

Deliverable # 5

Farmers Capacity Development Report

**Agro Business Planning, Technologies and Marketing
Advice and Implementation Support, under
Livestock and Dairy Development Project (LDDP)**

Package: SD-67

**Department of Livestock Services (DLS),
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Abbreviations

AFC	Agriculture and Finance Consultants GmbH
BAPARD	Banganbandhu Academy of Poverty Alleviation and Rural Development
BCSLA	Bangladesh Civil Service Livestock Academy
BAU	Bangladesh Agricultural University
BAUEC	Bangladesh Agricultural University Extension Centre
BCS	Bangladesh Civil Service
CD	Capacity Development
DEO	DLS Extension Offices (DLS Field Offices)
DLO	District Livestock Officer
DLS	Department of Livestock Services
GDP	Gross Development Products
GOB	Government of Bangladesh
GTI	Graduate Training Institute
GUK	Gana Unnayan Kormo
HQ	Head Quarters
ILST	Institute of Livestock Sciences and Technology
JICA	Japan International Cooperation Agency
JSPS	Japan Society for the Promotion of Science
LDDP	Livestock and Dairy Development Project
LEO	Livestock Extension Officers (LDDP funded)
LSP	Livestock Service Providers (LDDP funded)
MGS	Matching grant Scheme
NATP	National Agricultural Transformation Programme
NGO	Non-governmental Organisation
NILPM	National Institute of Livestock and Poultry Management
ODA	Overseas Development Agency
PAD	Project Appraisal Document
PG	Producer Groups
PMU	Project Management Unit
RDA	Rural Development Academy
SSIL	Services and Solutions International Ltd (SSIL)
TOT	Training of Trainers
ULO	Upazila Livestock Officer
VFA	Veterinary Field Assistant
VMCC	Village Milk Collection Centre
VS	Veterinary Surgeon
VTI	Vocational Training Institute
YTC	Youth Training Institute

Executive Summary

Capacities of farmers in the livestock sector of Bangladesh is considered vital for poverty alleviation, farm efficiency, increasing productivity, and supply of animal protein for a growing, prosperous population. There are 1.4 million dairy farms with an average herd size of 1-3 cows. They supply 90% of the milk and beef in the market. Transforming the small and marginal farmers into more productive units is proven way to meet the demand-supply gap for milk and other animal products.

The study was aimed to analyze current status of capacity development of livestock sector for identification of opportunities, gaps and needs; suggesting intervention strategy and creating business opportunities for entrepreneurs; strengthening institutional facilities; and overall recommendations. Methodology for the study were as follows: Secondary information were collected from the DLS, and other relevant government and private sources. Primary data were collected through 44 focus group discussion (FGD) and 16 key informant interviews (KII). The relevant literatures of both national and international levels were also reviewed.

The analysis of findings indicated that for capacity development, Bangladesh is having good training infrastructures e.g., 2 VTIs, 4 ILSTs, 1 NILPM, 64 YTCs, BAPARD, RDA, Universities, research institutions, NGOs and other assets. The major impediments in training activities are: inadequate budget allocation, shortage of manpower, under-utilization of NILPM, not giving attention to the renovation of VTIs, no practical demonstration to the trainees, no evaluation of training outputs, lack of coordination between different training offering organizations with DLS. Other issues are: not much attention to enabling environment such as no regulatory policy specifically for facilitating capacity development, no effective credit facilities, no effective market linkage for the producers, lack of linkages of PGs with financial service providers, no effective coordination between key players in capacity development e.g. DLS, BLRI, PKSF, BRAC, Universities and other NGOs, and no structure for collaboration between small and large producers.

The above-mentioned gaps need to be removed or at least reduced by new and innovative intervention strategies. In order to re-energize capacity development in the country, a seven point intervention strategy matrix is suggested: a) capacity need assessment and intervention strategy design; b) innovative learning materials and approaches; c) partnering capacities of the government and non-government training centers; d) future training leaders through training of trainers (TOT) packages; e) gender sensitive approaches f) strengthening livestock institutions engaged in policy work; and g) a temperament to experiment, research and innovation.

A Theory of Change based approach required to promote capacity development activities and intervention for livestock and dairy development project. This approach will be in line with the overall LDDP Theory of Change in multiple ways, i.e., for planning, monitoring, reflection and checking the intervention logic, adaptive management, and evaluation. Intervention strategies in capacity development is the central theme for success and sustainability of any development project. The five major intervention strategies prioritized to build capacity of

livestock farmers (individual and producers' groups) were related to: training inputs, infrastructure, value addition, market access, extension services etc.

Developing human resources in Bangladesh requires a multi-faceted approach that address the challenges of education, skills development, and job creation. A number of important steps that can be considered. The important requirements are: i) develop a national training strategy for dairy and livestock sector, ii) align training strategy with National Skill Development Policy, 2011, iii) establish a skills development council for livestock sector, iv) invest more in education and training, v) increase allocation for skills development at corporate level and projects, vi) encourage innovative partnerships, entrepreneurship, and business skill development, vii) promote public private producer partnership, viii) strengthen and empower HRD of DLS, ix) upgrade training facilities at Upazila level.

This report concludes with a number of practical suggestions to improve the capacity of organizations and individuals involved in livestock and dairy development. Capacity building can be divided into interventions at five levels: human resource development (HRD), organizational development (OD), institutional development (ID) and creation of positive enabling environment (PEE), and foster public private partnership (PPP). Good and sustainable capacity building is conditional upon investing in all five levels.

1. Introduction

1.1 Background

The government of Bangladesh has set targets to elevate the country's economy to the middle-income level by 2030 and to become a high-income developed country by 2041. To achieve these targets, various development plans have been undertaken, such as the Sustainable Development Goal (SDG), 8th Five Year Plan (GOB, 2020), and Delta Plan (GOB, 2018), where agricultural development has been emphasised as one of the priority areas. The livestock sector contributes to national GDP at 1.9% and agricultural GDP at 16.52% (DLS, 2022).

The sector has been contributing to the country's economy in various ways, such as livelihood development of rural farmers, income generation, self-employment, social and economic empowerment of rural women, and attracting different categories of investors for small medium and large entrepreneurship development in dairy, poultry, and small ruminant livestock generating income and employment on a large scale. Although initiatives are being taken for the development of the livestock sector by the government, private sector, joint venture and NGOs, there are several impediments to smooth and planned target achievements, such as high price of concentrate feeds, scarcity of forage, poor technical knowledge of feeding, breeding, management, disease control, lack of/weak recording system, prolonged postpartum anoestrus, repeat breeding, incidence of diseases, lack of organized marketing system, lack of credit facility and lack of enabling policies (Hossain et al., 2020).

In view of the above factors, the scope for development of livestock sector need to concentrate mainly on three elements: increasing the productivity of smallholder farmers, expanding commercial production, ensuring better marketing facilities, especially for smallholders (Ali and Hossain, 2016). These authors have recommended some actions for consideration for development of the sector that are mainly directed to capacity development.

The importance of capacity development in the livestock sector of Bangladesh is three-fold. Firstly, it is essential for farmers to have the knowledge and skills to operate their farms efficiently, sustainably, and profitably. This includes understanding of animal health, nutrition, and husbandry, as well as access to and knowledge of markets and marketing. Secondly, capacity development is important for improving the resilience of farmers and their livestock enterprises to climate change, shocks, and other external factors. This can include access to climate-smart practices and technologies, as well as training and support for risk management and adaptation strategies. Thirdly, there are 1.4 million dairy farms with an average herd size of 1-3 cows. They supply 90% of the milk and beef in the market. These small and marginal farmers will remain the mainstay of dairy and beef industry for next few decades. Many of the farmers lack access to formal markets resulting in demand and supply bottlenecks.

Capacity development is essential for farmers to have the knowledge and skills to operate their farms efficiently, sustainably and profitably, to improve the resilience of farmers and their livestock enterprises to climate change, shocks, and other external factors, and to ensure better marketing facilities, especially for small holders. Improving the skills and knowledge

base of farmers, even beyond schooling, will increase their productivity, raising output, enhancing household incomes and reducing poverty (Rola-Rubzen and Gabunada, 2003). In Bangladesh, capacity development initiatives of the livestock sector are in the portfolio of the Ministry of Fisheries and Livestock (MoFL) implemented through the Department of Livestock Services (DLS). Under the above context, it has become essential to address the capacity development of smallholder farmers in the most appropriate way to ensure the sustainability of farmers' capacity development in the livestock sector for targeted development.

In Bangladesh capacity development of livestock farmers and related stakeholders is not addressed in a systematic manner. The capacity development at organizational level is addressed but not effectively and that of enabling environment level are seldom addressed. Only training is considered as the prime means for capacity development of farmers, extension personnel and service providers. Other tools that have been implemented in the comparatively recently especially for the farmers are: Uthan baithak, which is being practiced regularly, some exposure visits, discussion meetings and workshops for extension workers. However, no address to the enabling environment and therefore the level of capacity building of the farmers and other stakeholders are not sustained due to unfavourable and sometimes antagonistic environment.

1.2 Objectives

- To assess the existing status of capacity of livestock farmers/their organizations (PG groups), extension and service providers, status of policies and regulatory bodies, credit facilities, value added livestock products development and marketing facilities.
- Analysis of the current situation and identification of gaps and needs for improvements.
- Intervention with new methods/systems for sustainable capacity development of farmers/organizations/extension personnel and of enabling the environment, and
- Facilitate smooth running of farmers' livestock business and development of new entrepreneurship.

1.3 Approach and Methodology

1.3.1 Approach

UNDP (2015) defines the capacity development (CD) as the process through which individuals, organizations and societies obtain, strengthen, and maintain the capabilities to set and achieve their own development objectives over time. The capacities grouped at three levels: individual, organizational, and societal (enabling environment) are as shown in Figure 1 below interdependent and mutually reinforcing.

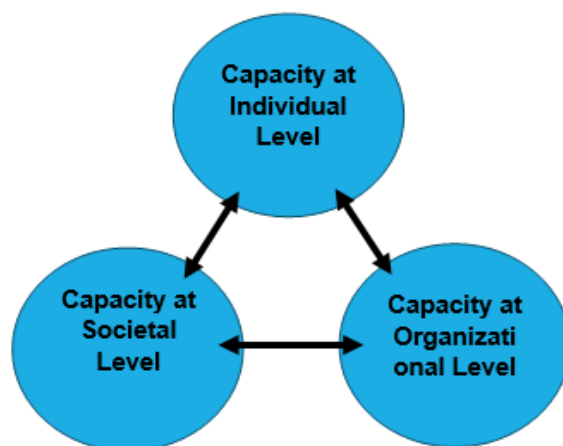


Figure 1. Three levels of capacity development

Developing capacity is a process of growth and evolution. The UNDP capacity development process uses a five-step cycle to organize programming work (UNDP, 2015). The specific circumstances of a given situation determine the prominence of each step in the process. The five steps are as follows; i) Engagement of stakeholders, ii) assessment of assets and needs, iii) formulation of programme, iv) implementation of capacity development response and v) evaluation of capacity development.

The importance of capacity development is enormous. UNDP has considered Capacity development as key to the long-term success and sustainability of programs. Other international development organizations also recognize the importance of capacity development for smallholders. It has been recognized that in addition to productivity increases, technological developments, infrastructure, good economic policies and human resource development play important role in poverty alleviation (ADB, 2016; World Bank, 2002). These are the pre-requisites to capacity development in any sector. It has been reported that during the last decade and beyond, capacity development/building has emerged as a major focus for development institutions (Rola-Rubzen and Gabunada, 2003).

In order to build capacity of farmers as individuals and in groups, the following approach was adopted:

- identification of major issues, constraints and needs of livestock farmers.
- capacity development for participatory planning and implementation of collective actions of producer groups (PGs), village milk collection centres (VMCC) and dairy hubs;
- strengthening institutions and human resources associated within the LDDP, in particular DLS personnel, and LSP;
- upgrading of training facilities particularly at Upazila livestock offices.

1.3.2 Methodology

The whole work for assessment of existing capacity development at three levels, finding gaps and needs, and finally interventions for strengthening capacity development at organizational and enabling environmental levels was accomplished as follows:

- *Literature Review*

Literature review was done by studying the recorded documents of government offices (DLS and other relevant offices) and the leading NGOs working in the form of training and other methods being used for capacity development of farmers and other stakeholders of the country both for relevance and effectiveness. The relevant literatures on other developing countries in the region and others were also collected and reviewed.

Realizing the importance of capacity-building for development of agriculture and related sciences, the government continued to establish/ upgrade educational institutions at different locations in the country. At present, there are seven agricultural universities, one veterinary and animal sciences university, 1 colleges of veterinary & animal sciences and two general universities dealing veterinary sciences & animal husbandry education. All these institutes offer graduate, Master, and Ph. D. level program in animal sciences. International Agencies have also contributed towards capacity-building in animal sciences, of them USAID, World Bank and ADB had been the major supporters. Capacity development of DLS staffs is also accomplished by project funds of NATP, LDDP supported by world bank. Other significant international assistance extended for capacity-building in animal & veterinary sciences include DAAD of Germany, DANIDA of Denmark, NORAD of Norway, British Council, ODA of United Kingdom, JICA & JSPS of Japan, FAO, UNDP, Australian and Dutch assistance. Efforts by the Government of realizing the importance of science and technology in economic development of the country the govt. introduced Bangabandhu Fellowship for higher education. Ministry of Education and Ministry of Science & Technology launched Human Resource in Agriculture including animal production encouraging talented students for higher studies abroad, through different schemes.

