

INCEPTION REPORT

Agro Business Planning, Technologies and Marketing Advice and Implementation Support under LDDP

Package: SD-67

Department of Livestock Services (DLS), Ministry of Fisheries and Livestock, GoB

December 2021



in joint venture with



Contractual Details

Contract title	Agro Business Planning, Technologies and Marketing Advice and Implementation Support under LDDP, Department of Livestock Services, Ministry of Fisheries and Livestock, GoB
Project ID	IDA 6330-BD
Contract client	Livestock and Dairy Development Project (LDDP): Project Management Unit [PMU]
Contractor	Joint Venture: AFC Agriculture and Finance Consultants GmbH and Services and Solutions International Ltd. (SSIL)

Contents

ABBREVIATIONS AND ACCORNYMS	4
Chapter-1: Purpose	6
Chapter-2: Background	7
Chapter-3: Understanding of the Assignment	9
Chapter-4: Approach	10
Chapter-5: Technical Assistance for Project Implementation	11
Chapter-6: Deliverables:	12
D-1 Inception Phase	12
D-2 Slaughterhouse Facilities	17
D-3 Value Chain Analysis	18
D-4 Livestock and Dairy Business Structure Analysis	20
D-5 Farmers Capacity Development	20
D-6 Critical Structure and Grants Modality	21
D-7 Partnership Development	23
D-8 Cross Cutting Issues	25
D-9 Revised Work Plan	26
List of Annexes	
Annex-1 Note on Productivity Improvement, Value Chain, and Climate Resilience	28
Annex-2 Profile of International and National Experts	36
Annex-3 Revised Work Schedule and Deliverables	42
Annex-4 References	46
Annex-5 Terms of References	48

Tables

Table 1	Technical Team Composition
Table 2	Supporting staff members composition
Table 3	Matching Grants Target
Annex Tables	
Annex Table-1	Livestock Population in Bangladesh (in lakhs)
Annex Table-2	Production performance of indigenous and crossbred cattle in Bangladesh
Annex Table-3	Demand, Production and Availability of Animal Protein

Abbreviations and Acronyms

ABS	Agribusiness Buyer
AFC	Agriculture and Finance Consultants GmbH
CTC	Chief Technical Coordinator
DEO	DLS Extension Offices (DLS Field Offices)
DLS	Department of Livestock Services
DPD	Deputy Project Director
DPP	Detailed Project Plan
FMgtU	Fund Management Unit
FO	Farmer Organisation
GRC	Grant Review Committee
LDDP	Livestock and Dairy Development Project
LIVU	Livestock Insurance Vertical Unit
PIU	Project Implementation Unit (Divisional, District and Upazila)
PMU	Project Management Unit
LSPs	Livestock Service Providers
MGS	Matching grant Scheme
PAD	Project Appraisal Document
SGS	Sub-Grant Scheme
SMSG	Sub and Matching Grant Schemes
SSIL	Services and Solutions International Ltd (SSIL)
TMR	Total Mixed Ration
VMCC	Village Milk Collection Centre

Annexes

Annex 1	Note on Productivity Improvement, Value Chain, and Climate Resilience
Annex 2	Profile of International and National Experts
Annex 3	Revised Work Schedule and Deliverables
Annex 4	References
Annex 5	Terms of References

Chapter 1 Purpose

The AFC/SSIL consortium was contracted in November 2021 to provide technical assistance in Agro Business Planning, Technologies, and Marketing Advice and Implementation Support under LDDP.

This Inception Report (IR) is prepared and directed at the Project Management Unit (PMU) of the Livestock and Dairy Development Project (LDDP) under the Department of Livestock Services (DLS), Ministry of Fisheries and Livestock, Government of the People's Republic of Bangladesh. This IR sets out our understanding of the responsibilities/assignment and puts forward a work plan to December 2021 & to December 2023, including key tasks and key deliverables date to the end of the year as well as deliverable dates to the end of project. The report has been prepared based on the proposal made by the AFC Agriculture and Finance Consultants GmbH, Germany and Services and Solutions International Ltd. (SSIL) earlier, and subsequently which has been approved by the appropriate authority. Also, this has been considered of discussions held with the PMU, LDDP; AFC/SSIL consortium team members, DLS staff and community members and desk reviews of available literature.

In addition, this report provides preliminary descriptions for discussion of the proposed Agro Business Planning, Technologies and Marketing advice and Implementation Support under LDDP and sets out our assessment of risks to the project and associated risk management mitigation measures.

Chapter 2 Background

Bangladesh, a densely populated country where half of the population are employed in agriculture. Livestock is a key socio-economic sector in the local agriculture sector, particularly for the most vulnerable and landless farmers. Although this sector contributes 1.7 percent to the national GDP its great importance derives from the fact that over 70 percent of rural households are involved both directly and indirectly to produce livestock. This sector also, employs an estimated 14 percent of the total labour force or one-third of total agricultural employment. Besides, this sector has a key role in ensuring national as well as household food security and nutritional improvement, rural women empowerment and in reducing gender and social disparity.

Rapid urbanization and changes in income in Bangladesh lead to changes in tastes and food preferences. Thus, consumers are increasingly demanding food from animal origin particularly meat and milk products. Even, they are willing to pay higher prices for quality and certified foods. Thus, modern food supply chains create both challenges and opportunities particularly for competitiveness of local smallholder farmers.

In the context of Bangladesh, some of the important constraints¹ in the livestock sector include:

- i) loss of arable land,
- ii) climate changes,
- iii) inadequate animal husbandry practices,
- iv) lack of quality milk and meat breeds of bovines,
- v) shortages of quality fodder,
- vi) limited credit support to farmers,
- vii) unfair price of producers,
- viii) low food safety and biosecurity,
- ix) absence of farmer owned organisations. x)
- x) weak regulatory framework and enforcement of laws. Thus, the most important damaging outcome of these issues is xi)
- xi) under investment in the livestock sector particularly by the private sector.

The Livestock and Dairy Development Project (LDDP) is financed by a World Bank loan with the objective of improving productivity, market access, and resilience of smallholder farmers and agro-entrepreneurs by **supporting climate smart production systems, farmer empowerment and commercialisation**. The project will **cover 61 Districts, except three Districts in Chittagong Hill Tracts**, with the financial assistance from GoB and World Bank.

The total project budget of US\$ 500M is to be implemented over 2019-2023. There are four components to the project:

- A) the first component being productivity improvement (outlay US\$142.51M). The objective of this component is to **raise on-farm productivity, and to increase efficiency, safety and profitability through climate smart livestock management, better approaches to animal health, nutrition, and breeding**.
- B) two sub-components:
- C) B1: producer organizations,
- D) B2: and improved climate smart production practices. The second component is the market linkages and value-chain development (outlay US\$224.65M). **The objective is to increase producers' linkage to profitable markets, improve the volume, quality and safety of livestock products being marketed, and reduce transaction costs along the value chains**. It will comprise three sub-components: **market linkages and**

¹ Asadulghani et al. (2020)). Strengthening Biosafety and Biosecurity Status in Bangladesh: A Sustainable Approach. Applied Biosafety. 25. 153567602093043. 10.1177/1535676020930430.

Investments along the value chains, critical and climate resilient public infrastructure for livestock development, and consumer awareness and nutrition.

The AFC/SSIL consortium will provide technical assistance for agro business planning, technologies, marketing advice and implementation support in tandem with flow of matching grants.

