reference

Decentralized Level Support Unit (DLSU)

The DLSUs will be responsible for day-to-day project management and to facilitate and coordinate project activities among various implementing partners, as well as to supervise project implementation at cluster level and report to the PMU. They will act as regional representative of the Project Management Unit. They will be responsible to:

- Mobilize the VH&LSSC and municipalities in annual planning, budgeting, implementing and monitoring at cluster level in close coordination with and support of PMU;
- Submit monthly, trimester/quadrimester and annual reports on timely basis to the PMU with details on the physical and financial progresses as instructed in order that the PMU could prepare and submit consolidated IPR to the MoALD and the WB;
- Mobilize municipal LSU, regional veterinary laboratories, Veterinary Hospital and Livestock Specialist Service Centres in support of implementation, supervision and monitoring of NLSIP activities;
- Play key role in establishment and operationalization of provincial and district level stakeholders dialogue platforms;
- Contribute to technical screening of PCN and full proposals through proposal evaluation and objective field verifications;
- Monitor sub-projects implemented under the matching grant and provide technical inputs to concerned BFIs for instalment payments;
- Support grant recipients to prepare draft Codes of Practice related to environmental and social safeguards and ensure their implementation;
- Ensure that LMIS is operational and is being used effectively by the beneficiaries;
- Ensure that the e-extension services are effectively implemented;
- Ensure that construction works are completed in time with due diligence;
- Ensure that the crosscutting issues like women participation, environmental and social safeguards and food safety compliance, and good governance are embedded in the project activities.
- Ensure effective implementation of public awareness campaigns
- Manage /organize capacity building related activities including workshops at DLSU level;
- Ensure that the inputs demanded by the beneficiaries under component B are delivered in time;
- Organize regular meetings of the state level coordination committee and dialogue platform, which will help build productive partnerships between the producers and buyers and provide guidance in coordination and service delivery;
- Facilitate joint review missions at field level;
- Operationalize Grievance Redressing Committee at DLSU level and communicate progress to PMU including timely communication of any complaints to PMU that could not be resolved at DLSU level; and
- Attend any other activities/issues that duly surface during project implementation.

Annex 6.10: Terms of Reference

Pasture Development Specialist

Under the direct supervision of DLSU and in close coordination with the municipal livestock service centre and other local agencies, the Pasture Development Expert will have the following responsibilities:

A. General:

1. Assist farmers in identifying farm lands and communal/forest lands, planning for forage development as demonstration blocks and implementing the plans;
2. Assist producer organizations to identify interested farmers to raise nurseries;
3. With support of DLSU and VH&LSSC, organize their training in technical subjects and business planning. They should also be supported in seedlings distribution plan. ;
4. Facilitate channelization of project fund from DLSU to the concerned farmers/farmer groups/cooperative for: (a) nursery construction and procurement of seeds and materials/inputs associated; (b) purchase and supply of seeds/seedlings/saplings; and (c) land development in case of communal/forest lands. Focus on establishment of demonstrable silvi-pasture system.
5. Identify farmer groups and assist them in forage seed production through training and supply of foundation seeds, and associated inputs.
6. Develop seed producers capacity through training in business planning and exploring markets (linking with farmers/groups in the area);
7. Assist PMU to seed procurement planning;
8. Conduct impactful silage and hat making technologies demonstrations;
9. Train farmers in livestock feeding management;
10. Assist farmers in their institution building by coordinating with the DLSU for the training and mobilization of social mobilizers;
11. Provide guidance and monitor FFS programs;
12. With VH&LSSC mobilize District Dialogue Platforms to entice municipal authorities to promote land leasing system for feed development;
13. Maintain up-to-date outputs and results database

High Mountains:

14. Assist farmers to develop intensive Chayngra development Planning and budgeting and their implementation
15. Identify pasturelands in the high hills for their rejuvenation and utilization;
16. In the high mountains, assist farmers/communities to develop and implement multi-stakeholders pasturelands management plan;
17. Develop visual training materials and train farmers of the high mountains and build technical and management capacities; and
18. Supervise veterinary technicians and social mobilizers in the high hills;
19. Undertake any other activities as advised by the DLSU Chief.