In June 2010, the Government of Bangladesh received a USD 50 million grant from the Global Agriculture and Food Security Program (GAFSP) for the Integrated Agricultural Productivity Project (IAPP) from which USD 3.69 million was allocated for a Technical Assistance (TA) Component, implemented by FAO, to develop capacities of a variety of actors, including non-state actors such as farmers' organizations (FOs), in investment programming in agriculture, food security and nutrition. The TA Component aims to address capacity needs at the individual, organizational and enabling environment levels, in order to provide a holistic approach to capacity development. At the individual level, the project worked to develop skills of FO leaders and members, at the organizational level, the project facilitated exchanges between FOs that would strengthen their institutions and at the enabling environment level, the project conducted a review of policies relevant to FOs and proposed some improvements.

A more recent extension package of DLS officials has been the National Agricultural Transformation Programme (NATP) initiated in 2010 and completed in 2022 trained 39,000 livestock farmers for a period of 3 days and 480 livestock officials have got training in abroad for 7 days. Developed Livestock production Technologies has been transferred to the farmers through this program. Moreover, capacity development of staffs through higher education (M S and Ph. D. in home and abroad) have been materialized by this

program. Another capacity building program of DLS under IAP project trained a significant number women in livestock rearing giving emphasis on goat rearing technology in the year 2011 to 2016. In the recent past LDDP has introduced a program named Farmers Field School (FFS), described as a “school without walls”, is a participatory method for technology development and dissemination. The school involves 25–30 farmers of both male and female in a given locality where the focus is field observations, theoretical knowledge and hands-on activities on livestock production system. Under the leadership of LDDP a comprehensive training of farmers (4500 livestock producer group) is running smoothly.

The gradual impact of capacity building in overall development of livestock sector can be evaluated from the outstanding development in different fields in last decade, where total ruminant population has been increased from 532 to 567 and poultry 2962 to 3756 million. Production of milk has been increased from 50.8 to 130.7, meat from 36.2 to 92.6 million MT and eggs from 761.7 to 2335.4 million number (DLS 2022). The country has become self-sufficient in the production of meat and eggs. All these achievements have been accomplished due to government initiation in capacity building of its personnel as well as livestock farmers. Empirical studies from several districts in Bangladesh corroborate both the role of government training institutions and farmers enterprise in boosting milk, meat, and egg production in the country (Rana et al 2022; Islam 2011; Islam et al 2018, Islam 2016, and Hossain 2005).

In Lao PDR, the role of government livestock extension staff and village extension workers is to help farmers to learn new developments, new technologies and new ways of organizing their work. However, the knowledge and skills of government livestock extension staff is lacking in quality and quantity. So, there are enough scope for development of technical skills of livestock extension staff not only to assist farmers in livestock management but also require knowledge and skills in social assessment and facilitation (Photakoun, 2010; FAO, 2019). Improving staff capacity is necessary to upgrade the knowledge and skills of local staff and ensure their direct contact with the disadvantaged groups. Upgrading knowledge, skills, attitudes and ability of extension staff to a very high level is required, especially for extension staff working in commercial agriculture, to satisfy market demands and resolve problems in the field, on the farm or for industry (Photakoun, 2010).

In Pakistan the capacity building of extension workers and farmers have been described (Ahmed, Khali et al. 2021; Afzal 2003; Afzal 2009). It was stated that the basic purpose of this extension-service is capacity-building of the farmers to achieve higher sustainable productivity. This research–extension– farmer linkage had been weak, thus there was a wide gap between yields at experiment stations and farmers’ fields. It was also stated that the leadership crisis in some institutions and even some provinces was already evident. The scenario called for an immediate action-plan be developed for capacity-building in agricultural sciences for the country. Delay in doing so would result in irreparable loss to the sector of the country. They have tried to improve the situations. The village cooperative societies of farmers’ model did not work; however, two other models are being practiced

for the capacity-building of extension workers and farmers: (i) Farmers' Training Schools and (ii) Use of information technology to bring research – extension – farmer together.

In India the agricultural sector challenges the capacity of both extension workers, farmers, farming systems and even the environment. In the absence of best practices, farmers use low- quality agricultural inputs (Kumari and Khanduri, 2019; Phand et al 2021). Strengthening local capacities and institutions remains a major challenge for the effective design and implementation of agricultural programs. The productivity enhancement business model activities provide farmers with access to low-cost techniques and quality inputs, and capacity building services to use these yield enhancing solutions effectively. The major areas include: agribusinesses, farmer organizations, conservation services, extension services and agricultural education. It was suggested that capacity assessment must be based on a broader conceptual framework, based on a deep appreciation of the prevailing farming systems taking into account the capacity for improved market integration, linkages with commercial institutions, access to credit and improved on-farm management practices. Right from the beginning, lack of capacity be identified as a binding constraint to the development of productive and viable. Funding of extension training programs by the government, organizations, intervention agencies and private extension organizations be made adequate and steady.

Capacity building of smallholder livestock farmers in western part of Philippines has been described by Rola-Rubzen and Gabunada (2003). After conducting need assessment study, they identified several problems and needs in their livestock production systems such as poor market linkages, lack of capital for livestock production, limited skills in determining the profitability, efficiency, and sustainability of opportunities in livestock production. The areas for capacity building identified by farmer participants they classified into: resource/capital formation, knowledge and skills enhancement and leadership, they thought that building the leadership skills of farmers would enhance the long-term sustainability. Under knowledge and skills, there were three further areas for farmer capacity building which included analytical skills, economic skills and technical skills enhancement.

The literature review of Bangladesh, Lao PDR, Pakistan, India and Philippines reiterated the importance of government intervention in catalysing capacity development, building alliances with service providers, and transferring skills to the farmers through network of extension workers, training institutions, and farmer organisations. Access to credit, post-harvest and value addition technology and strengthening the enabling environment for farmers' organization development have long run benefits in reducing poverty, increasing farm income and productivity.

- *Data and information collection*

Secondary data and information were collected from the DLS and relevant offices. Primary data and information were collected from field visits through Focus Group Discussion (FGD) and Key Informants' Interview (KII) with different categories of stakeholders keeping the target to livestock farmers in particular and livestock sector in general such as Farmers' producer groups, field extension officials, livestock service providers, training institutions, DLS officials at HQ, organizations, NGOs, Universities, and research institutions. The

FGDs and KIIs were done in order to assess the current status of capacity development in the livestock sector, gaps therein and needs for improvement and their overall suggestions. The FGD check list and KII interview schedule are shown in Annex A and B respectively.

- *Capacity needs and gaps assessment:*
Data/information collected from different target sources were analyzed for assessment of potential opportunities of capacity development and for identification of gaps therein and needs for improvement in the capacity development of livestock sector as a whole. During these analyses, the particular attention was paid to the Institutional capacity development, business and market-related service provisions, facilitation skills of those working with farmers' organizations, access to credit, post-harvest and value addition technology and strengthening the enabling environment for farmers' organization development etc.
- *Intervention for capacity development*
Finally, based on the assessment interventions were made in the existing level of capacity building with new training and other opportunities for its improvement at farmers' organization, institutions and enabling environment. Adequacy of capacity, budget, and workforce for conducting training of the DLS officers, and field staff were also recommended. Improvement in the existing training institutions, their curricula, course contents, module etc. were suggested. Interventions were also done on the areas as mentioned above in the need assessment section for their improvement to facilitate farmers' capacity development, and the livestock sector in general.

2. Current Status of Capacity Development in Livestock and Dairy Sector

The purpose of this section is to assess the current status of capacity development initiatives of DLS, training organizations, private sector participation (including NGOs) and collaborations with other line departments and service providers. The study also considered the available resources to DLS (and LDDP) with special references staff, budget, infrastructure etc.) in extending CD and through extension/advisory services for the target livestock farmers in Bangladesh.

2.1 Structure of DLS

The Department of Livestock Services (DLS) is the key government department responsible for providing veterinary coverage, development, and extension services to meet protein requirements as well as to create employment opportunities through rearing livestock and poultry, and the marketing and processing of their products.

The activities of the Department are overseen by a Director General supported by a group of professionals and supporting staff (about 13,052 at present). The department runs BCS Livestock Academy, 4 ILSTs, 2 VTIs, 2 veterinary colleges, chicken, duck, buffalo, and cow breeding and improvement centres, and a chain of diagnostic laboratories. Livestock

personnel are belong either to civil service cadre or non-cadre category. After selection through the Bangladesh Public Service Commission, the cadre officers join at the entry level as Veterinary Surgeon / Scientific Officer / Poultry Development Officer etc. All senior positions are staffed by cadre officers. Director, Scientific Officers, DLOs, ULOs, Principals of training institutes generally belong to the BCS Livestock cadre. The non-cadre personnel carry out both technical and technical work. Computer operators, accountants, office assistants, cooks, drivers, lab attendants, data entry clerks, compounder, field assistants, semen carrier, pharmacist, demonstrators etc constitute non-cadre personnel. The recruitment of non-cadre personnel is done by DLS itself.

2.2 Human Resources Management in DLS

The human resources management (HRM) model of DLS is described in the figure 2 below. Manpower planning is centrally done at the headquarters (HQ) . The planning is essentially the process of getting the right number of qualified employees to meet the organisations' objectives. Recruitment and selection follows set government procedures: external advertisement, written and viva examination, and selection based on combined exam score. The induction starts with training at designated institute – cadre officers go through a month long orientation at BCS Livestock Academy, while non cadre staff are exposed to structured induction in one of the many DLS affiliated training institutes. Performance appraisal plays a crucial role in maintaining a high quality and competitive workforce but has been ignored so far from the civil service reform agenda in Bangladesh.

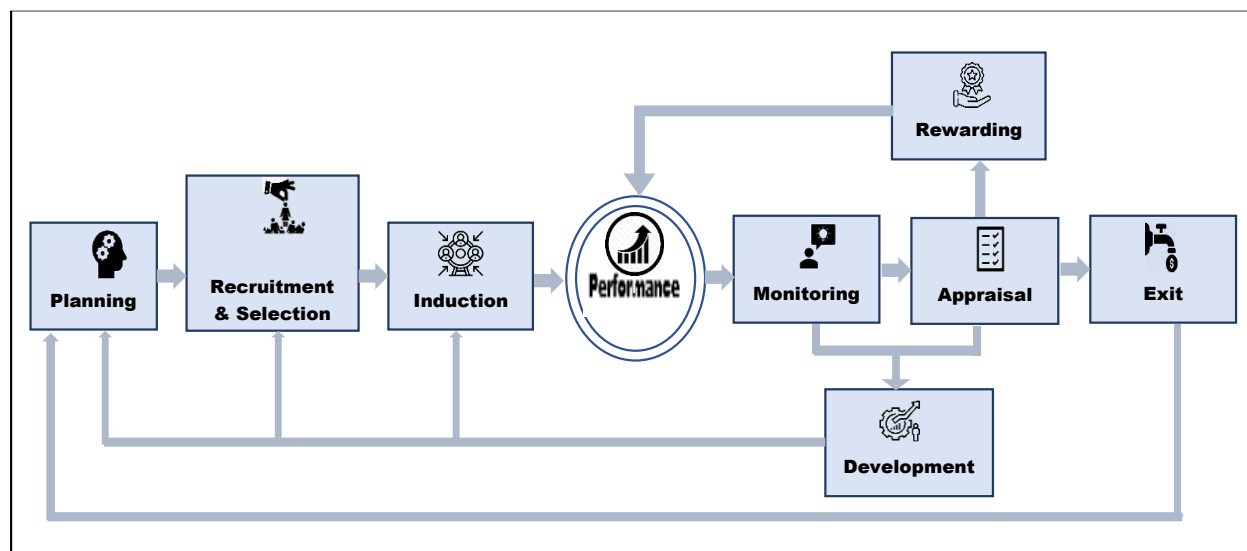


Figure 2. Human Resources Management Model of DLS, Bangladesh

An Annual Confidential Report (ACR) written by a superior is used to measure performance. The system is due to non-transparency and does not provide any opportunity for identification of areas where an employee can improve (Haque 2012). Outstanding performance of employees is recognised by special awards, while most receive promotion based on merit or seniority of service. Exit of employees take place due to retirement, resignation, and under extraordinary circumstances, termination due to gross misconduct. The Government rules

favour adherence to rules and procedure leaving very little room for experimentation, and innovation.

A large part of veterinary coverage and extension services are provided by 64 District livestock offices, 395 Upazila livestock offices (ULO) cum veterinary hospitals, and 4554 Union level service centres. A detailed staffing of DLS is provide in Table1.

Table 1. Staffing at District, Upazila, and Union offices

Sl. No.	Location	Cadre	Non-Cadre	Total
1	Division level Office in 8 divisions	46	54	100
2	DLO office in 64 districts	502	333	835
3	ULO cum Veterinary Hospital in 395 upazilas	4880	421	5301
4	Union Livestock Service Centre in 4554 unions	0	2017	2017
	Total	5428	2825	8253

Source: DLS Organogram, DLS Website (accessed on 7th March 2023)

The divisional offices are led by a director, assisted by one or two assistant directors, epidemiologist, and support staff. The district offices are led by a DLO, additional DLO, ULO, district training officer and supported by laboratory attendant, field assistants, compounder, and other support staff. The ULO office cum veterinary hospital are frequented by farmers for treatment of their animals. The ULO office is led by a ULO, VS, and has VFA, AI assistant, and compounder. The Union Livestock Service Centre are managed by non-cadre VFAs who provide elementary advice and first aid. The above table reveals that last mile services in villages and union level are managed by non-cadre staff. The introduction of LSPs under the LDDP have provided an additional source of door step support for farmers.