- E) E1: The third component is **the improving risk management and climate resilience of livestock production systems (US\$105.67M)**. It will comprise four sub-components: institutional capacity development and knowledge platform, food safety and public health, pilot livestock insurance, and contingency emergency response.
- F) F1: **The fourth component is the project management, monitoring and evaluation** (outlay US\$ 73.83 million). This component will establish the Project Management Unit (PMU) at DLS headquarters, with eight Project Implementation Units (PIUs), one in each Divisional Livestock Office, and
- G) **set-up adequate fiduciary, governance, audits and accountability systems, communication and monitoring and evaluation, coordination, and special evaluation studies.** The PMU/PIUs has established necessary capacities and work. The closing date of the project is 31 December 2023.

We have viewed all the components and sub-components of the project of which agro business planning, technologies, market advice and implementation support are required.

Chapter 3 Understanding of the Assignment

Bangladesh Government particularly the Department of Livestock Services [DLS] has recognized the relevance of livestock and dairy improvement with the emphasis on organizing and reorganizing the producers to access economies of scale, improve farmers' profitability by introducing improved climate smart production practices, development of market linkages and value chains, critical and climate resilient public infrastructure for livestock development, consumer awareness and better nutrition and livestock risk mitigation with particular attention to livestock infrastructure improvement, market research, appropriate agribusiness planning, technology improvement and efficient marketing. Thus, LDDP has been focusing all those issues.

We understand the rationale for above-mentioned investments in the livestock sector through the project's on-the-ground activities to address inherent, insufficient capacities of the livestock sector, aimed at improving upon total environment by addressing critical major problems. The project aligns with increasing of economic potentials of the country, by acknowledging the significant contributions of the livestock sector. We have carefully noted the project intention that aims to unlock the opportunities in the livestock sector. Particularly, the project intends to increase the production of meat, egg, milk, and milk products to fulfil the market-demand requirements of the rapidly-growing population of the country. Smooth implementation of the project will ensure better nutrition to the population as well as bring socio-economic improvement in the country through increasing rural employment and addressing gender disparity.

Value chain development sub-grants and matching grants, preparation and upgradation of agribusiness and marketing strategies, in-depth analysis of livestock business opportunities are also emphasized.

AFC and SSIL have been assigned for implementation providing support to LDDP through agribusiness planning, technologies and marketing advice and implementation support. In view of this a sixteen-member team with seven international experts and nine national experts has been organized who will work in close cooperation with the PMU of LDDP. The team will be providing advice and implementation support to LDDP which in turn will help to attain the overall project objectives.

Chapter 4 Approach

In achieving the project objective particularly for the component of A, B and C, integrated approach will be followed which are stated as follows:

For the component A [Productivity improvement and innovation], the approach will be mainstreaming support to the Micro, Small and Medium Enterprises (MSMEs), Farmer Organisations [FOs]/Producer Organisations [POs] and Smallholders, in the activities through improvement of technical skills, access to livestock services, climate-smart livestock production technologies and agribusiness entrepreneurship.

Similarly, for the component B, approach will be mainstreaming support to the Micro, Small and Medium Enterprises (MSMEs), Farmer Organisations [FOs]/Producer Organisations [POs] and Smallholders in using the infrastructure developed with special attention to improved wet market, slaughterhouse, and cold chain facilities; mobile slaughterhouses, cooling facilities, ensuring quality control at VMCCs and training and service facilities. The approach under the same component will also include mainstreaming the students and milk producers in participating the school milk feeding program.

Likewise, for the component C [particularly sub-component C-3], our approach will be mainstreaming the potential cattle farmers and insurance company in the activity of Pilot Livestock Risk Mitigation Products and Programs [PLRPP] through livestock insurance demand assessment, multi-stakeholder consultation and cattle head insurance.

A background note on each of the Components is available in **Annex 1**.

Chapter 5 Technical Assistance for Project Implementation

Implementation support is to assist and facilitate project implementation by PMU. Our role is to support and strengthen the capacity of LDDP team, particularly PMU/PIU, to enhance performance and achievement of results while maintaining an external viewpoint for analysing challenges and proposing alternative solutions in collaboration with the PMU/PIU team.

Implementation support will depend on the expressed needs of PMU/PIU, and key stakeholders. Our implementation is both reactive and initiative-taking – responding to identified problems after and before they arise. The results of continued interactions at field level, participation in deliberations with PIU and ongoing M&E to understand progress on every deliverable will create opportunities to act and prevent problems from developing, or to explore innovative solutions. Examples of implementation support to the project include:

- Development of subcomponent level strategies for each of the deliverables under four components.
- Work in tandem with PMU in identification and finding solutions to address issues which arise during project implementation.
- Capacity development through workshops/training for project management, field staff, POs/VMCCs, partner agencies and other stakeholders, to improve technical skills or to support organizational and process optimisation.
- Support in resolving policy and legal issues critical to project implementation.
- Facilitating learning and knowledge sharing within and between implementing partners, line departments and other stakeholders.
- Help PMU on how to address key donor concerns, if any related to smallholders' participation, grant management, gender mainstreaming, participation, empowerment, and environmental issues.
- Technical assistance in resolving procurement, financial, operational, and other management, or fiduciary issues.
- Technical inputs to the DLS/PMU and those Divisions/PIUs visited during the review to facilitate project implementation and updating PIM.
- Advise on technology choice particularly on application of renewable energy, breeding practices, communication, and information dissemination.
- Contribute and participate in joint review and interim review missions upon request of PMU/World Bank.

To implement a successful project, communication plays a vital role. Our team leader and experts will maintain continuous communication with their counterparts in PMU and other key stakeholders. A formal mechanism for periodic updates will help in exchange of information, trouble shooting and assurance about smooth progress of towards achieving the deliverables.

Chapter 6 Deliverables

D-1: Inception Phase

Mobilizing the team:

The AFC-SSIL consortium has assembled a team of international and national experts with long professional experience in their respective areas. The team is headed by Mr. Andrew Lambert de la Field, a well know expert in global agribusiness. The Team has 7 international and nine national experts drawn from the fields of agribusiness, animal feed, animal husbandry, renewable energy, communication, and monitoring and evaluation (M&E). composition is shown in the **Table-1**.

Table 1: Technical Team Composition

S L	Name	Designation
International Experts		
1	Dr. Andrew Lambert	Team Leader
2	Replacement underway	Agribusiness Development Expert-1
3	Dr. Dala Ram Pradhan	Agribusiness Development Expert-2
4	Dr. Prasun Kumar Das	Agri-Economist and Financial Expert-1
5	Dr. Manab Chakraborty	Agri-Economist and Financial Expert-2
6	Prof. Dr. Md. Ali Akbar	Animal Husbandry Expert
7	Dr. Balasankari P. Krishnan	Renewable Energy Expert
National Experts		
1	Prof. Dr. Md. Jasimuddin Khan	Animal Feed Expert
2	Md. Abul Kalam Azad	Agribusiness Expert-1 (Dairy, VMCC, etc.)
3	Md. Mostafa Kamal	Agribusiness Expert-2 (Grant Scheme)
4	Mirza Altaf Hossain	Agribusiness Expert-3 (Value Chain -1)
5	Replacement underway	Agribusiness Expert-4 (Value Chain-2)
6	Md. Mudasser Billah	Agribusiness Expert-5 (M & E)
7	Replacement underway	Agribusiness Expert-6 (Food Safety & Quality Assurance)
8	Mr. S.M.A. Samad	Agribusiness Expert (Training & Communication)
9	Md. Rezaul Karim	Agribusiness Expert (Livestock Product Development)

The profile of each consultant is available at **Annex 2**.