Qualifications:

- 1) Minimum of B. Sc Animal Science/agriculture with livestock elective, MSc in animal nutrition will have an advantage.
- 2) At least 5 years of experience in both pasture/fodder development programs.
- 3) Should have experience in community level participatory planning.

- 4) Expertise in silage making and livestock feed formulation preferred.
- 5) Should have proficiency in excel and MS word.
- 6) Should be physically fit and willing to travel in remote areas in the mountain districts.

Annex 6.11: Terms of Reference

Veterinary/Livestock Technician (Mustang and Manang)

The Veterinary/Livestock Technician, in close coordination with the related municipal Livestock Service Centre, and under the direct supervision of the Veterinary Hospital and Livestock Specialist Service Centre/Pasture Development Specialist/ VH&LSSC will be responsible for successful implementation of intensive Pashmina Chyangra Production Programme in sites where they are assigned. Specific tasks of the position include:

- Conduct introductory meetings with the communities, farmer groups, cooperatives and local agencies and sensitize them about project activities;
- Assisting and facilitating group/cooperative strengthening;
- Ensuring that gender and social inclusion is not overlooked during needs assessment, activity planning and implementation;
- Assisting MLSC/Pasture Development Expert in community based annual planning and budgeting;
- Assisting VH&LSSC/MLSC to identify groups for forage seed production;
- Assisting Pasture Development Expert in community level planning, group formation, rangeland management plan preparation and data collection.
- Providing adequate technical information to the interested farmers in Pashmina Chyangra production and marketing through on-site hands on training and regular coaching at group and individual household level;
- Assisting farmers to sow forage seeds, planting forage/fodder tree seedlings in the terrace risers and bunds, and in the pasturelands in a timely manner. He /she should also ensure that the planted materials are well protected from animal damage;
- Encouraging farmer groups to implement livestock insurance programs (organize their training in the village level and assist them to prepare and implement the insurance systems);
- Developing a database on Chyangra hers, production and marketing of pashmina;
- Identifying pockets/community who are interested and potential to establish on-farm forage demonstration (planting forage and fodder trees) on terrace risers and bunds, help the community to develop community level block demonstration. For this, he/she should ensure timely supply of planting materials by collaborating with Pasture Expert/DLSU. He/she should be present in the community during the planting time and assisting plantation.
- Motivating farmers to selective breeding and timely change of bucks to avoid inbreeding.
- Raising farmer awareness in climate change and its impact;
- Coaching the VAHWs to build their expertise at one hand and build farmer confidence on them for their service utilization during and after the project, on the other.
- Ensuring that Pashmina Chyangra are vaccinated in time;
- Other duties as instructed by the Pasture Expert.
- **Qualifications:**
 - Minimum of JT training (Livestock), or I or T.SLC (Animal Science) or equivalent 2) At least 2 years of experience in both pasture/fodder development programs.
 - 3) Should have experience in community level participatory planning.
 - 4) Expertise in silage making and livestock feed formulation preferred.

- 5) Should have proficiency in excel and MS word.
- 6) Should be physically fit and willing to travel in remote areas in the mountain districts.

Annex 6.12: Terms of Reference

Livestock Social Mobilizer

The Social Mobilizer in close coordination with the MLSC and other local agencies will work under the direct supervision of the Veterinary Hospital and Livestock Specialist Service Centre/ VH&LSSC under Component B. She/he will have the following responsibilities:

1. Conduct introductory meetings with the communities, farmer groups, cooperatives and local agencies and sensitize them about project activities;
2. Assist and facilitate group/cooperative strengthening;
3. Ensure that gender and social inclusion is not overlooked during needs assessment, activity planning and implementation;
4. Assist MLSC/DC in community based annual planning and budgeting;
5. Assist DC/MLSC to identify groups for forage seed production;
6. Assist Pasture Development Expert in community level planning, group formation, rangeland management plan preparation and data collection (in Mustang and Manang).
7. Ensure that group/cooperative meetings are organized on regular basis;
8. Assist farmer groups/cooperatives to identify persons for FFS facilitator;
9. Coordinate DLSU/Veterinary Hospital and Livestock Specialist Service Centre/ VH&LSSC for FFS facilitators training;
10. Facilitate FFS implementation;
11. Ensure that forage development programs are implemented as planned;
12. Ensure that dairy cattle and goats are vaccinated in time;
13. Assist farmer to keep production and marketing records;
14. Support DCs in data collection and management;
15. Link farmers with MLSC for technical services and inputs supply; and
16. Undertake any other activities as advised by the DC.

Qualifications:

- 1) Minimum of JT training (Livestock), or T.SLC (Animal Science) or equivalent
- 3) Should have experience in community level participatory planning.
- 4) Expertise in silage making and livestock feed formulation preferred.
- 5) Should have proficiency in excel and MS word.
- 6) Should be physically fit and willing to travel in remote areas in the mountain districts.

Annex 7: Governance and Accountability Action Plan (GAAP)

The GAAP seeks to ensure good governance, conflict-sensitivity, transparency and accountability, and inclusion in the management of project activities. The Action Plan is based on Nepal's existing governance and policy framework as well as operational policies of the World Bank. The objective of the GAAP is to contribute towards strengthening governance, peace and social cohesion in the NLSIP activities. It will achieve these objectives by: (a) ensuring that resources allocated by GoN, the World Bank and FIs are spent for the intended purposes and directed to the beneficiaries of the project; (b) developing mitigation measures to address risks related to conflict, governance, accountability, and inclusion; and (c) improve feedback mechanisms between beneficiaries and service providers. Major issues and actions proposed are given in the following table.

Issues	Actions	By When	By Whom
Right to information	Implementation of information communication strategy		PMU
	Project prepares and distributes project brochure		PMU
	Project operates a website for disclosure of information as a communication tool		PMU
	Organizing on-site public hearing and erection of hoarding board is mandatory for all grant recipients.		DLSU
	Annual reports produced and distributed.		PMU
	Stakeholders dialogue platforms established at central, provincial and district level.		MOALD, DLSU
	LMIS and ICT platforms established. Public access assured.		PMU
	Project Implementation and Grant Operating Manual published.		PMU
Peace and social cohesion	All inclusive approach in project intervention (component B) with special attention to Indigenous and vulnerable people.		DLSU/ DC/SM
	Bottom up group level planning for planning and implementation of component B.		DC/SM
	Pasturelands development plan prepared with participation of users and local stakeholders.		DC/SM
	Environmental and Social Management Framework applied for selection of sub-projects		DLSU/ DC/SM
	Establishment of new dairy farms will require clearance from the neighbours and the concerned municipality		DLSU/ DC/SM
	Forest grazing is an ineligibility criterion while selecting grant applicants.		DLSU/ PMU
Transparency in sub-project selection and allocation of grants	Grant Operating Manual prepared and published		PMU
	Call for PCN and full proposals published in national news papers		PMU
	PCN and full proposal evaluation made on set criteria, which will be disclosed in the grant operating manual.		PMU
	Environmental and social safeguards measures disclosed through training of grant applicants and enclosed as a part of PCN or full proposal format.		PMU

Issues	Actions	By When	By Whom
	Requirements for business plan preparation disclosed through training of GA in business planning.		PMU
	Project operates a website for disclosure of information and as a communication tool		PMU
Public complaints	Distribution of Grievance Redressing Manual.	May 2019	PMU
	Operationalization of Grievance Redressal Committees at PMU and DLSU levels.		PMU/DLSU/DVH &LSSC
Participation of vulnerable groups and women	Bottom up participatory planning under component B.	Continuous	DLSU and PMU