The Government of Bangladesh has introduced performance evaluation system, known as Annual Performance Agreement (APA), for all government offices since 2014-15 financial years. The Annual Performance Agreement (APA) cycle provides a framework for performance management, which facilitates effective communication of work requirements, institutional transparency, accountability, and proper utilisation of available resources. While setting the APAs, there is scope for alignment of corporate and individual goals, performance improvement, seeking training and development support. The Mandatory Strategic Objectives (MSO) of DLS is set by the Cabinet Division; the department sets its own Strategic Objective (SO) which is cascaded down to Division, District and ULO offices. Each office has annual targets which is closely monitored by DLS HQ.

All district offices have selected manpower development and employment generation as one of their SO. This objective translates into four specific targets a) training of farmers; b) training of butchers; c) training of villagers interested to rear birds or cows through *uthan-baithak* and d) training and promotion of perennial fodder. The priorities of district office does not include activities for developing their own manpower. Refresher courses for subordinate staff is an exception (Rahman et al. 2019).

2.3 Capacity Building Inputs from Investment Projects

The existing training and capacity development intervention are being offered through multiple windows of the DLS. In general, they are skewed toward animal production and health related issues with special reference to vaccination, hygiene, maintenance, housing, breeding etc. However, under the phase 2 of the National Agricultural Technology Programme (NATP-2), the DLS is delivering technical support and training to the livestock farmers at the Union level¹ where the extension service delivery of Department of Livestock Services (DLS) is poor. Under this component of NATP-2, technology demonstration pilots are being implemented in the areas of: (a) Cattle Rearing Technology, (b) Beef Fattening Technology, (c) Goat Rearing Technology, (d) Poultry Rearing Technology, (e) Duck Rearing Technology, (f) Sheep Rearing Technology, and (g) Fodder Cultivation Technology. The project is envisaged to offer training for the DLS Officer, staff members and community extension agent for livestock (CEAL). Organization of workshop, seminar, meeting etc. along with development of training and communication materials are also undertaken to provide capacity building services. The project is also emphasizing institutional strengthening and capacity building of laboratories of DLS to meet present demand of the livestock farmers. The farmer groups are also being supported to boost production in a sustainable manner. Upgrading the knowledge and skills of extension personnel were considered as one of the major areas for effectively carry out the technology diffusion activities and due emphasis is also being provided to effectively use the available information and communication technologies (ICT) to improve delivery of capacity development activities.

2.4 Training Establishments under DLS

The DLS administers several training institutes. These include BCS Livestock Academy (BCSLA) which was earlier known as Officers Training Institute (OTI), Institute of Livestock Sciences and Technology (ILST), Veterinary Training Institutes (VTI), National Institute of Livestock & Poultry Management (NILPM). In addition, there are other institutions, not administered by DLS such as universities, research institutions and others. The functions and facilities of DLS administered training institutions are provided in Table 2 below:

Table 2. DLS-administered training institutions

SI No	Training institutes	Function and facilities
1.	Bangladesh Civil Service Livestock Academy (BCSLA).	A one month long mandatory foundation level training is offered for the benefit of freshly recruited livestock officers, namely ULOs, Veterinary Surgeons, Veterinary Officers and Livestock Extension Officers. Training elements consist of introduction of policies of GOB, livestock management, dairy production, leadership skills, office administration, general management, etc. There are also several short (3-7 days) courses run on topical subjects for directors, deputy directors and senior DLS staff.
2.	Veterinary Training Institutes (VTI)	In the two VTIs in Mymensingh and Chuadanga two types of training are offered to livestock auxiliary staff: i) comprehensive livestock training and ii) refreshers course. The former is offered as in-service training to DLS's staff such as compounders, veterinary field assistants, artificial inseminators for

¹ NATP-2 is being implemented in 270 upazilas of 57 districts across the country which includes 107 upazilas selected from NATP1, plus 163 new upazilas selected under NATP-2.

SI No	Training institutes	Function and facilities
		about 12 months. The students are internally assessed by VTIs. There is no independent audit of curriculum, pedagogy and student performance. In case of refreshers training, in the past, 2–3-week in-service training course designed to update the knowledge of auxiliary staff. Such courses are less frequent in recent years. The VTIs are in moribund state due to dwindling budget from DLS, increased competition from ILSTs and private training providers, and derelict infrastructure. The teaching staff strength is 20% of that sanctioned. Without fresh infusion of funding, the VTIs will find it difficult to attract competent teaching talent and students.
3.	Institute of livestock Science and Technology (ILST)	ILSTs are new generation technical institutions established recently in different regions (Gopalganj, Netrakona, Gaibandha, Khulna, Lalmonirhat and Sylhet) of the country. Of the six, four (Gopalganj, Gaibandha, Netrakona and Khulna) are functioning and two will start in near future. ILSTs are recognised as Registered Training Organisation by Bangladesh Technical Education Board (BTEB). ILSTs also offer one-year pre-service training to DLS auxiliary staff, namely compounder, veterinary field assistant, and AI field assistants. Some of the ILSTs have trained farmers in producer group formation, and short-term courses to DLS offices. ILST Sylhet and Gaibandha has organized training of farmers (2-3 weeks) selected to act as contact farmers. The six ILSTs have barely 50% of the sanctioned training positions. The facilities for practical training in diagnostic labs, farmers' fields, or in house veterinary clinic is not functional. The main source of funding is DLS. In general, internal revenue generation is less than 10% of the operational budget.
4.	National Institute of Livestock and Poultry Management (NILPM)	It is an institute dedicated for research, disease diagnosis and training of poultry entrepreneurs. However, NILPM is in early stages, and severely under staffed and underfunded to undertake its mandate. NILPM is co-located with ILST in Gopalganj, and managed by DLS. NILPM has undertaken one farmer training in PG formation in 2022.
5.	Livestock Research Institute (LRI)	LRI's main responsibility is to produce livestock and poultry vaccines. But it also supervises the livestock related trainings.

2.5 Collaborating Training Establishments

LDDP has utilized the services of other collaborating institutions (Table 3 below) for delivering 21 days long induction training of Livestock Service Providers (LSPs). These institutions include Sheikh Kamal Youth Training Center, Tungipara, Gopalganj; Youth Training Centres² in Mymensingh, Bogura, Rajshahi, and Sylhet; Bangabandhu Academy for Poverty Alleviation and Rural Development (BAPARD), Gopalganj; Rural Development Academy (RDA), Bogura; and Bangladesh Academy for Rural Development (BARD), Cumilla. LDDP may explore MOUs with larger number of training providers who have presence at Upazila level.

² The Youth Training Centres conduct 3 months training courses for unemployed youths on livestock production practices. There are also at least dozen NGOs produce para-vets through 3-months long training courses. RDA Bogura, Milk Vita and Pran also conduct week long courses for interested or registered farmers on poultry vaccination, cattle rearing, artificial insemination, etc.

Table 3. Other institutions providing training for livestock production

S. No	Name of the institute	Function and facilities
1.	Youth Training Centres (YTC)	YTCs provide job-ready 3 months integrated courses in livestock, fisheries and agriculture. It has well developed curricula. YTCs are under Department of Youth Development.
2	Bangabandhu Academy of Poverty Alleviation and Rural Development (BAPARD), Gopalganj	Provides training to livestock, agriculture and fishery technicians and farmers. They have research facilities and small farm units for practical training
3.	Central Human Resource Development Center (CHRD)	Responsible for poverty alleviation by providing training to the youth population of the country. It is under the Ministry of Youth and Sports.
4	Rural Development Academy (RDA)	Provides training to technicians, farmers and entrepreneurs for farming including livestock. They have dairy farm, poultry farm, bio-gas plant, fodder cultivation and other facilities for practical training and also research facilities.
5	Bangladesh Academy of Rural Development (BARD), Cumilla	BARD provides training for both officials and non-official members of the public and private institutions working on rural development. The training is provided in the form of courses, visit programs, workshops and seminars. BARD also undertakes policy relevant research either independently or jointly with government agencies, universities and research organizations.
6.	Bangladesh Livestock Research Institute (BLRI)	Besides its main mandate of research in livestock sector, it also provides training to technicians and livestock/poultry/duck farmers. They have farms of all livestock.
7.	Bangladesh Agricultural University Extension Centre (BAUEC)	The centre is under the administration of BAU and function are to disseminate the crop, livestock and fisheries technologies through training of farmers
8.	Graduate Training Institution (GTI)	This is under the administration of BAU and does mainly the training of graduates of agriculture and other disciplines. The institute is the only in its kind which does the foundation training of freshly recruited Lecturers of many Universities on teaching methodologies.

The Rural Development Academy (RDA) in Bogra district is renowned for providing training, action research, and policy relevant research in Bangladesh for the livestock farmers (Box 1).

Box 1. RDA – a center of excellence

The Rural Development Academy (RDA) is part of the Ministry of Local Government, Rural Development and Cooperatives. RDA offices, training halls and hostels are located in 46.5 hectares of land. Out of the total area, 29.50 hectares is earmarked for demonstration for undertaking field research in paddy cultivation, horticulture, floriculture, poultry, cows, pisciculture, biogas and solar energy. Since 1974, RDA is providing technical training for both officials and non-official members of the government, private sector and civil society. The faculty of the Academy consists of multiple academic disciplines. The Academy has a strength of 304 personnel - 61 Faculty Members and 203 support staff.

The Dhaka based Palli Karma Sahayak Foundation (PKSF) is a non-profit company founded in 1990 by the Government of Bangladesh to finance rural development and provide trainings (Box 2) to livestock sector through their partner organizations.

Box 2. PKSf – a financial lifeline for livestock farmers

PKSF provides grant and credit support to more than 223 partner organisations. In addition, they are also providing different non-financial services like community health care, implementing income generating activities of the poor people, capacity building support to field institutions, training, and campaigns on nutrition and social issues. Its Sufolon project, offer financial services to farmers in accordance to seasonal variations. This unique financial service has created tremendous impetus for the investment in different income-generating activities (IGAs) in the fields of fodder cultivation and processing, livestock, agro-processing, etc. Another program called Agrosor extend loans upto BDT 1 million. All microenterprises having an investment of up to BDT 1.5 million (excluding land and building) are eligible under *Agrosor*.

2.6 Geographical Location of Major Training Establishments

The training institutions/agencies offering capacity development support to livestock farmers are located across the country. Majority of them are working as part of the training establishments of the line departments of GoB. The agricultural universities and well-established research institutions are also supporting training initiatives. The NGOs have also established training institutions to provide capacity building support to farming communities. Figure 3 below maps the location of selected training centres & capacity development institutions in Bangladesh.



Figure 3. Map showing Training Centres & other Capacity Development Institutions

When viewing the map above alongside those which indicate different institutes and organizations for capacity development of livestock sector of Bangladesh together with their distribution in the country. It appears that the distribution is not even. Out of 8, 3 divisions

(Rajshahi, Chattogram and Barishal) do not have ILST. In fact, the Government has approved 6 (six) ILSTs to establish, of which 4 (four) has been functioning and the remaining 2 (two) will start soon and will be located in Rangpur Division and Sylhet Division (highlighted with yellow). Of the many universities, only BAU at Mymensingh has an extension centre (BAUEC) for training and dissemination of their technologies. BAU also hosts GTI which has already conducted 296 training & short term pre-service and in-service courses, including 14 international courses.

Legend to Figure 3 (Map):

-  VTI (Veterinary Training Institute) : Mymensingh Chuadanga
-  ILST (Institute of Livestock Science & Technology): Gaibandha, Netrakona , Gopalganj,
-  NILPM (National Institute of Livestock and Poultry Management): Gopalganj
-  BAPARD (Bangabandhu Academy of Poverty Alleviation and Rural Development):
-  BCSLA (Bangladesh Civil Service Livestock Academy): Dhaka (Savar)
-  CHRDC (Central Human Resource Development Centre): Dhaka
-  RDA (Rural Development Academy): Bogura
-  BAUEC (Bangladesh Agricultural University Extension Centre): Mymensingh
-  GTI (Graduate Training Institute) : Mymensingh
-  LRI (Livestock Research Institute): Dhaka (Mohakhali)
-  BLRI (Bangladesh Livestock Research Institute): Dhaka (Savar)
-  Universities producing livestock specialists: BAU at Mymensingh, Sylhet AU at Sylhet, SAU at Dhaka, BSMRAU at Gazipur, Dhaka, KAU at Khulna, CVASU at Chattogram (Chittagong), Rajshahi University at Rajshahi, HSTU at Dinajpur, STU at Patuakhali

3 Findings of Focus Group Discussions and Key Informant Interviews

3.1 Main Findings of FGDs

The team of consultants from the AFC/SSIL consortium conducted 44 FGDs in Gaibandha, Gopalganj Chuadanga, Rajshahi, Natore, Sylhet, Maulaviganj, and Mymensingh districts with DLS staff, PG groups, and training institutions. For each category of respondents, specific questions were posed, and their answers recorded in a common format. Table 2 below provides the details of the organizations/PGs where the FGDs were conducted.