Office setup:

Office accommodation facility has been arranged for smooth operation of the project activities which is within 8 km from the PMU, LDDP office at Farmgate/SSIL at Adabor, Dhaka. The project office is fully equipped with desks for all the team members, computer/laptop, internet facilities etc. Project Office address is located at House 316 (5th Floor), Road 21, New DOHS Mohakhali, Dhaka, Bangladesh.

The office has meeting facility, kitchen, safety equipment including fire extinguisher, first aid kit, an emergency services, team member contact list, evacuation protocols, a safety check of the electrical wiring. Initiative is also taken to develop removable grilles from the windows and an evacuation rope. The office has 2/3 regular vehicles for travel to meetings and to visit project sites.

Recruitment of staff and orientation:

Out of the five-office support staff, four have been recruited to date. Staff members details are given below:

Table 2: Supporting staff members composition

SL	Name	Designation
1	Under recruitment	Statistician/Data Analyst
2	Mr. Mizanur Rahman	Admin and Accounts Manager
3	Md. Deluwr Hossain	IT Manager
4	Mr. Rakib ul Hasan	Office Assistant
5	Md. Alham Shanu Aside	Office Assistant

Organizing kick-off meeting:

Kick off meeting was arranged on 1st of December 2021 in the newly established office which was attended by the experts and office staff members. They were self-introduced and took part in free and fair discussion, essential to maintain a congenial working environment.

Management procedure:

The team members work in free and fair environment under the guidance of the team leader. Every expert follows his/her own ToR and work plan prepared and subsequently cleared in a joint meeting. In case of any problem the team leader finds the appropriate solution. All the team members maintain liaison with the concerned expert of the client (“focal point”) and other concerned stakeholders as and when required as per discussion with the team leader.

All the consultants have successfully completed online certificate course in Integrity, Compliance and Prevention of Corruption administered by AFC, Germany.

Organizational arrangement with the PMU, LDDP:

Members of the Project team met their counterparts in LDDP on numerous occasions. On 15 December 2021, the consortium team met Mr. Md. Abdur Rahim (Project Director & Joint Secretary; Dr. Md. Golam Rabbani (Chief Technical Coordinator); Md. Shah Alom Biswas (Deputy Project Director); Dr. ABM Mustanur Rahman (Deputy Project Director); and Dr. Md. Shakif-Ul-Azam (Deputy Project Director) and other senior staff working with the LDDP. The meeting exchanged ideas and clarified procedural and conceptual issues. It was agreed that more such bilateral meetings need to be held on a regular basis so the PMU could be updated with the progress and any issues problems affecting performance and deliverables.

Desk review:

All the relevant documents related to LDDP were made available to the team members for reviewing and to update their understanding on recent development on the different activities. Policies, legislations, and orders enacted by the Government and implementing agencies on livestock and dairy related matters were also made available to them. The team has also been updated on the progress so far made on different activities implemented by the stakeholders.

Analysing risk and challenges and strategies for mitigation:

COVID 19 is now a common global health problem and Bangladesh is not an isolated part of it. Besides, natural calamities like flood, tidal bore, typhoons which are common in the country. During such situations, field work would be briefly suspended and necessary information could be collected by mail, phone call, fax on an emergency basis to meet the scheduled requirements. Necessary field work would be conducted immediately after the situation has improved.

Project sites visit:

A team of consultants visited City Corporation slaughterhouse at Mohammadpur, Dhaka on 22 December 2021 and held discussions with butchers, traders, and Dhaka City Corporation staff.

The team also visited Louhajang and Sreenagar in Munshiganj District on 23 December 2021 and held discussions with Mr. Md. Gias Ahmed, Director/CEO of Dutch Dairy Limited as well as DLS officers, local service providers (LSPs), and local dairy and poultry farmers. Mr. Ahmad pointed out the need for easy availability of vaccine against anthrax and improving the breeding stock of cattle. The LSPs were recruited in October 2019 and provided with an initial 21 days Basic Training Course at YTC, Mymensingh. The LSPs have formed 11 Producer Organisations having membership of 250 entrepreneurs engaged in dairy, goat rearing and poultry. The producer organisations are yet to commence any economic activity.

The LSPs expressed their desire for more training in administration of vaccines, animal husbandry practices for cows, and techniques of group formation and member retention. The LSPs are being paid a stipend of 5,000 taka per month, which they consider it as very low.



Caption: Photos of Field Visit to Slaughterhouse, Dutch Dairy Farm, and DLS Offices

Discussion and sharing information with the team members and the relevant stakeholders:

During field visits, necessary information was collected by the individual experts through discussion with the DLS officers, concerned stakeholders, POs/FOs. and Field visits were organized to validate the collected information. A group discussion was held after the field visits to fine-tune the collected information. Subsequently, data was analysed and interpreted for report preparation.

Meeting with the PMU and establishing contract with the key stakeholders:

Several meetings were held with PMU and established contact with the key stakeholders. Necessary information was collected from them and shared with PMU in the meetings. Subsequently, the key stakeholders were contacted for validation and accuracy of information, which will be the basis for developing correct planning, as far as possible.

Procuring equipment and furniture:

Necessary equipment and furniture have been procured and sitting arrangement have been done for all the experts and support service staff members in the newly-hired project office.

Carry out Stakeholder Mapping:

Currently a stakeholder mapping is being conducted. In the distinct parts of the chain, many actors participate in the production of food products of animal origin. Stakeholders include policy makers and regulators, producers, producer/farmer organisations (POs and FOs), meat and milk producer organisations, feed suppliers, equipment manufacturers, various quality certification bodies, the food and sweet industry, retailers, consumers, banks, the food industry, consumers, scientists, researchers at universities, non-governmental organisations as well as political parties. Many government departments, and statutory bodies have direct influence on livestock and dairy development. Among the most prominent are the Department of Livestock Services (DLS) under Ministry of Fisheries and Livestock, Department of Agriculture Marketing, and Department of Agriculture Extension under Bangladesh Food Safety Authority.

Currently, there are 14 companies, registered under Bangladesh Standards and Testing Institution (BSTI), to produce, and supply pasteurized, milk and dairy products to markets. Dun & Bradstreet lists 42 animal food companies and 8 egg production companies in Bangladesh.

All stakeholders to the LDDP can be categorized by their stake, involvement, or interest in the manner of functioning and outcome of the project. In our view, there are eight major categories of stakeholders that this project must keep in mind. These are:

- Policy makers and regulators stake – advancement of nation
- Producers' stake – better price realisation, and access to market
- Government staff and contractual employees' stake – employment income and security of tenure
- Consumer's stake – product/service quality and value for money
- Communities' stake – health, safety, and economic development
- Government's stake – GDP growth, taxes, and citizens welfare
- Suppliers and vendors – new custom through demand generation, stability of supply, revenue
- Investors and entrepreneurs' stake – Financial returns.

Update Situation Appraisal:

In the last couple of years, beef production volume in Bangladesh surpassed the demand and generated around 300,000 tons of surplus meat. The annual meat consumption demand in Bangladesh is 7.3 million tons, against which the country is producing 7.6 million tons, according to the Department of Livestock Services (DLS). In early 2021, the Government of Bangladesh

introduced a system of mobile and online sales to facilitate the marketing of meat, milk, eggs, and other livestock products. Further, the Government paid out cash incentives to the tune of US\$ 54.67M to 407,402 dairy and poultry farmers, who have been affected by the Covid-19 pandemic, through Nagad, Bkash and bank accounts.