Table 4. Respondents of FGDs at different locations

Districts	DLO/ULO	LEO/LFA/LSP	Training institution	PG
Bogura Sadar	1	1	1 ^a	-
Bogura Shajahanpur	-	1	1 ^b	2
Gaibandha	1	1	1 ^c	
Gopalganj Kotalipara	1	1	2 ^{d,e}	2
Gopalganj Sadar	1	1	1 ^f	-
Chuadanga Sadar and Alamdanga	1	1	1 ^g	1
Rajshahi	1	1	1 ^h	1
Natore	1	1		1
Sylhet (Sylhet, Gowanighat, Jaintiapur)	2	2	2 ^{i,j}	2
Maulaviganj (Sreemangal)		1		
Mymensingh	1	1	2 ^{k,l}	1
Total	10	12	12	10

NB: ^a Youth Training Centre, Bogura; ^b Rural Development Academy; ^c Institute of Livestock Sciences and Technology (ILST), Gaibandha; ^d National Institute of Livestock Production and Poultry Management (NILPM), Gopalganj; ^e Institute of Livestock Sciences and Technology (ILST), Gopalganj; ^f Bangabandhu Academy for Poverty Alleviation and Rural Development (BAPARD), Gopalganj; ^g Veterinary Training Institute (VTI); ^h Youth Training Centre, Rajshahi; ⁱ ILST, Sylhet; ^j Youth Training Centre, Sylhet; ^k Veterinary Training Institute, Mymensingh; ^l Bangladesh Agriculture University Extension Centre (BAUEC), Mymensingh

The main findings of the FGDs were extracted from the discussions based on the indicative points/questions (*Annexure A*) to steer the discussions are given below:

- Shortage of manpower:** There is insufficient manpower both at DLS offices and training institutions. In some of the training institutions only 1/3rd of faculty is recruited against sanctioned posts. Training budget from revenue head at District offices of DLS are below BDT 30,000 which is barely enough to conduct one or two one day events.
- Limited pedagogical tools used.** The main training tools used are *uthan-baithak*, Farmer Field Schools, extension services, demonstration farms, training workshops, and printed materials. However, for various reasons, the main pedagogical tool for training used is classroom lectures, while participants clamor for hands-on practical sessions. Many of the faculty members have little or limited exposure to field realities because of lack of prior experience of practical problem solving.
- Inadequate revenue budget for training.** Farmers appreciate participation in exhibitions and live demonstrations. However, such events have become fewer in recent years due to paucity of training budget. Exposure tours within the country and abroad are effective tools for absorbing new learning.
- Unclear future of Gen X training institutions established before the millennium.** VTI Alamdanga in Chuadanga, established in 1978, is a classic case of historical neglect. All the buildings there are decrepit and unsafe for use. Yet repeated pleas for rebuilding facilities is overlooked. DLS must decide on how it wishes to use the VTIs. In the recent years, new institutions have been set up by DLS, Department of Agriculture, and Ministry of Rural Development which are offering courses for livestock

personnel. VTIs have strong competition from both government and NGO-run training institutions.

- e) **PGs are in infancy.** The oldest PG met by the AFCI/SSIL agribiz consortium was 7 months old, and the youngest was 5 months old. These PGs are in inception stage. Regular FFS sessions, PG meetings, and saving collections are taking place. PGs deposit their savings with local Bangladesh Krishi Bank branch. PGs have not done any inter-group lending out of their savings. Majority of the PG members are owners of 2-5 cattle heads. The office bearers of all the PGs met were male, even though female membership was in excess of 40%. LDDP may pay particular attention to bring female members in leadership positions of PGs.
- f) **No bank linkage:** PGs have not formally approached any bank for credit facilities to individual members or to the group as a unit.
- g) **Proportion of female farmers:** Participation of female farmers/entrepreneurs in capacity building activities are comparatively low.

3.2 Main Findings of KIIs

The KIIs were conducted using Google Survey Form. Out of the 30 invitations, the team received responses from 16 participants. The respondents self-identified themselves as employees of Government departments (3), consultancy organizations (2), Research institutions (2), private company (2), academic body (2), National NGO (4) and a UN organization (1). The sample size is small to draw any firm conclusion. Nevertheless, the survey findings serve as pointers to important issues related to capacity building in the livestock sector. The operative part KII survey (reproduced in *Annexure B*) focused on understanding respondents' perspective on who are the key players in the capacity development field, major gaps in current capacity building efforts in the livestock and dairy sector, identification of opportunities, and suggestion on what more can be done to develop national capacity. The main findings of the KIIs were extracted from the responses are provided below:

- a) **Key players in the capacity development field.** The respondents identified DLS, BLRI, PKSF, and BRAC dairy as the key player for treatment and control of diseases. For training of veterinary and animal husbandry graduates, Universities and colleges have a key role. For training of farmers, NGOs, consulting companies, veterinary drug dealers play valuable role in information dissemination and introducing new types of feed, medicine, and ideas on dairy farm management.
- b) **Major gaps in capacity building in livestock and dairy sector** .11 of the 16 respondents expressed deep concern about the lack of quality of training, duplication of efforts among government departments, and poor connect with farmers. Many departments /institutions /organizations have been working for capacity building of dairy farmers but there is no coordination with DLS. It is observed that some dairy farmers are receiving many trainings courses/technical & financial support from different departments while some are not getting anyone. Therefore, DLS should take initiative to have good planning along with proper coordination and strong linkages among different stakeholders. There is rival relationship among the veterinary and

animal production professionals resulting into weak cooperation. Further, there is no linkage between small producers and the organised sector milk processors and marketing companies. Diagnostic labs are virtually absent, thus hindering surveillance, generation of real time data and informed timely public action. There is also acute shortage of extension personnel at Upazila level.

- c) What are some of the opportunities? What should be done?** The rising per capita income is generating demand for animal protein. Small and marginal producers and dairy companies have a key role to increase production, productivity and ensure value addition. To seize the emerging opportunities, several initiatives are suggested: a) create a common platform of dairy farmers, processors, input suppliers, policy makers, academia, consumers to identify the problems and jointly develop solutions; b) provide incentives and subsidies for farm management tools, adoption of modern farm management, and improving infrastructure for milk collection and processing. c) Involve NGOs for training of farmers, artificial insemination, and natural breeding services. d) Improvement of herd health by proper veterinary services and training of farmers. Routine vaccination against infectious diseases, emphasis on fodder cultivation, appropriate breed selection and development for Bangladesh perspective. e) Tax on imported feed may be reduced.

4. Assessment of Gaps and Potential Opportunities in Capacity Development

During the field visits and discussions with the various training establishments across the country, the consulting team came across with many issues, challenges, pain points which are worthy to mention. This section provides details on the gaps and the potential opportunities in capacity development activities to improve efficiency of livestock sector.

4.1 Gaps in Capacity Development of the Stakeholders

During field visits several gaps were identified which should be addressed to narrow down them. Some of the important gaps are listed below:

- a) Trainings are not meeting the required quality and standard, no proper evaluation in most of the cases, no calendar, shortage of fund, shortage of efficient staff, no practical demonstration (hands-on practice), no follow ups after training.
- b) Under-utilization of structural facilities for training, no system for retaining qualified resources personnel at the training centres
- c) There is a gap in practical training on climate smart livestock production, fodder conservation (silage/hay production, roughage baling) and marketing, better livestock waste management,
- d) Trainings on farm economics, selection of better producing animals and record keeping are absent.
- e) There is gap in hygienic milk handling, milk cooling, cold chain maintenance in milk handling and milk marketing.

- f) Number of female farmers/entrepreneurs are less in the capacity development training.
- g) Agribusiness development, preparing small scale livestock business plans and financial management are absent. These components are not in the curriculum.
- h) Technical capability of AI technicians and VFA have not been reflected in the average conception rate of dairy cattle.
- i) There is a total gap of training to the milk/meat/ sweat meat marketers on business plan and financial management.
- j) Absence/improper distribution of credit facilities and absence of livestock insurance
- k) Weak public private partnership for capacity building in livestock sector
- l) Only training has been given emphasis in capacity development in livestock sector. Other enabling aspects e.g. specific policies/acts, market linkage etc. for capacity development are not available.
- m) DLS's HRD is not fully empowered for sustainable capacity of the stakeholders, and it require more scientific approaches.

4.2 Major Weakness Identified in Livestock Extension

The following is a summary of the major weaknesses that were identified during preparing this report of Bangladesh's livestock extension system:

- a) Limited relationship between the DLS and Dept. of Agricultural Extension, as well with the other NGO service providers within specific project Districts and/or Upazilas.
- b) There is very limited research-extension linkage, since the DLS is a strongly top-down extension system.
- c) Limited resources available in the field (i.e., insufficient transport, communications, office, or project funds) especially for the field extension staff at the Union level which severely limits the motivation and capacity, performance of the extension workers. The field assistants and LSPs have to use their monthly salary/honorariums to cover their travel expenses. Depending on the Upazila, about 10% have two-wheelers, but most of them have to walk or take public buses.
- d) Though mobile and Internet penetration is over 95% among DLS employees, ICT resources have not been tapped to link farmers to needed technical and market information.
- e) Shortage of Upazila and Union level Livestock Extension Workers—there are about 50-60K animal rearing households in an Upazila, yet there are only 2 or 3 livestock extension workers. This situation hampers the capacity development efforts.
- f) Regarding the enabling environment for capacity development in livestock sector there are no effective and visible activities are prevailing in the country. One of the most important areas are the favourable regulatory policies & acts and market linkage that assist the farmers and other stakeholders in application of the skills and knowledge they gather from various capacity building activities. Credit support, value addition and new avenues of entrepreneurship are also important for sustainable capacity development. Unfortunately, these are not either existing or if yes, not effectively functioning. There are some small sections mentioned in the livestock development policies regarding creation of congenial atmosphere for the farmers and other stakeholders for improving livestock productivity but are not in practice.

4.3 Needs in Capacity Development of Stakeholders

There are different approaches of capacity building of farmers. However, it is mainly done through training of the stakeholders. However, besides training, there are also other approaches such as observation/exposure visits of farmers to other innovative farmers or another districts, television programs, field demonstrations of new technologies, meetings, *uthan-baithak*, livestock fair, printed materials, online messages etc. Livestock sector being a multi stakeholder activity (production, processing, and marketing), there is a need of increasing the overall capacity of all the stakeholders involved in increasing the productivity animals, capacity of hygienic processing and marketing of livestock products. We present below the list of the stakeholders who need capacity development interventions:

4.3.1 Farmers and Entrepreneurs

- a) **Livestock Farmers** – Increase the productivity of animals, market linkage, climate smart livestock production, hygienic milk productions/handling, farm management, book- keeping, simple record keeping in the farm, year-round fodder production, low-cost feed formulation.
- b) **Producer Groups (PGs)** – regular supervision and advice, utilization of saving fund in productive purpose, linkage with the Banks for credit support, market linkage, entrepreneurship development, ICT based market information.
- c) **VMCCs/dairy hub** – Hygienic milk collection/handling, cold chain maintenance,
- d) **Dairy and meat entrepreneurs** - Hygienic and safe milk/meat production and handling, cold chain maintenance, packaging of products, biosecurity maintenance, market linkage, enabling environment, credit support, training on business plan development and financial management, ICT based market information.
- e) **Sweet meat producers and traders** - Hygienic sweet meat handling/production, product diversifications, packaging, branding, labelling, cold chain maintenance, business plan development
- f) **Milk marketers** - Hygienic milk handling, cold chain maintenance, market information
- g) **Live animal marketers** – safe transport of live animals, improved communication with the market, weather and market information, management of animal market,
- h) **Unemployed youths** – provide vocational training to the youths who have returned from the foreign employment. These people have got some external exposure as well as they also may have some capital to invest in the livestock sector.

4.3.2 Other Stakeholders

- a) **Extension workers:** They predominantly need refresher courses on technical matters of livestock production and management, enterprise development, agri-business development, simple business plan preparations, PG promotion and management for its sustainable development, livestock insurance, climate smart livestock production technology, ToT etc.
- b) **Government officers:** They need refresher courses in areas based on their areas of expertise and of individual interest. They are keen to learn latest techniques/treatment

methods and technological advancements from the best practices being followed in neighbouring developing and other developed countries.

(The gaps in capacity building and needs of selected stakeholders are detailed in Annexure C).

4.4 Opportunities to Improve Training Infrastructures at Government Institutions

Capacity development activities of the farmers, service providers and technical personnel are in-built program of the Department of Livestock Services (DLS). In recent years, capacity building program of livestock, dairy and meat entrepreneur are also coming up. Government has established good infrastructures for capacity building in the form of training centres and institutions in different parts of the country as has been shown above (in section 2). These training centres and institutions are providing training to the farmers, service providers and technical officers. They have physical facilities, such as, the classrooms, laboratories, hostels for trainees, offices, library, livestock sheds with animals/poultry birds, goats/sheep, fodder farms etc.

4.4.1 Government-run Institutions

Government institutes like VTI, ILST and NILPM have the facility of laboratories, library, and livestock and poultry farm, fodder farm for practical works. All these institutes also have the residential facilities for the trainees. Besides the government run (DLS run) training centres and institutions, there are also other institutions active in capacity development activities in livestock sector on demand. The youth training centres (YTC) are effective instruments in building capacity of youth in livestock sector since late seventies for self-employments, entrepreneurship development and other jobs.

4.4.2 DLS-run Institutions.

Physical condition of DLS institutes is not its good condition. Large infrastructures of DLS were established with the cooperation of different donor partners. These infrastructures need immediate maintenance to continue their service. Some of the resources like land are not in use due to shortage of fund which should be used as soon as possible. On the other hand, there is a large new establishment (NIPM) at Gopalganj which is underutilized due to lack of adequate programs and fund. Based on the above government-built infrastructure facilities the livestock sector possesses good training opportunities for capacity building. In addition, there are also training facilities in NGOs and other private organisations. These facilities serve to a wide range of clients in capacity building. Facilities to conduct training on livestock includes availability of training venue with the necessary logistics and essential equipment. Training facilities in Bangladesh are available in different tiers of administrative units such as District, Upazila and village levels.

- a) At district level, District Livestock Offices are also running the capacity building activities of the farmers and entrepreneurs. Each DLS district office has a District Training Officer to impart and coordinate training to auxiliary staff, farmers and entrepreneurs. YTC

established in every district offers three-month package training on livestock- fisheries and homestead vegetable cultivation with a view creation of self-employment from production of livestock, fisheries and homestead vegetables. They also run the 15 days course on livestock production and animal health.

- b) Upazila Livestock Offices are the frontline organizations for conducting training for grass root level farmers and entrepreneurs. Training facilities in the Upazila level vary as all Upazilas do not have well-equipped training venue to organize training program. LDDP has developed and/or renovated facilities in 240 Upazilas. All other Upazilas do not have their facilities. In some cases, the Upazilas having no facilities on their own, are using the facilities of DLS. For example, many Upazilas are using the meeting hall of DLO as their training facility. In the past, NATP-1 had also supported for renovation of training room in 125 ULO offices. Such renovation included repair of training room, installing furniture, providing training equipment like fixed multimedia set and other necessary items.

At village level, LSPs are the main link between village groups and DLS Upazila office. Every LSP is responsible for the formation of PGs within 2 kms radius of their residence and maintain close links with PG members and non-members. *Uthan-baithak* is extensively used approach for capacity building of the livestock farmers at village level. *Uthan-baithak* is organized under open air or in the house of one of the PG office bearers where issues and solutions about livestock production and animal health are discussed.

4.5 Training Opportunities from Other Institutions

- Private sector entrepreneurs also contribute to capacity development in livestock sector. The nine companies namely New Zealand Dairy (Diploma), Meghna Group (Fresh), Arla Food (Dano), Partex Group (Danish), Nestle Bangladesh (Nido), Pran Dairy BRAC Dairy (Aarong) Abul Khair Group (Marks), and Milk Vita have their own training facilities. For example, Pran has several farmer training centres in the country.
- Bangladesh has over 26000 NGOs registered by the NGO Affairs Bureau of Bangladesh. Many of these NGOs microfinance livestock and dairy activities of farmers. Some provide livestock training to farmers, particularly women. Mention may be made of Jagorani Chakra Foundation, BRAC, Caritas Bangladesh, ACDI/VOCA, GUK, Swiss Connect, CARE Bangladesh, and CARITAS Bangladesh and so on. BRAC (Box 3), is providing training to young generations in Artificial Insemination (AI) for self-employment and jobs in livestock sector³. They also supporting the livestock farming community through various services at the field level to improve efficiency in the sector.
- **Box 3. BRAC – a model for the developing world**

Civil society is forefront of innovation in poverty eradication programs in Bangladesh. BRAC trains all its national and international staff in Bangladesh. In addition, BRAC Learning Centre

³ BRAC has an excellent AI program. A recent study by Rahman (2019) in Sylhet compared the performance of AI between DLS and BRAC. In this review 2700 cows were randomly selected for AI. Each cow received 0.25ml frozen semen from DLS and BRAC. Pregnancy was determined at or more than 35 days after AI. The result showed that the conception percentage for BRAC (80.00%) was higher than the DLS (60.00%) and the calving percentage for BRAC (75.00%) was higher than the DLS (55.00%).

provides end-to-end Training solutions for all organizational facilitation needs. It has 18 centres across Bangladesh, fully equipped to deliver effective training programs and workshops. Private companies, national and international NGOs and institutions from overseas use BRAC learning facilities to develop their manpower.

BLRI, BAU and other universities are working on generation of new technologies suitable to Bangladesh climate and farming system. These new technologies will help to develop the capacity of farmers and livestock industry.

5. Intervention with New Training, Business and Other Opportunities

Focused and timely interventions through training and capacity development (CD) of livestock farmers considered to be one of the critical enablers for achievement of development outcomes and impacts. The CD strategy aims to respond and contribute to the achievement of the LDDP's theory of change by focusing on enabling capacity development actions through evidence-based intervention matrix. To bring about change, a country-wide strategic capacity development interventions are critical to enable individuals, producer groups and institutions to develop knowledge and skills to plan and implement the livestock development processes in the country. This will result in the enhanced ability of the district/upazila/union level line departments and development partners to make progress to achieve the goals set by LDDP. At flagship level, analysis need to be done to identify the key areas where capacity development will be needed most. This exercise needs some of the strategic actions by the field level training organizations/ agencies by adopting a scientific intervention matrix after analysing the existing strategies and practices in the field and unlock the huge potential.

5.1 Missing Pieces and Gaps in Capacity Development Interventions

While there is a general dearth of capacity in livestock development process in Bangladesh, there are specific challenges with respect to the lack of technical capacity related to animal genetic resources, value chain analysis and development of entrepreneurship and institutional leadership at community, producer, and market organization levels. A major thrust of LDDP is to facilitate the development of human/systemic capacity in the institutions that drive the livestock agenda in the country. As per the field level survey conducted by the consulting team, few of the potential areas seems to be missing out of the existing capacity development intervention system in the country which are as follows:

- a) *Capacity Need Assessment (CNA)*: The CNA are conducted to diagnose capacity assets and needs by core capacity areas which are critical for the Livestock development. It also identifies capacity needs in knowledge, partnership, implementation, and policy capacities addressing capacity issues at the individual (farmer level), organization (producer group) and system level (line department, NGO, private sector). Based on CNA results and recommendations, which are also aligned with the country level CD framework and the Livestock development theory of change, the CD strategy focuses on interventions as prioritized by the DLS for implementation.
- b) *Value chain approach*: Various studies in Bangladesh and across other countries in the region identified that the value chain approach as the most efficient way to improve

capacity of livestock farming activities. The training and CD system need to target all actors in livestock value chain either for sensitization or participate in full-fledged CD activities.

- c) *Business development services*: The business development service (BDS) providers in livestock business acts as an important link to facilitate market-oriented livestock development and play an important role in strengthening livestock value chains. In transitioning countries like Bangladesh, the BDS providers are mainly small and medium enterprises who were not considered worthy to train on various aspects, in the contrary to the developed countries, they are being updated on the demand side requirement on efficient technologies to support the value chain development.
- d) *Business planning and financial management*: Majority of the livestock farmers undertake this business as a way of life not as entrepreneurs which leads to the subsistence farming. Current training system do not provide much detail on developing business plans for livestock enterprises and the micro level entrepreneurs have to depend on professional business plan developer which is difficult to afford. The producer groups need little beyond basic financial management and book-keeping to graduate from their current business.
- e) *Evaluation of capacity development*: For effective implementation of capacity building activities in livestock sector, regular evaluation needs to be carried out at all levels of beneficiaries. Interaction with the stakeholders during the field missions, it was revealed that the evaluation process is conspicuously absent which is an important tool to understand issues, gaps and actions need to be taken to make the CD system more objective-oriented and practical.
- f) *Digital technology*: Digital technology has emerged as the most effective tool to impart capacity development to reach out to last mile beneficiaries. Under the LDDP project, ICT is being used as an important tool⁴. However, the Application (APP) based training and capacity development initiative by DLS is absent. There are many digital platforms recently emerged and keeping in view the near cent percent mobile penetration in Bangladesh, this could be an effective approach in delivering CD activities and information dissemination. This would also help the livestock farming communities to access the online sourcing and marketing. In Nepal, approximately 4,500 livestock farmers are receiving e-learning modules through digital services (Box 4).

Box 4. IT based capacity development tool for livestock farmers in Nepal

A Dutch and a Nepalese company have entered a partnership in their joint goal to transfer knowledge on livestock farming to Nepalese farmers by means of e-learning modules. The project was implemented by combining the expertise of Dutch company in developing digital learning content for the agricultural sector and the extensive experience of Nepalese counterpart with IT and educational programmes in Nepal. They are offering Nepalese smallholder livestock farmers an innovative and simple solution to improve their farming practices and increase their income from farming. The farmers received tablets with learning modules for cow, buffalo, and goat farming, containing topics such as feed preparation and feeding practice, animal shelter and hygiene, disease detection and treatment, animal breeding and market information.

⁴ Training modules for DLS professionals, LSPs, production & health management and AMR are available online (https://lddp.portal.gov.bd/sites/default/files/files/lddp.portal.gov.bd/download/afffb410_0aa7_4608_845a_0673722f12fb/2021-01-09-11-50-2cee4f8aa3759024a8dbd2dd3ac979dd.pdf)

- g) *Coaching and mentoring*: coaching and mentoring in combination with training and knowledge management activities to transfer knowledge and skills to livestock value chain actors and service providers. Coaching is about asking a lot of open-ended questions and providing encouragement and mentoring is about sharing one's experiences.
- h) *Market linkage and market development*: Field studies have clearly indicated that market of livestock products is unorganized, inefficient, and fluctuating. The producers are getting low price for their products whereas feed price is high. Market linkage is weak which needs to strengthen.
- i) *Enabling environment*: Enabling environment (e.g., regulatory policies, infrastructures for communication, storage etc., credit facilities and so on) plays a significant role in capacity development in livestock sector which need to be addressed as per the demand. Focusing only on the training and other knowledge and skill development activities in livestock sector will not work if other influencing actors/factors are not in line with the overarching objectives and ready to support implementing knowledge and skills development activities.

5.2 Capacity Development Intervention Strategies

Intervention strategies in capacity development is the central theme for success and sustainability of any development project. The five major intervention strategies prioritized to build capacity of livestock farmers (individual and producers' groups) were related to:

- a) *training inputs*: related to livestock development (production, breed selection, health management), business planning, feed formulation (including TMR, fodder and silage production), disaster management & climate resilience etc.
- b) *infrastructure*: this includes training facilities (both public and private sector), course curriculum (demand-based), ICT application, adequate number of trainers, quality/appropriateness of trainers, demonstrations for practical trainings etc.
- c) *value addition*: entrepreneurship development in value added products in livestock sector such as dairy and meat value added products, production of silage, bio-gas, and bio-fertilizer etc. be encouraged and all necessary services be provided. Linkage should be built between livestock growers and the government programmes, training of trainers to update on technological innovations should be improvised and so on.
- d) *market access*: *interventions operationalized in both the input (feed and health care) and output markets, interventions that provided or enhanced markets to farmers, or interventions that sought to make markets more efficient, to open up markets for consumers, or to protect domestic production.*
- e) *extension services*: *interventions targeting improved service delivery as per the demand (pull approach⁵) and access to finance.*

⁵ "Pull approach" is defined as the approach for formulating interventions (capacity development, financial requirements etc.) based on the demand of the clients.

5.3 Theory of Change in Capacity Development

A Theory of Change (ToC) based approach required to promote capacity development activities and intervention for the LDDP project. This approach will be in line with the overall LDDP Theory of Change in multiple ways, i.e., for planning, monitoring, reflection and checking the intervention logic, adaptive management, and evaluation. The detailed approach is provided in Figure 5 below:

Assumptions

- Relevant issues for CD intervention have been identified,
- DLOs/UOs have the required capacity to provide trainings to the line department actors.
- The livestock farmers, PGs, and other enterprises (business development services and value chain actors) appreciate need for coordination of inputs/services.
- The DLS at district and Upazila level are open to dialogue for improvements in capacity development.
- Livestock producers are interested to take up the combined and packaged technologies; Trust exists among value chain actors.
- DLS use new digital technologies and innovative methods to provide CD activities, not in conflict with other training priorities.
- Respect the existing cultural norms in the target communities to encourage equitable access to CD activities.
- Capacity development modules go beyond farmer field school technique and adopt more business and commercial approach to address the need of the actors.
- The district level offices (DLOs) do have sufficient resources in terms of human and budget to support the new/improved CD activities.