The demand for meat and animal protein is expected to steadily grow because of recent growth rate in GDP and rising per capita income. The GDP growth rate in Bangladesh is expected to reach 4.50 percent in 2021 and around 7.50 percent in 2022. Bangladesh's per capita gross domestic product (GDP) will be \$2,138.794 in 2021 which is higher than Pakistan US\$ 1190 and slightly lower than India US\$ 2191 according to the International Monetary Fund (IMF).

According to Global Nutrition Report (2021), Bangladesh is unlikely to meet all targets for maternal, infant, and young child nutrition (MIYCN). No progress has been made towards achieving the target of reducing anaemia among women of reproductive age, with 36.7% of women aged 15 to 49 years now affected. Similarly, **Bangladesh has made some progress towards achieving the target for stunting, but 28.0% of children under 5 years of age are still affected, which is higher than the average for the Asia region (21.8%).** Another report by the Bangladesh Nutrition Council of Ministry of Health and Family Planning in 2021 (Bangladesh Nutrition Council, 2021), finds that there has been **an improvement in quality and diversity of diets consumed by the population, however, diet quality remains below global recommended level, particularly related to consumption of milk, fruits, vegetables, meat, and pulses.** Overall, calorie intake per capita per day has decreased to 2210.4 Kcal in 2016 from 2318.3 Kcal in 2010. The present level of calorie intake is well below the desirable 2430 Kcal/capita/day. This reduction could be attributable to decreased rice intake. **One of the expected impacts of LDDP is reducing malnutrition among children and mothers.**

Bangladesh has also made **some progress towards achieving the target for wasting but 9.8% of children under 5 years of age are still affected, which is higher than the average for the Asia region (8.9%).** The prevalence of overweight children under 5 years of age is 2.4% and Bangladesh has made no progress against increasing the figure.

The PMU, LDDP has taken major strides in establishing eight Project Implementation Units (PIUs), one in each Divisional Livestock Office, recruitment of staff, and livestock service providers, formation of producer/farmer organisations and VMCCs. FAO has also completed baseline study of livestock production system and slaughterhouses in Bangladesh.

Discussion with PMU, LDDP, technical teams, key stakeholders and communities during **field visits have provided important insights into the evolving situation and confirmed the relevance of the project.** The team has taken note of the situation and have adjusted the Workplan deadlines to reflect ground realities.

Clarify Consultation mechanisms with stakeholders:

Stakeholders' consultation is a key mechanism widely used to engage ordinary citizens, interest groups, bureaucrats and policy makers in the design, formulation, and evaluation of large projects. Consultations allow decision makers to gather relevant options about feasible policy actions, to hear stakeholder preferences regarding policy outcomes, and to evaluate the implementation and socio-economic impact of proposed interventions be it policies, regulations, or new schemes. A wide variety of consultation tools are available. The project team will make use of:

- Field visits for interaction with communities, producer groups, dairy hubs, wet markets and other active livestock processing and trading centres.
- Workgroups to gather information and sharing ideas. This type of consultations is useful for improving dairy and milk products and marketing material.
- Web 2.0 tools events: social media is a cost effective medium to communicate directly with customers and obtain feedback. Webinars with concerned individuals and groups is a potential source of knowledge harvesting and dissemination.

- Individual meetings: One-to-one meeting remains a trusted way of promoting mutual understanding. Innovative ideas and concepts can be obtained, and contentious subjects resolved without the public glare.

Stakeholder consultation and finalizing inception report:

An inception workshop will be held in the near future allowing participation both in person and remotely. The consultation will have representatives from senior officials from DLS and other Government departments, elected representatives, producers, Government staff and contractual employees, consumers, suppliers and vendors, investors, and entrepreneurs.

Preparation of inception report:

This Inception report has been prepared with the inclusion of methodologies, schedules, organization and information as well as concise overviews of the current situation, a thorough analysis of the critical issues and problems met; a plan of action, updated and revised work schedule.

D-2: Slaughterhouse Facilities

Lead Experts: Dr. Balasankari P. Krishnan/Md. Rezaul Karim

Approach:

- Understanding current operating practices of slaughterhouses at different level (Upazila/district/city) in terms of daily operation, seasonal variation like festivals, processing of products, volume and type of waste generation, handling/disposal of waste, energy/water use, challenges involved, etc.
- Design the facilities considering various aspects such as modern facilities, safety of food products, hygienic and clean processing, clean and liveable environment for the dwellers around, etc.
- Appropriate market linkages from production to consumers at various levels, wherever applicable.

Methodology:

- Literature review, stakeholder consultations, field visits and survey to understand the existing status and future requirements.
- Slaughterhouse activity analysis and appropriate gap analysis considering all market players from animal producers to consumers.
- Feasibility studies (for modern facilities, for introducing mobile slaughterhouses, etc.).
- Appropriate design and layouts based on area availability, hygiene, and sanitation requirement, etc. catering to necessary operational good practices (like use of impermeable floor/slab, drainage facilities/easy clean system, use of cooling vat/tank/chamber, facilities for animal resting, isolation corners, antemortem and post-mortem examination of animals, etc.).
- Planning of appropriate waste disposal/management systems (like transporting to biogas generation sites, utilizing for manure purpose, etc.).
- Market linking of super shop and butchers (meat shop) with the slaughterhouse.
- Necessary capacity development (like awareness and training programs for butchers and meat shop keepers on proper evisceration, safe meat production, personnel hygiene, use of PPE, waste disposal methods, etc.).
- Monitoring of slaughtering process and evisceration through appropriate monitoring tools.

Work priorities:

- Data collection from stakeholders through consultations, site visits and survey (3.1).
- Preparation of assessment and evaluation studies on slaughterhouse/slaughter business (3.2).

- Selection of one area in each at 20 districts for establishing slaughtering slab and selection of one area in 3 divisional headquarters for establishing modern slaughterhouse.
- Recommendations on upgrading the existing slaughterhouses and establishing new ones based on the knowledge gained and lessons learnt.
- Establishing linkage with other on-going initiatives in similar sector in the country (3.3).
- Conduct of capacity development awareness campaigns, seminars, webinars, and workshops as necessary for the stakeholders.
- Development of economic model for using slaughterhouse wastages in converting biogas and RE/EE interventions (3.2).
- Preparation of Guideline for safe and hygienic slaughtering procedure.

Manure and waste disposal/management:

Approach:

- Evaluating and documenting potential for biogas generation and use of biogas for cooking/thermal application, power generation, bottling, chilling, freezing, etc., applications of solar technologies in slaughterhouse facilities, energy efficiency (EE) options to lower operating costs, improve operating conditions and enhance product quality.
- Identifying possible cooperation with other on-going Renewable Energy (RE)/Energy Efficiency (EE) initiatives in the country.

Methodology:

- Study of RE/EE technologies applicable to slaughterhouses/cold chains and available support/incentive schemes.
- Study of alternative waste management and disposal options through biogas plants and related best practices.
- Study of organic manure and waste management from slaughterhouse facilities.
- Study on water conservation possibilities in slaughterhouse facilities/biogas plants.
- Study on possibilities to engage as much women as possible in livestock supply chain and RE plant operations (gender mainstreaming).
- Evaluation of economics of biogas plants, RE/EE application on business model of slaughterhouses/cold chains.
- Study of other on-going initiatives/government schemes for RE/EE promotion in SMEs for co-operation.
- Study of regional/global experiences and good practices including case studies for possible replication of slaughterhouses/RE/EE applications in Bangladesh based on the lessons learnt from the implementation in other countries.
- Preparation of guidelines and training materials.