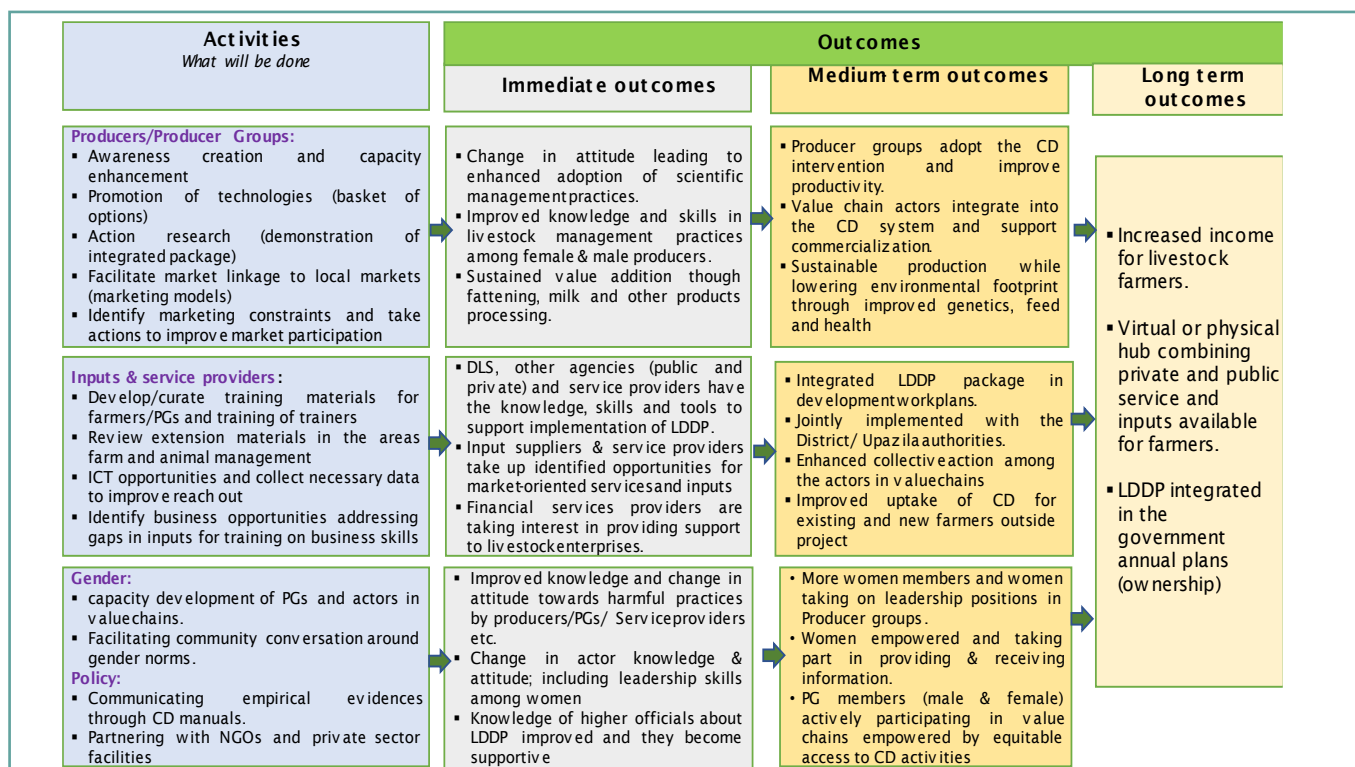


Figure 5. Proposed theory of change in capacity development activities

5.4 Logical Intervention Matrix

The logical intervention matrix for capacity development in Bangladesh livestock sector targeted towards improvement in training aspects after thorough understanding of the issues and constraints, potential and new training and business opportunities, legitimate activities, responsible partnership development. Table 5 below provides a standard logical intervention matrix and indicators to measure capacity development in livestock sector.

Table 5. Intervention matrix and indicators

Strategic capacity development actions			Indicators to track progress and contribution to Capacity Development
Chosen elements	Intensity	Implementation	
1. Capacity needs assessment and intervention strategy design	High	All livestock development projects invest in detailed capacity needs assessments and intervention strategy design at the start of the project implementation.	- Needs assessment methodologies available in published form. - All livestock development project using capacity needs assessment methodologies. - Proportionate CD budget allocated to capacity needs assessment recommendations (disaggregated by districts/upazila).

Strategic capacity development actions			Indicators to track progress and contribution to Capacity Development
Chosen elements	Intensity	Implementation	
2. Design and delivery of innovative learning materials and approaches	High	Numerous projects across all development projects will produce training materials using instructional design expertise and harnessing cutting-edge learning technologies.	● Number of agencies/partner organizations using materials and approaches. ● Number of training or learning events where the materials and approaches are used. ● Number of people trained (disaggregated by sex, location, literacy etc.). ● Cost-effectiveness of materials and approaches. ● Proportion of training events / workshops where knowledge and skills of participants increase significantly.
3. Develop partnering capacities of the training centres	Medium	Livestock development projects will invest in systematic efforts to identify and broker partnerships and to apply the resulting models as part of scaling up. This could include alignment with business management in commercial livestock farming and partnering with the private sector.	● Number of assessments of suitability, capacity, and complementarity of potential partner organizations conducted. ● Number of CD outputs resulting from partnerships that are successfully scaled up. ● Number of technologies / tools adopted across partner organizations.
4. Develop future training leaders through training of trainers (ToT)	High	This area also builds on the many existing partnerships with training institutions run by the Government/NGOs/ private sector.	● Budget allocation for ToT programme. ● Number of new trainers received ToT on emerging areas in livestock sector (disaggregated by topics, gender etc.). ● Number of ToT protocol developed.
5. Apply gender-sensitive approaches throughout capacity development activities	Medium	Need to ensure gender dimension is incorporated into capacity development activities throughout the Project period.	● Proportion of capacity needs assessments that proactively target women. ● Number of capacity development activities in gender approaches/toolkits initiated (disaggregated by type).
6. Institutional strengthening	Medium	Project focus to develop the capacity of decision-makers to use training outputs and to inform policy design and reforms.	● Number of institutional assessments conducted. ● Number of strategic plans for institutional strengthening formulated based on such assessments. ● No. of strategic plan recommendations implemented (disaggregated by agency). ● No. of assets available in training institutes
7. Capacity to innovate	High	The intervention projects will continuously identify and prioritize problems and	● Number of groups and multi-stakeholder (innovation) platforms facilitated by the DLS (disaggregated by gender, socio-

Strategic capacity development actions			Indicators to track progress and contribution to Capacity Development
Chosen elements	Intensity	Implementation	
		opportunities, mostly through engagement with multi-stakeholder platforms.	economic status, organizational affiliation). • Composite index measuring rate and quality of group, platform or household experimentation with new ideas and technologies, including degree and source of innovation, quality of selection process and who is involved in making it.

5.5 Outcome of Logical Capacity Development Intervention Matrix

- a) **Facilitating economies of scale and link to higher value markets:** Capacity development of individual farmers and producer groups can help both livestock farmers and input/service suppliers adjust to a more commercial and competitive business environments and access more demanding markets.
- b) **Improving smallholder access to inputs, advisory services and finance:** Training and information interventions will seek to enhance the capacities of livestock producers as well as the input and advisory services providers and professionals involved in the value chain. The focus will be on identifying promising models and facilitating platforms to co-create arrangements or partnerships to pursue business opportunities.
- c) **Attracting youths and new entrants to livestock farming as a business:** specialized training and retraining programmes in livestock and business/entrepreneurship under this theme. Various communications approaches will be used to create interest among today's youth in livestock value chain careers.
- d) **Attracting more females in capacity building activities:** Focus will be given on the participation of more females in capacity building training/similar activities. Females are the main player in livestock rearing and management and can play important role in technological adoption. So capacity development response from them would be more visible and effective.

5.6 Considerations for Capacity Development Intervention

The following important intervention areas need immediate attention to achieve capacity development targets under LDDP project:

- a) **Innovative partnerships, entrepreneurship, and business skills development:** Market intermediaries can play an important role in stimulating entrepreneurship among poor livestock farmers. From the trader to the more complex relationships in contract farming, there are opportunities along the livestock value chain to engage start-up livestock farmers (e.g. youth and recent entrants to farming) and to equip career livestock keepers to respond better to changing production and market circumstances.
- b) **Building on existing institutions:** Women's and youth's organizations are very active in Bangladesh and there are also many NGOs working on livestock development issues and small businesses are emerging that provide a range of

services along the livestock commodity value chain. These institutions provide entry points for intervention, with initial attention being given to determining which show the most promise and how they can help to demonstrate how the adoption of good practices can make a difference.

- c) **Public-Private Partnership as the driver:** For sustainable growth of the livestock industry, Bangladesh is facing the challenges on building capacity of the enterprises and value chain actors. The private sector is playing a vital role in the production and marketing of livestock products. However, interface between public and private sector is conspicuously missing. Public sector may encourage private investment in capacity development of livestock sector for sustainable development of the sector. The above situation justifies the need of PPP in livestock sector for adequate capacity improvement and support the demand side. Thus, existing scope and facilities need to be explored by the Government to make a practicable and fruitful collaboration with the private sectors of various natures to boost capacity of poor farmers to take up livestock as a business.
- d) **Inclusion of climate responsive training curricula:** Keeping in view the ongoing hazards of the climate change, the potential areas of training and capacity building of the livestock sector need thorough assessments. The areas identified by the consulting team which need focused attention to support capacity development endeavour are: (i) Development of manure enterprises at the community level through documentation and guidance notes for entrepreneurs, (ii) Technology adaptation of bottling of compressed biogas documenting the available technologies and best practices, (iii) Renewable energy (RE) and energy efficiency (EE) knowledge development and policy areas, and (iv) Waste management curriculum development for different levels of users (school, college and research) to promote awareness and develop skill sets.

All capacity development interventions in the thematic areas will be underpinned by a focus on improving system functionality of individual training institutions as well as of livestock value chains. The leadership and management of training institutions involved in capacity development of livestock sector need to be more proactive and focused on upgrading the training curriculum as per the requirement of the enterprises and to be agents of transformation.

6. Strengthening Institutional Training Facilities and Human Resources

In this section of the report, it is intended to shed light on various tools used by the DLS for capacity development of farmers and extension personnel in the livestock sector. The system is passing through number of bottlenecks that was evident from the field studies conducted during the last few months. There are several ways to strengthen training facilities and human resources in the dairy and livestock sector in Bangladesh. Developing human resources in Bangladesh requires a multi-faceted approach that address the challenges of education, skills development, and job creation. Below are some important steps that can be considered:

- a) **Development of a national training strategy for dairy and livestock sector:** A comprehensive national training strategy can help to ensure that training programs are tailored to the needs of farmers in terms of enhancing livestock productivity and

increasing profits, needs of the labor market and allocating resources effectively. The selection of resource persons should be based on quality. Evaluation of the knowledge and skills of the trainee should be strengthened.

b) Alignment of training strategy with National Skill Development Policy, 2011: The NSDP, 2011 has been revised in 2020, and currently, its draft form is under circulation, which is aimed to develop and establish a sustainable skills development ecosystem in Bangladesh. As envisaged in the National Skills Development Act 2018, the National Skills Development Council (NSDC) is the main body responsible for the development of skills in the country. The training strategies should be aligned with the NSDP.

c) Establishment of a skills development council for livestock and dairy sector. There is no skills development council specific for the livestock and dairy sector. Hence, the skills need of the sector is not sufficiently articulated. The key objectives of a skills councils in the livestock and dairy sector may include: i) identifying the skills and competencies required for different roles in the livestock sector, including farm management, animal husbandry, nutrition, and animal health. ii) Developing and implementing training programs to meet these skill requirements, including vocational education and training, digital learning, apprenticeships, and in-service training. iii) Ensuring that training programs are relevant, high-quality, and accessible to all individuals in the livestock sector, including farmers, farm workers, consumers, and industry professionals, particularly those interested in upskilling and reskilling to progress in their careers. iv) Synchronizing the processes of formal testing, and accreditation of industry-relevant qualifications. v) Working with industry bodies and experts to identify emerging trends and technologies in the livestock sector and to develop training programs to meet the changing needs of the industry.

Overall, a skills council in the livestock sector plays an important role in ensuring that the workforce in the livestock industry has the skills and knowledge needed to meet the demands of a rapidly changing industry. The council may be made up of representatives from various organizations in the livestock sector, including farmers, entrepreneurs, industry associations, training providers, and government agencies. The council may also work closely with academic institutions to ensure that their training programs are aligned with industry needs. The source of funding the council is member contributions, advisory services and grants-in-aid from various national and international agencies.

d) More investment in education and training: In 2021, public spending on education as a share of GDP for Bangladesh was 2.1 %. Comparatively, in 2020, education spending by Malaysia and China stood at 16.3%, and 10.53% of GDP. Likewise, Australia, UK and USA spent 14.43%, 10.56% and 6.4% of their GDP on education. Bangladesh's pursuit of attaining developed country status by 2041 calls for increased spending on human resource development. Education and training are the foundation for developing human resources. Government, non-governmental organizations (NGOs), and private organizations can establish training programs that teach livestock farming techniques, animal nutrition and feeding, veterinary care, and animal

management. These programs can be targeted to farmers, livestock workers/service providers, and young people who want to enter the industry. Vocational schools, technical colleges, and universities can also offer diploma/degree in animal science and related fields. The Government can provide incentives such as scholarships, grant-in-aid, matching grants, and low-interest loans to students and teachers who wish to pursue technical education in animal science. There is a need to increase funding for science labs, improving teacher training programs and expanding access to vocational training for women, minorities, and people with disabilities.

e) Increased allocation for skills development at corporate level and projects:

Though it is recognized that proper and quality training has a positive effect on employee retention and customer satisfaction, sales and overall profitability, the training budget of livestock organizations remain minimal. While it is not uncommon to find training budget of large dairy organizations abroad vary between 2-2.5% of salary budget, the training budget in Bangladesh rarely exceeds 0.5% of salary disbursed. Many District Livestock Offices have budget of BDT 30k from revenue head for training. They are dependent on project funds for undertaking major training activities. The over dependence on the project fund -which by definition are temporary in nature – undermines sustainable planning for manpower development. Therefore, funding from revenue should be increased for in-service training of livestock extension persons/LSPs/LFAs. In this regard the already established NILPM and 4 ILSTs must be strengthened. Two VTIs should be reorganized/renovated to increase their facilities to become well-equipped for providing quality training.

f) Strengthening and empowering HRD of DLS: A section has been formed recently in the DLS under the leadership of Deputy Director, HRD to look after the human resource development aspects of livestock sector. It's a good initiative taken by DLS. However, the section is at present dealing with recruitment and selection of personnel for training purposes of different projects as well as revenue of DLS both in-country and abroad. The section has no power of supervision, monitoring or evaluation of training. The HRD should be strengthened by empowering with the responsibilities of management, monitoring the training programs and performance appraisal. This will improve the quality of training and consequently capacity development in livestock sector.

g) Upgrading training facilities at Upazila level: The administrative structure in Bangladesh consists of Divisions (8), Districts (64), Upazilas (495) and Union parishads (UPs) (4562). The Upazilas are the second lowest tier of regional administration in the country. The District and Upazila offices are closest to the farmers for delivery of training and services. If training facilities are decentralized at Upazila level, the coverage of farmers are expected to increase. The bulk of semi-formal and informal training to farmers are provided by ULOs, LEO, and VOs. Together, they constitute a force of little over 700 persons across the country. These officers have studied for university degrees and were selected through a competitive process. However, they so far have not received specialized training on adult training methodology. The challenge is to design a training methodology that addresses the

heterogeneity of the adult learner groups, and draws on the broad and diverse range of life experience, knowledge plurality and shaped perceptions in which farmers invest emotionally. The Upazila officers as teacher and facilitators may use a variety of teaching methods such as structured formal learning, experimental learning, self-directed learning using technology and software skills, and action learning where in learners take action on a problem and reflect upon the results. Each District Training Officer of DLS may maintain Upazila-wise roster of mentors, coaches, training facilitators, model farmers and subject matter experts. There should be a separate budget to support hiring of such resource persons/experts as and on when needed basis.

The recipient of matching grant under LDDP can be trained for better utilization of fund at ILST or NILPM. Special need-based training module and curricula and manual should be prepared for the training. Qualified resource persons should be selected for their training and performance appraisal should be there. Similar approaches should be followed to meet the anticipated training needs for capacity building of the manpower to be recruited for Dairy development Board, Dairy Research Institute and Poultry Research Institute under consideration by the Government for establishment in near future.

Developing human resources in Bangladesh requires a coordinated approach from the government, private sector, NGOs, research institutions, and training providers. By investing in education, skills development, and nurturing entrepreneurship, Bangladesh can create a skilled and productive workforce that can drive economic growth and development.

7. Measuring and Evaluation of Capacity Development

Capacity Development is a slow process and considered to be one of the most complex social engineering processes. Success of capacity development cannot be measured with the enhanced resources (human, financial, or physical) as these do not guarantee their contribution to development objectives with special reference to capacity. Progress and results are reflected by changes in performance, which can be measured in terms of improved efficiency and effectiveness.

7.1 Clear Vision of Objectives

One of the pertinent challenges in the field of capacity development is measuring change and results in concrete terms. Viewing capacity development in a 'system' or 'institution' context helps to understand complex interventions involved in transforming incentive systems, leadership, knowledge, accountability systems, value systems, and other levers of change. Formal and informal entities perform functions and produce products and services that make development possible. All institutions in the public sector, civil society and private sector have a purpose. They use inputs such as human, financial and physical resources to convert inputs to outputs such as policies, public service delivery, enforcement of regulations, or knowledge products in order to achieve outcomes such as improvements in public health or increase employment. Hence, capacity development can be measured by changes in the performance (efficiency and effectiveness), stability (risk mitigation and institutionalization) and adaptability

(investment for growth and change and contentious improvement) of a given institution (see the framework below). The objectives of capacity development programs should be based on a clear vision of success, rather than vague language such as “improve, enhance, strengthen, or increase capacity”. Likewise, the measurement of success should be based on clear evidence of actual changes relevant to the development agenda rather than anecdotes or measures of the completion of training activities, procuring tools or augmenting staff.

7.2 Monitoring Results

The measuring and evaluation need effective monitoring. The monitoring of inputs, outputs, and outcomes is based on the results framework and monitoring arrangements that are described in detail in the LDDP Project Design Document (PDD) and Annual Progress Report of LDDP, 2022. The project’s M & E function is ICT driven and track progress in activities, outputs, and intermediate outcomes using Project Development Objectives (PDO), and Intermediary Results (IR) indicators from the results framework. The PDD has not outlined in impact level indicators. The purpose of training is improving individual and group performances and in turn improve the overall performance of the organization. The measurement of effectiveness of training is closely related to the original learning goals set by the organization. Many of the of the benefits of training are not measurable. Factors like job satisfaction, the enjoyment of learning new skills, the camaraderie fostered and creation of an ecosystem of mutual help may seem intangible—and can be very powerful.

Tables 6,7, 8 & 9 below presents indicators reorganized from the project results framework into inputs, outputs, and outcomes. A new set of indicators is added under outcome and impact section.

Table 6. Input indicators

Sl.	Indicators	Frequency	Methodology and Data source	Responsibility for data collection
1	PDO Indicator 1: No. of trained farmers adopting improved agricultural technology (Direct beneficiaries) (CRI)	Yearly	MIS and Progress report; compilation	PMU/PIU
	PDO Indicator 1.a: No. trained farmers adopting improved agricultural technology (Female) (CRI)	do	Do	Do

The major outputs (Table 7) of the project are training of personnel, capacity building activities and establishment of new infrastructure facilities. The sum total effect of training and capacity building activities is expected to result in higher animal productivity.

Table 7. Output indicators

Sl.	Indicators	Frequency	Methodology and Data source	Responsibility for data collection
1	PDO Indicator 2: Increased productivity of targeted species by direct beneficiaries	Yearly	MIS and Progress report; compilation	PMU/PIU
	Dairy cattle	do	Do	Do
	Beef fattening	do	Do	Do
	Small ruminant fattening	do	Do	Do
	Sonali poultry	do	Do	Do
2	IR-7 Producer organization facilitated and operational	do	Do	Do
3	IR 7.a Producer organization facilitated and operational -led by females	do	Do	Do
4	IR-8 No. of farmers have received business development skills training	do	Do	Do
5	IR-11 PPs/sub-projects established and financed and operational	do	Do	Do

The outcome indicators specified in the PDD concern farmers and implements (LESOs, LFAs, and LSPs). Feedback from targeted livestock producers is a powerful way of finding out how well the project services are received by the customers.

A new indicator (Table 8) is suggested to appreciate whether there is any statistically significant difference in competence between those trained by LDDP in CSA and those not trained. Increasingly value for money (VfM) studies are conducted to justify investments in human capital and demonstrate how to maximize results at cost. VfM studies capture increase in the levels of competence for measuring the benefits of invested resources; in and across Government ministries, departments, private sector, NGOs, CSOs and other development partners. Some of the VfM tools in vogue are Cost-benefit Analysis; Return on Investment Analysis (ROI); Cost-efficiency Analysis; Social Return on Investment (SROI); Rank Correlation of Cost vs Impact and Basic Efficiency Resource Analysis; and the Counterfactual – Estimation of Cost of Inaction.

Table 8. Outcome indicators

Sl.	Indicators	Frequency	Methodology and Data source	Responsibility for data collection
1	IR 9: Farmers have access to livestock CSA technologies and practices	Annual report, mid-term; and Terminal stage of project	MIS and Progress report; compilation	PMU/PIU

Sl.	Indicators	Frequency	Methodology and Data source	Responsibility for data collection
2	IR 9.a: Farmers have access to livestock CSA technologies and practices	do	do	Do
3	IR Indicator 22: Targeted livestock producers satisfied with the livestock services received from the project	do	do	Do
4	IR Indicator 22 a: Targeted livestock producers satisfied with the livestock services received from the project – females	do	do	Do
4	IR Indicator 23: Proportion of overall project staff and implementers (LEOs, LFAs, and LSPs) trained adopting skills on gender household approach	do	do	Do
5	VfM studies on difference in competence between farmers trained in CSA technologies ('treatment group') and those not receiving any training in CSA technologies ('control group').	Mid-term	Specially commissioned VfM studies	Do

Robust performance measurement tools are needed to track the effects of capacity building, especially in the long run. Capacity development is a slow process. Some effects are visible only several years of project implementation. It is important to have tools that will enable the tracking of results along the processes, so as to demonstrate concrete results and trace evidence. In its approach to capacity development, LDDP may adopt a three-circle model of reviewing three major dimensions. These are:

- 'Ability to be': strengthening and measuring DLSs' institutional capacity.
- 'Ability to compete': strengthening and measuring global competitiveness of dairy and livestock sector against countries benchmarked
- 'Ability to commercialize': measuring the contribution of organized dairy and meat sub-sector in overall milk and meat production in Bangladesh.

A set of impact indicators (Table 9) is suggested to appreciate how far LDDP has contributed to strengthen DLS as an institution.

Table 9. Impact indicators

Sl.	Indicators	Frequency	Methodology and Data source	Responsibility for data collection
1	Strengthening and measuring DLSSs' institutional capacity	Every 3 years	Customer satisfaction surveys	PMU/PIU
2	Strengthening and measuring global competitiveness of Bangladesh dairy and livestock sector	-do-	Cost of production data from FAOSTAT	PMU
3	Measuring the contribution of organized dairy and meat sub-sector in overall milk and meat production in Bangladesh.	-do-	BBS/DLS annual data	PMU

8. Recommendations and Way Forward

This section is the reflection of important observations in the field, discussions with the key informants and systemically important institutions offering capacity building inputs for the livestock farmers in Bangladesh.

8.1 Human Resource Development (HRD)

Human resources development comes in different forms including induction training, job immersion/shadowing, textbook or online education, performance tracking, coaching and mentoring. In LDDP, the focus is on induction training for LSPs, targeted knowledge transfer to DLS officials, veterinarians and sub technical staff. LDDP may consider introducing job shadowing, online education, performance tracking, coaching and mentoring of its personnel.

- Wherever possible, training courses should be standardised, and at the end of course, formal examinations are conducted. Those who qualify in the exam are issued certificate of achievement.
- Currently 9 different types of training modules offered by LDDP. The courses offered to farmers are not structured and extremely short. The duration of the courses should reflect what the trainees need.
- Feedback from trainees indicate that many of them are applying certain concepts imparted during these training sessions. It is important to quantify training results against hard data like higher levels of customer (farmer) satisfaction, reduced morbidity among animals, and cost savings due to availability of last mile services.
- Using Gems Kobo online survey tool, it is suggested that LDDP conducts a phone survey of large number of trainees to get feedback on how the participants are using their learnings, mode of delivery by trainers, and areas for improvement.

8.2 Organizational Development

- **Locate training partners in under-represented administrative divisions.** LDDP has entered into MOUs with 15 organizations for conducting residential training for field staff, officials, and LSPs. All the organizations and with whom MOUs have been entered are government organizations. Of the 15 organizations, 5 in Dhaka division, 3 each in Mymensingh and Rajshahi division, and one each in Rangpur, Khulna, Chattogram, and Sylhet. No training institution from Barisal is represented.
- **Collaborate with non-government training institutions.** LDDP may reach out to universities, research institutions, NGOs and private companies to avail their services for training both government functionaries as well as staff from private companies, NGOs and individual entrepreneurs.
- **A joint consultation process should take place** to decide what changes are needed internally and what possibilities are there for institutional change. A possible next step can be networking with other stakeholders in the field and/or signing agreements with relevant ministries, companies, large NGOs and upazila administrations.

8.3 Institutional Development

Institutions are characterized by a level of persistence and continuity; hence, creation of institutions are considered important for sustainability of projects well beyond their financial closure.

- **Formalize draft policies:** An area for immediate attention is to re-examine the policies and acts relevant to the livestock and dairy sector that are in draft stage. Closure on these important administrative instruments will bring greater clarity and certainty for those considering investment in modernizing the sub-sector. Mention may be made of draft National Livestock Extension Policy, 2013; National Dairy Development Policy, 2019; National Breeding Act, 2019; Bangladesh Development Board Act, 2022.
- **Assess the quality of producer groups:** LDDP has pioneered the aggregation of 175,254 farm households into 5294 producer groups of different categories who have been trained and having funds in bank account. Bangladesh has a checkered history of promoting self-help groups of various kinds, however, most of them wither away after the end of the project. It is suggested that organizational maturity and financial strength of all PGs formed so far, and corrective actions taken wherever required.
- **Issues for consideration for sustainability and exit Strategy.** As LDDP current phase comes to an end, it is pertinent to consider how the benefits will sustain over time. A project is sustainable when its benefits are maintained and scaled up well beyond the end of the intervention. The main elements to consider for sustainable capacity development are:

Broad basing involvement of national and local actors: DLS ownership of LDDP is very strong which could be broaden gaining support from a variety of government partners, research institutes, civil society organizations, and the private sector to increase national ownership. This will help to maintain and upscale the results after the project's end.

Policy supports and commitment: In addition to the high level of commitment and very positive policy support by the Minister, MoFL more supporting high profile

personnel from political arena, sports, media and entertainment who have the power and authority to accelerate policy changes and garner public support are needed.