D-3: Value Chain Analysis

Lead Experts: Mr. Mirza Altaf Hossain/Dr. Manab Chakraborty

Approach:

The approach of LDDP while analysing the value chains with an overarching objective of linking the smallholders with the market will be based on three principles:

- Measuring performance:** The three dimensions of sustainability, namely economic, social and environmental, will be considered holistically, including synergies and trade-offs;
- Understanding performance:** The approach will take a holistic perspective, meaning that the systems considered are interconnected and dynamic, governance-centred, and market-driven; and
- Improving competitiveness: Translating value chain analysis (VCA) into effective interventions and the process must also be scalable and multilateral.** The detailed approaches to be followed are to achieve the followings:

- Mainstreaming Producers/POs/MSMEs in the dairy and meat value chains through various development activities (demonstration farms, fodder and feed production techniques, sustainable supply chain of farm produce etc).
- Linking farmers network with formal market players in the value chains through mapping of actors and analysing their strengths and challenges.
- Analysis of market players, consumers behaviour and identify opportunities for intervention that raises profitability of smallholder producers.
- Profitability analysis of all key value chain actors (organized, informal, consumers).

The value chain approach will target market-focused actions that will generate demand, formalise supply chain stimulated by value addition, incentives, and higher productivity.

The value chain approach thus employs a market-focused approach that considers the LDDP target regions (Upazilas) to identify businesses, market forces, and triggers that could incentivize the positive contribution of key value chain actors including large private sector players.

Methodology:

- The development paradigm and theory of change behind the LDDP **recognizes the diversity and complexity** of the production systems in livestock space (including its interlinkages and its environment). The development of a sustainable value chain in the dairy sector is intended to benefit small producers developing their activities as commercial farmers through a return on assets which will be factored into developing the value chain framework and working methodologies: An evidence-based selection will be made of high potential Upazilas for red meat and milk based on secondary data after detailed discussion with district livestock officials and other stakeholders (D 3.1).
- Landscaping of practices being followed by the upgraded slaughtering facilities at the identified locations (D 3.1).
- Development of location specific operational business models based on the **landscaping study** (producer driven/buyer driven etc.) and upgrade the facilities (D 3.1).
- Identify factors affecting adaptation of technologies by the slaughtering houses, butchers/abattoirs (D 3.2).
- Assess the scale of adaptation of sustainable technologies (including bio security) which has direct/indirect impact on their productivity (D 3.2).
- Conduct study (primary & secondary) on consumer's beliefs and cultural behaviours to implement pull market concept in value chain development (D 3.2).
- Conduct a panoramic study to assess current market linkages, product flows, market trends, cost of production etc. for the dairy business in the identified geographies and forecast growth potential (current and future demand) (D3.3).
- Prepare strategic plan (participatory) for linking individual producer/POs with the Village Milk Collection centres (VMCCs) (D 3.3).
- Linking the VMCCs with the MSMEs, dairy hubs and processing facilities (D 3.3)

Work priorities:

The work priorities will revolve around the programme mandate on potential leverage points for inclusiveness, working closely with development partners, gender mainstreaming and development of sustainable business models. As per the mandate of Component B (market linkage and value chain development sub-grants), the consulting agency will uptake the followings:

- Prepare location specific operational business models, market strategies (price-leadership, quality leadership, differentiation) and market channels with critical analysis of value chain actors (D 3.1).
- Assessing meat and milk consumption pattern in the selected areas (D 3.2).
- Developing meat and dairy value chains in the selected areas strategy to link smallholder groups with dairy hubs (D 3.3).

D-4: Livestock and Dairy Business Structure Analysis

Lead Experts: Dr. Dala Ram Pradhan/Mr. Abul Kalam Azad

Approach:

- POs/FOs/MSMEs will be directly connected with the Dairy VMCC/Hub system in the rural areas within the designated mileage radius areas (VMCC should be within 01 km to 5 km).
- VMCC/Hub system must be based on strategic plan (through study of existing milk players, pricing system, payment system, frequency of payment in a week/daily basis, digitization milk payment proposed practice, etc.).
- VMCC does milk collection, testing (Organoleptic test, Fat and SNF test, adulteration test) and cooling, hub does pasteurisation, and where feasible, value-added milk products. Each VMCC shall have receiving capacity of minimum 1000 litres per shift -600 litres in the morning shift and 400 litres in the evening.
- All dairy hubs must be within 50 km radius of VMCC.
- Examine ways to integrate milk producers with VMCCs and develop systems and procedures that is trusted and relied by POs/FOs/MSMEs.

Methodology:

- Detailed feasibility study for setting up and operationalising 300 VMCC and 20 hubs in the different regions Bangladesh for handling hygienically raw milk.
- Regular training facilities for POs/FOs/MSMEs and ensure support services.
- Create road map for registering VMCC as cooperative with the Cooperative Department or function as self-help group (like that of India).

Work priorities:

- Map potential location for 300 VMCC and 20 hubs in the different regions Bangladesh and identify pockets with surplus milk production.
- Determine the raw milk pricing strategy whether Fat based; Fat and SNF based or others. Study psychology (e.g., business model, buying /payment practices) of existing milk middleman; POs/FOs/MSMEs and potential entrants.

D-5: Farmers Capacity Development

Lead Experts: Prof. Dr. Md. Ali Akbar/ Mr. S.M.A. Samad

Approach:

Farmers engaged in livestock rearing are largely unskilled, mostly uneducated, and lack skills of modern farming. Farmer's capacity development is being support (a) identifying major problems, constraints and needs of farmers; b) capacity building for participatory planning and plan implementation of collective actions of producer organisations and VMCC, (c) strengthening of institutions and human resources associated with the project, in particular hub, DLS personnel, and LSP. d) upgrading of training facilities at Upazila livestock offices, and OTI at Savar, Dhaka (now called Bangladesh Civil Service Livestock Academy).

Methodology:

- Review of all training for relevance and effectiveness using primary and secondary sources.
- Adequacy of capacity, budget, and workforce for conducting training of the DLS officers, and field staff.

Work priorities:

- Assess potential opportunities for capacity building to raise livestock productivity, marketing of milk and value-added products (D 4.8).
- Identifying gaps and suggesting improvements in training schedule, curriculum, and resources available, related to VMCC, hubs, slaughter, feeds and fodder production, technology and product diversification, and marketing (D4.9).

- Introducing new training in business planning, feed and TMR preparations, improved feeding practice, fodder production, preservation and marketing, breed selection, governance, and management POs, Farmer Organisations, VMCC and Hubs (D 4.9).
- Training of potential recipients of sub grants and matching grants in better fund utilisation (D 4.9).
- Anticipate training needs of Dairy Development Board, Dairy Research Institute and Poultry Research Institute (D 4.9).

D-6: Critical Structure and Grants Modality

Lead Experts: Dr. Manab Chakraborty/ Mr. Mostafa Kamal/Dr. Prasun Kumar Das

Approach:

This deliverable comprises of four subcomponents namely as:

- Sub-component A2: Improved Climate Smart Production Practices.
- Sub-component B2: Critical and Climate Resilient Public Infrastructure.
- Subcomponent B3: Consumer awareness and nutrition.
- Sub-component C3: Livestock Risk Mitigation and
- Subcomponent B1: Market linkage and investments in the value chain.

This deliverable comprises of four subcomponents namely,

- sub-component A2: Improved Climate Smart Production Practices. The beneficiary of subcomponent A2 will be Producer Organizations as well as micro, Small and Mid-sized Enterprises (MSME). Outlay for this subcomponent is US\$85M.
- sub-component B2: Critical and Climate Resilient Public Infrastructure. The beneficiary of this subcomponent will be municipalities and city corporations of the slaughterhouses and wet market, and the village communities (municipalities for the construction of Village Milk Collection and Cooling centres. The sub grant funding under component B2 is US\$109M.
- B3: Consumer awareness and nutrition; sub-component, the outlay for subcomponent B3 is US\$30 million for the school milk will support milk programme in 2000 schools as sub grants.
- Subcomponent C3 which has an outlay of US\$18.38 as subgrants will subsidise insurance of 1000000 cattle heads.