Absorption of new knowledge in institutions: Measures are needed to ensure that new knowledge, skills and procedures are integrated into the existing structures controlled by DLS and those that of other ministries.

Retaining trained manpower: LDDP has created a cadre of field implementers (LEO/LFA/LSPs) who have been demanding absorption in the government as regular employees. Scope should be created to absorb trained and knowledgeable quality implementers. Implementation of the knowledge & skill after the training should be monitored, evaluate and planned for sustainability.

Financial viability: What components of LDDP will require ongoing support? What financial provisions are in place to ensure that the project outcomes are financially viable beyond its life? Is there any scope for the national exchequer to finance the entire cost of sustaining some or all features of LDDP post 2024?

After-project vision: Does the project have an 'after-project vision'? Are our partners closely involved in formulating this vision/strategy? Who will take over which responsibilities at the end of the project and how?

8.4 Create Positive Enabling Environment

- **DLS redefines its role and responsibility:** In view of budgetary and manpower constraints, DLS must judiciously define its priorities. DLS should focus on its core strength – providing public goods and services. It may consider withdrawing from routine treatment, and concentrate efforts on public health, control of zoonotic diseases within the country and across the international borders.
- **Strengthen policy and regulatory frameworks:** The government could review and update policies and regulations related to the livestock sector to ensure they are supportive of sustainable and inclusive development. This could involve addressing issues such as land tenure, animal health, food safety, and environmental sustainability.
- **Promote research and development:** The government could invest in research and development to improve livestock breeds, animal nutrition, disease control, and other aspects of livestock production. This could be done in partnership with universities and research institutions.
- **Build infrastructure:** The government could invest in infrastructure to support livestock production, such as road network, vaccine production and distribution, diagnostic laboratories, veterinary hospitals, and quarantines. This could help to improve the quality and safety of livestock products and reduce post-harvest losses.
- **Promote linkages with financial institutions:** Producer groups wish to leverage their savings to access financial services and improve business of their collectives. Here are some steps that can be taken to promote bank linkages of producer groups:

Develop financial literacy: It is important to provide financial literacy to these groups as part of their general orientation, and appreciate different financial products and services available, how to use them, and how to record transactions.

Identify suitable banks: Not all banks are interested to work with PGs. LDDP at the HQ level may identify a dozen banks that have willingness and experience working with producer groups, offer suitable financial products, and have a good track record.

Offer incentives to banks to lend: Incentives in the form of first loss guarantee deposits on behalf of producer groups can help to promote bank linkages. Banks in turn can offer reduced interest rates or other benefits to producer groups that use their financial products and services.

Monitor and evaluate: All PGs may be evaluated and graded on the basis of maturity criteria, the groups are graded into A, B, C and D categories. The maturity criteria are:

- Regularity in meeting - good attendance (> 80%);
- Good recovery (> 90%), if intra-group lending is permitted.
- Up to date maintenance of records and accounts;
- Fine for late comers, habitual absentees, or those who delay in payment of dues; and
- Involvement in development of fodder cultivation, value addition and rural development activities.

A group graded as “A” should be proposed for bank linkage. The B, C and D grade groups need further assistance to become “A” grade group. By taking these steps, it is possible to promote bank linkages for producer groups in the country, which can aid businesses and livelihoods.

The above indicative recommendations may support the LDDP to enhance the capacity of livestock sector and contribute to the country's overall economic growth and development.

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Annexure A. Focus Group Discussion (FGD) Indicative Questionnaire

A1: Focus Group Discussion- DLO staff members

Date: FGD title:

FGD Team Composition: i) - Moderator; ii) – Rapporteur

Venue: Zila

Purpose of FGD:

No. of participants (by Gender): Total = (..... male, ... female)

Questions

01. What are the existing systems/methods followed by DLS for Capacity Development of livestock farmers/ organizations/ institutions/ HR and other stakeholders in livestock development? Are they sufficient or need revisit? If so, how?

02. How many trainings institutions/similar organizations/related systems are functioning in the district for CD in livestock sector?

03. What infrastructure facilities are available (type and number) in the country for CD and in what locations?

04. What assets are available for CD in livestock sector in the district?

05. What other potential opportunities could be introduced in the area for farmers' CD?

06. Are there any policies or regulatory bodies available for improving CD of farmers groups, extension personnel, LEOs and LSPs? If so, do you find them suitable for creating enabling environment or need to be improved further?

07. What other factors that affect CD development of farmers and how those could be addressed to turn them into enabling environment?

08. What are the constraints of the present system of CD of farmers and other related enabling institutions/societies? What are your suggestions for improvement?

09. Are there any policies or regulatory bodies available for improving CD of farmers groups, extension personnel, LEOs, LSPs, others? If so, did you find them suitable for creating enabling environment or need to be improved further?

10. Who are the key players for farmers capacity development and how they could be addressed to turn them into enabling environment?

11. What are the constraints of the present system of capacity development? What are your suggestions for improvement?

Overall findings:

Conclusion:

A2: Focus Group Discussion- DLS field extension workers

Date: Title: FGD with

FGD Team Composition: i)- Moderator; ii)– Rapporteur

Venue: Zila

Purpose of FGD:

No. of participants:

Gender of participants: Total=(..... male, ... female)

[The term capacity development was briefly explained].

Questions

01. How many trainings you have received so far? Are they sufficient and useful for your work? If not, what are the reasons?

02. How frequently the training program held and are there any evaluation system for measuring your CD?

03. Is the environment and other facilities favourable for applying your knowledge for farmers CD? If not, what are the constraints and what are your suggestions to improve?

Overall findings:**Conclusion:****A3: Focus Group Discussion- Training Institutions**

Date: Title: FGD with

FGD Team Composition: i)- Moderator; ii)– Rapporteur

Venue: Zila

Purpose of FGD:

No. of participants (by gender): Total :(male..... female.....)

Questions

01. What are the objectives of the Training Institute?

02. Who are the trainees and who are trainers?

03. Frequency and duration of training? How many trainings program has been conducted so far (2019-2022) and what are the application follow-ups?

04. Name of courses, curricula, schedule and module of training? Major course content? Please ask for a copy of training calendar of last few years which contains details of training programs.

05. Are these and the course contents appropriate for the objectives? If not, what should be included and what should be omitted?

06. Are the facilities for training conduction enough? If not, what are your suggestions for improvement?

Overall findings:**Conclusion:**

A4: Focus Group Discussion- Farmer Producer Groups**Date:** **Title FGD with**.....**FGD Team Composition:** i)- Moderator; ii)– Rapporteur**Venue:** Zila**Purpose of FGD:****No. of participants (by gender):** ...Total (male.....female.....)**Questions**

1. How do you build up your capacity (e.g., knowledge and others) in better livestock farming for profitability and entrepreneurship development?
2. How frequently the training programs are held for your capacity development? Is there any evaluation system after training and follow ups by the DLS/NGOs/others for your training?
3. Any new knowledge you have gained from the training for improved livestock rearing (e.g. housing, feed formulation/feeding, fodder cultivation, sanitation/cleaning, disease management etc.)? Are they useful for your farming?
4. Apart from training what other means (areas/bodies/institutions/policies) could be useful for your capacity development?
5. Any credit (soft bank loans) facilities are available for your farming or entrepreneurship development? Is the marketing facility favourable for you?
6. Any special preference given for the female entrepreneurs in the capacity development process?
7. Did you know about Farmers Field School? Did you attend the classes/training at FFS? If so, what new knowledge you learn in specific area of livestock rearing from FFS?

Overall findings:**Conclusion:**

Annex B. Key Informants' Interview questionnaire

The World Bank financed Livestock and Dairy Development Project (LDDP) is being implemented in Bangladesh by the Department of Livestock Services, Ministry of Fisheries and Livestock, Government of Bangladesh (<https://www.worldbank.org/en/news/loans-credits/2018/12/06/bangladesh-livestock-and-dairy-development-project>). A consortium of two consultancy firms namely Agriculture and Finance Consultants, Germany and Services and Solutions International, Bangladesh is conducting a survey of opinion makers to understand the need for and availability of capacity development services for the livestock sector in Bangladesh. As you are one of the important persons in the livestock sector in Bangladesh, we seek your opinion on few questions. The answers to these questions will be treated in utmost confidentiality. No names will appear in the final report. This interview is completely anonymous and is an informative exercise. It will take approximately 20-30 minutes.

1. Date of interview Day |__|__| Month |__|__| Year |__|__||__|__|
2. Name of the interviewee |_____|
3. Your organization -----
4. Your job title -----
5. Your contact phone number -----
6. Email: -----
7. How would you classify your organization (✓ tick box ☐ as appropriate)
 - ☐ Government organization
 - ☐ INGO
 - ☐ National NGO
 - ☐ United Nations Organisation/agency
 - ☐ University/College/academic institution
 - ☐ Research Institution/Think tank
 - ☐ Consultancy organization
 - ☐ Financial institution
 - ☐ Freelance consultant/adviser
 - ☐ Others
8. How are you and your organization involved in capacity building and development?
9. What is the current status of capacity development in the livestock sector in Bangladesh?
10. Who are the key players in the capacity building field in Bangladesh?
11. What are the major gaps and needs for capacity building in livestock and dairy sector in Bangladesh?
12. What are some of the opportunities? What should be done?
13. Would you like to make any further suggestions?

Annex C. Capacity Building Gaps and Needs

S.No	Stakeholders	Capacity building needs	Existing situations of capacity building	Gaps in capacity building
1	Marginal and small livestock farmers,	Practical training in livestock management (feeding, fodder production, comfortable housing, care of animals, calf rearing) - Awareness about regular vaccinations and deworming and other health care of animals - Awareness about controlling of inbreeding in goat and sheep - Selection of productive dairy animals - Ways to decrease the cost of production of milk and meat through fodder production, silage making TMR use - Offsite visits to successful farmers in other districts	- Teaching is largely through lectures. Limited use of audio-visual, videos, and practical learning by doing.	- There is a total gap of capacity building of farmers according to their individual need
2	Fodder producers	- Annual and perennial fodder production technology and management of fodder crops, - Importance of fodder for reducing the cost of production of milk and meat. - Methods of fodder conservation - Production technology of silage, feeding of silage, hay making. - Suitable fodder crops for silage and hay making	- Theoretical training available for a small number of fodder producers. There is no practice of organizing observation visits of farmers to demonstration farms.	- There is a gap of practical training on fodder production.
3	Producer Groups (PGs)	- Use of savings to leverage bank loans - Collective purchase of inputs and sale of outputs - Awareness about regular vaccinations and deworming of animals - Awareness about climate friendly animal shed construction - Knowledge about good governance of PGs	- LDDP has developed master manuals for PG formation.	- Inter loaning and collective sale of milk will induce much confidence among farmers.
4	Livestock entrepreneurs (mainly medium and larger scale livestock farmers)	- Commercialization of dairy cattle, buffalo, goat, sheep and back yard poultry - Clean milk production (milk hygiene) - Selection of dairy animals for further breeding - Importance of regular vaccination, deworming/treatment.	- Some production related trainings to small number of entrepreneurs are provided in the training centers	- Limited scale production related training are done in training centers - Trainings on farm economics, selection of better producing animals and

S.No	Stakeholders	Capacity building needs	Existing situations of capacity building	Gaps in capacity building
		- Ways of decreasing the cost of production of milk and meat.		record keepings is not there yet.
5	Dairy entrepreneurs	- Hygienic milk handling, processing, and marketing - Milk cooling, cold chain maintenance in milk handling		- There are no incubation centres to nurture budding entrepreneurs.
6	VMCC and dairy hub operators	- Hygienic milk collection and handling - Cold chain maintenance throughout the operation process.		- Training to the existing VMCCs dairy hubs are yet to be provided by the related dairy processing industries.
7	Extension workers (LSP, LEO, Veterinary field assistants)	- Livestock extension methodology with social mobilization - Regular refresher trainings on improved livestock housing, feeding, fodder production and conservation, and animal disease control - Agribusiness development, preparation of small-scale business plans, farm economics, marketing	- ULO and Vet Field Assistants are doing extension work for which they are not well trained. LSPs, LEOs are temp recruits under LDDP.	- ULOs, and LEOs require training on agribusiness development.
8	AI Technicians (Veterinary Field Assistants)	- Techniques to increase the conception rate of AI. - Storing and handling of frozen semen - Creating awareness about appropriate reporting of heat in animals by the farmers - Inseminating animals only on right stage of heat - Doing PD for confirming the pregnancy.	- Some refresher trainings of technicians are organized. - AI work is mainly done by the AI Technicians, Veterinary Field Assistants. - AI induced conception rate is low (~35%).	- An incentive system is needed to reward successful conception beyond a threshold level.
9	Sweet meat producer entrepreneurs and marketers	- Hygiene and quality maintenance of sweet meat - Proper labeling (production and expiry date), simple composition like moisture, fat, protein, milk solid, sugar content in different sweets.	- Training and research in sweet meat business is not available at present.	- Capacity building programs are not there
10	Livestock traders	- Care and management of live animals like feeding, providing drinking water, feed/fodder, animal health care for animals in the market.	- Such trainings are not available at present	- Such trainings are yet to be developed

S.No	Stakeholders	Capacity building needs	Existing situations of capacity building	Gaps in capacity building
		- Awareness in requirement of humane transportation and treatment of live animals		