Under subcomponent B1, a matching grant facility will be managed by the Fund Management Unit (FMgtU) under the overall supervision of PMU. A total of 2,365 Matching Grants amounting to US\$51M will be awarded by the Grant Review Committee (GRC), once the sustainability of the scheme has been assured.

The target for matching grants is MSMEs, producer/farmer organisations, milk processors, large sized enterprises. Enterprises for potential enterprise funding will be assessed through a two-stage competitive process. **The first stage will involve submission of a concept note** outlining the project and demonstrating that they meet the eligibility criteria. **Selected bidders will be invited to develop an application setting out the full business case.** All applications will be reviewed by an Independent Assessment Panel who will prioritise grants based on the quality of proposals and successful bidders will receive a matching grant not exceeding 50% of the total project cost.

Table 3: Matching Grants Target

#	Particulars	Unit	No.
1	Demonstration for feeds and fodder storage options	Roughage bailer	16
2*	Feeds-support to small scale feed mills to improve processing technology and quality	Feed mill	100

3*	Feeds – Assistance in TMR including roughage, silage, concentrate, minerals/vitamins	Feed production centres	706
4	Dairy cattle – support to market-oriented feed and fodder production	Farm	32
5	Milk collection – Dairy Hub collection from VMCC (including the VMCC)	Dairy hub	20
6	Milk processing – small scale milk processing technology at the premises of large dairy farmers and Hubs/POs and sweet meat shops	Mini processing unit	465
7*	Milk processing – large processors to adopt technologies for product diversification (cheese, yogurts etc)	Processor	10
8	Milk processing – mobile milking machine for leasing by processors to farms	Milking machine	1000
9*	Climate resilience manure enterprise development	3-20 T/day Digestor	4
Total			2413

NB: Likely private contribution ratio less than US\$ 100K 90:10; for over US\$100k is 50:50,

Methodology:

- Introduce food safety and control points, traceability systems back to the individual farmer (D 4.10) – **bar codes for each one**. The ability to track and trace raw materials, ingredients, and products through all stages of production and distribution is vital for consumer's safety and is required by the various Codex Standards and other international standards and Bangladesh Food Standard Authority and Bangladesh Standards and Testing Institution (BSTI)
- Supply technical inputs to develop modus operandi for managing and financing the dairy hubs and processing plants (D 4.11).
- Provide support in institutionalising value chain upgrade through the development of entrepreneurship and managerial skills (D4.12).
- Examine the internal and external risks of dairy hub development and strategies (D 4.13).
- Providing technical assistance to the PMU in establishing Grants Schemes procedures following Grant Manual. (D4.14).
- Support PMU in operationalising and piloting livestock risk insurance sub grant scheme.
- **Assess MSMEs demand for insurance**

Work priorities:

- Contact the interested financial service providers (**mobile financial services, banks, insurance companies, microfinance institutions etc.**) to **foster banking relationship between producers, and VMCCs. There is a need to bring the most active FSPs in the targeted Upazilas to get the best outcome².**
- Provide options for managing, disbursing, and discharging fiduciary accountability for matching grants, including but not limited to establishment of special purpose vehicles, indemnity bond by beneficiaries to properly apply funds pooled by beneficiary and LDDP, bank guarantee by those receiving matching grants of US\$ 100K plus etc. (D4.14).
- Providing technical assistance to the PMU in establishing Grants Schemes procedures following Grant Manual. (D4.14) and periodically review implementation procedures.
- Preparing technical specifications for the roughage bailer, feed mills, TMR making machines, milk collection, pasteurisation, and processing, mobile milking machines, and manure making machines (D 4.11).
- Provide support in institutionalising value chain upgrades through the development of entrepreneurship and managerial skills (D4.12).

² Financial inclusion in Bangladesh is among the highest in the world. Nearly 90% of the population is estimated to be covered by the formal banking system, mobile financial services, and microfinance institutions (MFIs).

- Assess the internal and external risks of dairy hub development and mitigation strategies (D 4.13).
 - Providing technical assistance to the PMU in establishing Grants Schemes procedures following Grant Manual. (D4.14).
 - Support PMU in operationalising and piloting livestock risk insurance sub grant schemes
 - Assess the financial needs of POs, VMCCs, Dairy hubs and MSMEs and how best they can be assisted through SMGS (D 4.12).
 - Organise training of POs, VMCCs, Dairy hubs, and MSMEs on how to draft Concept Note and Business Plan (D4.12).
 - Conduct assessments of internal and external risks of dairy hub development and mitigation strategies (D 4.13).
 - Preparing technical specifications for the roughage bailer, feed mills, TMR making machines, milk collection, pasteurisation, and processing, mobile milking machines, and manure making machines (D 4.11).
 - Assess the financial needs of POs, VMCCs, Dairy hubs and MSMEs and how best they can be assisted through SMGS (D 4.12).
 - Organise training of POs, VMCCs, Dairy hubs, and MSMEs on how to draft Concept Note and Business Plan (D4.12).
- Conduct assessments of internal and external risks of dairy hub development and mitigation strategies (D 4.13).

D-7: Partnership Development

Lead Expert: Prof. Dr. Md. Jasimuddin Khan

Approach:

Feeds alone comprise 65 – 75% of total rearing cost of animal. Rearing animal in small, medium, large scale and even in commercial form, feed shortage is the number one constraint in rearing animal. Whatever feeds and fodders we have are not equally available throughout the year. To raise the animal economically seasonal shortage/surplus of feeds must be addressed properly. Most of our farmers are not educated and they do not have any knowledge regarding modern farming system which tends to rear the animal using conventional method of feeding. In the dairy sector, populations of cross bred (local x HF) cows are increasing day by day in the country which needs good quality feeds and fodder to maintain productivity. Supply of nutritious feeds throughout the year is the prerequisite for maintaining high productivity and making the farm profitable. For the reliable supply of fodder year-round there is need to focus on preserving fodder and forages on a long-term basis by promoting and adopting new technologies for storing, nutrition retention, and maintaining freshness. For processing of green fodders, various methods like hay making, silage making, artificial drying etc. have been used. In this assignment the following items of feed processing will be used through creating entrepreneurship to increase animal productivity and lower the feed prices and to ensure steady supply of feeds throughout the year. All the technical supports to the beneficiaries mentioned below will be provided by us.

Methodology:

a) Demonstration for feeds and forage storage options (Roughage bailer)

Nowadays a few feeds and fodder storage system have been developed. Roughages could be stored long time through bailing without losing the nutritional quality. This makes for easy transportation as well as storing more feed in small areas and preventing the wastage of feed during feeding with more efficiency of utilization. Sixteen beneficiaries will be worked in different capacity as a bailer. This beneficiary may be formed in two groups who are directly involved with livestock farming or may be the interested person having no animals who comes forward to use

the technology with the aim of business. Bailing systems of hay and straw will be demonstrated through LFAs, LSPs of the livestock department to FOs and POs.

b) Feeds – support to small scale feed mills to improve processing technology and quality (Feed mill)

Number of processing technologies are applied to both roughages and concentrates to improve their nutritional value and storage life. Processing further helps in neutralization of toxic factors. Various methods are employed in the processing of grains to improve their utilization which are broadly grouped under dry processing and wet processing. In dry processing methods like decortication, crocking, crumbling, grinding, pelleting, and roasting are employed. Under wet processing methods water soaking, stem rolling, stem flaking, pressure cooking, stem pelleting, reconstitution etc. are employed. The feed mill produces balanced feeds in mash, granular, pellets and in extended form.

Grinding is the most common methods which is employed in reducing the size of the grains and roughages. Grinding provides a large surface area in the gastrointestinal tract for better digestion. Pelleting is another common process which is used in the composite feed. It densifies the feed which reduces the wastage. The pelleting can be achieved both by stem and/or by using the binding materials.

In the present assignment 100 feed mill beneficiary will be developed as per project design. The feed millers will be involved in processing feeds with suitable methods determined by our expert based on the situation (feed availability, prices, nutritional value of the feed ingredients) for their own farm consumption or to market the products for business purposes.

c) Feeds – aid in TMR including roughage, silage, concentrate, minerals/vitamins (Feed production center)

Balanced feeds providing all the deficient nutrients on roughage feeding are given as supplement to the producing animals for milk, meat etc. and the poultry as complete feed providing all the nutrients required for meat and egg production. The balanced feeds utilize grains, cakes, milling by products, vitamins, minerals and other in the present assignment TMR will be formulated using available feeds of the producer with supplemental feeds for the supply of protein, minerals, vitamins, and other additives as per requirement.

All the 760 beneficiaries will be given required technical supports for the preparation of TMR through FAs, LFAs and LSPs of the livestock department to FOs and POs. This TMR will be produced both in organized producer to feed to their animals as well as by the small feed compounders to sell to the feed consumer through packaging.

d) Dairy cattle – support to market orient feed and fodder production (Farm)

There are several types of feeding stuffs available for the livestock feeding. Fodder production is a key constraint for livestock production in Bangladesh. Green forages are very much essential to maintain as well as to improve the milk yield. Two third of the dry matter requirement of the cows are necessary to meet through roughage feeds from (hay, silage, haylage etc.) of which green grass is necessary. When green forages are available or unavailable to meet the requirement, the alternate is silage. Inter-cropping with food and non-food crops is effective ways of increasing area under fodder crop. In this assignment as formed with the purposes will be developed to cultivate fodder crops to feed their dairy cows and sell out the surplus to the market or neighbour dairy farms. Similarly, the self-oriented beneficiary group will preserve the green fodder in the form of hay and silage. The technical expertise for fodder cultivation, processing and preservation

will be given by our experts through LFAs and LSPs of the livestock departments. This group of beneficiaries will take all steps to sell out the green fodders and preserved forages to the market commercially.

Work Priorities:

There is enormous potential in upgrading the dairy value chain in Bangladesh, not least, by bulking the output of small producers. The challenge of aggregating small volumes of milk from substantial number of producers is organisationally taxing and calls for significant investment in building the supply routes. There are also broader constraints, such as the lack of fodder, feed, road infrastructure, cold store chain, finance, access to urban markets, and regulatory environments that are not always conducive to small producers. Greater collaboration between private businesses interested in sourcing milk from smallholders and PO/FOs and NGOs, can reduce transaction costs for all parties concerned. The availability of funding under MGS should help make such ventures successful. The dexterity with which private business can foster partnership POs/FOs and integrate them into their regular value chain, the more likely it is that they will offer mutually beneficial solutions. The proposed TA under D 4.15 and 4.16 will assist partnerships between 300 VMCs and 20 dairy hubs selected under LDDP.

The road map for partnership development between PO/FOs/VMCSS and dairy hubs is illustrated below.

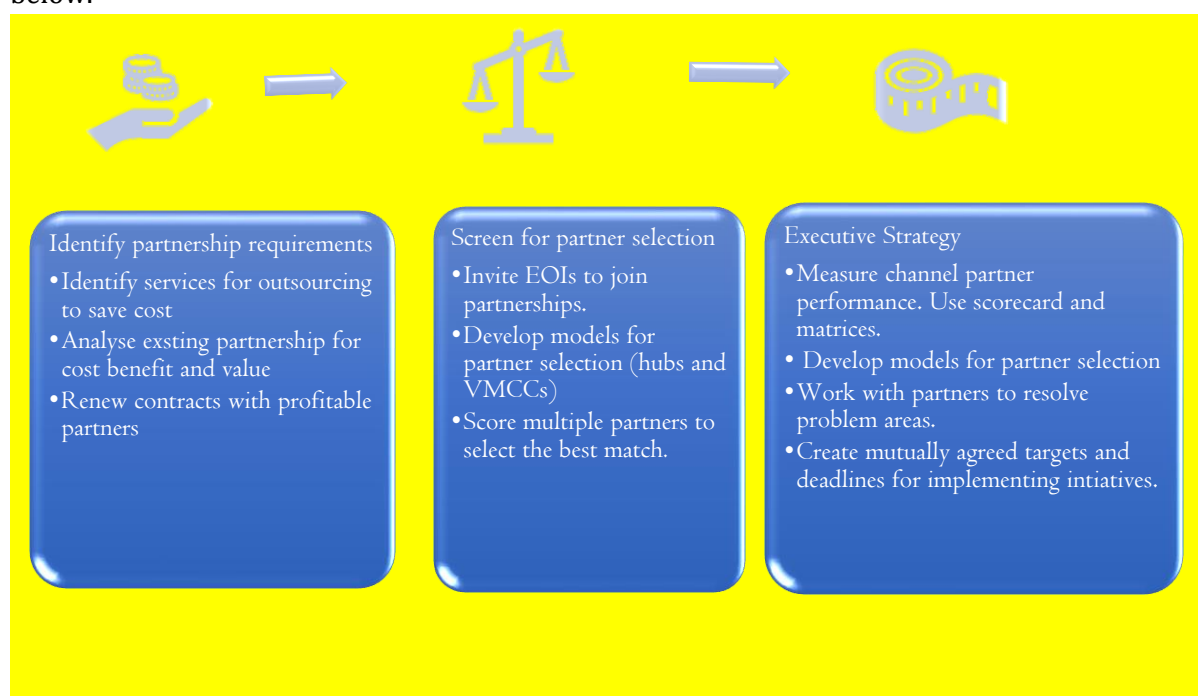


Figure 1 Strategy for Partnership Building

D-8: Cross Cutting Issues

Lead Experts: Md. Mudasser Billah/ Dr. Manab Chakraborty

Approach:

The Monitoring and Evaluation (M&E) will focus on the key information required for effective management of MGS at operations. It will assess the effectiveness of MGS in meeting its objectives and assess the achievements of the investment against its purposes. It will also assess the direct and indirect impacts of the investment for sustainability and replication of the technologies. It

will follow the results achieved and will be compared to the indicators as mentioned in the Result Framework of the DPP.

Monitoring and Evaluation (M&E) will focus on the changes of livestock production systems and value chains of livestock products in the selected areas of LDDP.

Methodology:

- Project documents such as Grant Manual, PAD, DPP, PIM, government data, etc. will be reviewed. Indicators mentioned in the Result Framework (RM) of the DPP, and PAD will be followed for comparing the results achieved during monitoring.
- Meta synthesis monitoring and evaluation (M&E) reports of LDDP.
- **Outcomes and benefits will be closely assessed and monitored through regular field visits and review of the progress reports.**

Work Priorities:

- a) **Analyse the progress on practices of upgraded slaughtering facilities and preparation of location specific operational business model (D. 3.1, 3.2).**
- b) Identification of factors affecting successful establishment of farmers groups, dairy hubs, and processing plants (D.4.3, 4.4, 4.5, 2.2).
- c) **Assess the scale of adaptation of technologies by the slaughterers, butchers and its impact on productivities, environmental sustainability, and consumer acceptance (D 3.2).**
- d) **Audit of women participation in value chain** in VMCC, dairy hubs and as entrepreneurs (D 4.3, 4.12, 4.15).

On the termination of the project, a draft and final report on implementation support done to PMU on agribusiness planning, technology and marketing advice will be prepared by the Team Leader.

D-9: Revised Workplan

A revised workplan is available in **Annex 3**.

Annexes

Annex 1

NOTE ON PRODUCTIVITY IMPROVEMENT, VALUE CHAIN, AND CLIMATE RESILIENCE

Component A: Livestock Productivity Improvement:

Bangladesh Vision 2041 endeavours to achieve high income (per capita income more than US\$16,000 in 2041 prices) status through industrial-based economy by 2041. The initiative encourages expansion of manufacturing capacity and investment in human capital and promotion of export-oriented sectors. A strong industrial-driven economy requires a strong agricultural base – one that is socially inclusive, climate smart and pro-environment.

Livestock plays a crucial role in the agricultural production sphere. Statistics show that about 1.44% of national GDP and 13.1% of agricultural sector GDP is contributed by the livestock sector, and its annual rate of growth is 3.8%. About 20% of the population of Bangladesh directly earn their livelihood through work associated with raising cattle and poultry (DLS 2021). In addition to milk, meat and egg the contribution of livestock is covering the areas such as organic fertilizer, hides and skin allowing export earnings and traction power in land cultivation.

Livestock population in Bangladesh is currently estimated to comprise 24.5 million cattle, 1.5 million buffaloes, 26.6 million goats, 3.67 million sheep, 304.1 million chicken and 61.7 million ducks. Indigenous breeds of poultry are small and poor in egg production. Two crossbred poultry farms, 'Rupali' (WLH Cock Faomi Hen) and 'Sonali' (RIR Cock Faomi Hen) have successfully evolved hybrids under Bangladesh and well suited for backyard poultry. Many private entrepreneurs have successfully established commercial poultry units.

Production of milk is estimated at 11.98 million MT, meat 8.4 million MT, and eggs 20576 million pieces. In Bangladesh, 83.9 percent of total households possess livestock (livestock or poultry or both). About 45.9 percent household's own cattle, and 76.3 percent possess poultry. On average, each household owns 1.52 bovine animals, 0.9 goat and sheep and 6.8 chicken and ducks. Since animal ownership is largely in the hands of small holders, further investment in livestock will have a positive impact on income distribution.

Table 1: Livestock Population in Bangladesh (in lakhs)

Name of Species	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Cattle	232.0	233.4	234.9	236.4	237.9	239.4	240.9	242.4	243.9	245.5
Buffalo	14.4	14.5	14.6	14.6	14.7	14.8	14.8	14.9	14.9	15.0
Sheep	30.8	31.4	32.1	32.7	33.4	34.0	34.7	35.4	36.1	36.8
Goat	251.2	252.8	254.4	256.0	257.7	259.3	261.0	262.7	264.4	266.0
Total Ruminants	528.4	532.1	535.9	539.7	543.6	547.5	551.3	555.3	559.3	563.3

Source: DLS (2021).

Over the last ten years (2012-2021), the growth rate in total ruminants have been around 0.7% per year. Fodder and feed shortage, low genetic potential of indigenous cattle breeds, limited knowledge of farmers in livestock production, disease and small land holding size are some of the main constraints affecting livestock production in all agro-ecologies in Bangladesh. The livestock sector is also affected by **weather/ climate change**, including global warming, natural disasters, saline intrusion, land degradation, air and water pollution, and loss of biodiversity. All this contributes to low productivity.

Over 24.5 million heads of cattle are distributed throughout Bangladesh. About 85% of the cattle in the country are of non-descript and indigenous in origin with low productivity compared to

other existing exotic breeds and their crosses, but they are well suited to the tropical harsh environment, low quality local feed and resistant to local diseases. To put it into context, an average Pabna breed cattle's daily milk yield is 4.02 litres compared to 10 litres of Friesian i.e., around 40% of the exotic breed (see table 2 below). Among the indigenous⁴, some types of cattle in different region of the country like Red Chittagong, Pabna, North Bengal Grey and Munshiganj are far better producers than others in the **existing low-input management system**.

The production and reproduction performances of indigenous and cross-bred cattle are summarized in Table 2 below, respectively. The birth weight of different cattle ranged from 10.8-40.0 kg according to breed (pure or exotic or crossed). The highest daily and total milk production was observed in Friesian cattle (10-15 kg day⁻¹) and the lowest (1.18±0.10 kg day⁻¹) recorded in indigenous varieties. There was great variation in daily total milk production of different indigenous, exotic, and crossed cattle. Lactation length varied from 258-286 days in Pabna cattle, to 250-270 days in Sahiwal and 305-360 days in Friesian cattle.

Table 2: Production performance of indigenous and crossbred cattle in Bangladesh

Breed	Birth weight (kg)	Daily milk yield (kg)	Lactation length (days)	Lactation yield (kg)
Non-descript Deshi	20.95±0.52 ^a	1.18±0.10 ^b	276.75±0.13 ^a	819.51±55.8 ^a
	10.8±0.67 ^a	2.80±0.12 ^a		
Pabna	20.88±2.63 ^d	4.02±0.99 ^a	258.59±48.72 ^d	1053.58±380.56
Red Chittagong	16.7±0.48 ^e	3.20 ^f	220 ^f	650 ^f
Sahiwal	15-22 ^g	3-5 ^g	250-270 ^g	800-1200 ^g
Friesian	30-40 ^h	10-15 ^h	305-360 ^h	3500-4800 ^h
Local×Friesian	18-30 ^g	5-11 ^g	270-360 ^g	1500-3000 ^g
Sahiwal×Friesian	26.35±0.35 ^h	10.56±0.14 ^h	260.38±4.48 ^h	2000-3500 ^g
Sahiwal×Pabna	21.83±0.29 ^h	6.78±0.19 ^h	227.98±7.31 ^h	1500-2000 ^g
Friesian×Pabna	23.40±0.20 ^h	8.28±0.22 ^h	249.84±7.62 ^h	2000-2500 ^g
Sindhi×Local	21.85±1.77 ^h	7.00±1.58 ^h	280.6±26.24 ^h	-
Holstein×Local	24.14±2.07 ^h	12.03±3.73 ^h	295.0±33.96 ^h	-

Source: Hamid et al. (2017)

The acute shortage of feeds and fodder is one of the major constraints to dairy development in Bangladesh (Akbar *et al.*, 2003. Ahmed, 2006. Khaleduzzaman et al., 2010). Fodder and feed production and availability to ruminant livestock is not encouraging and consequently affects their productivity. Even crossbred dairy cows are producing lower than the expected level because of the deficit of feeds and high yielding fodders. Several studies in the past have reported the severity of animal feed shortage in Bangladesh. Huque and Sarker (2014) reported on the livestock feed deficit as 56.2% DM, 22.5% DCP and 54.7% ME and the deficit of roughage as 44.5% of the demand. The availability of green grass as only 2.5 kg/h/day has been reported by Sarker et al. (2016a). However, with the increasing trends of the dairy farming at private level stimulating cultivation of HYV fodders for feeding dairy cows throughout the country which needs technical and other supports to strengthen and expansion. There is also possibility of trading fresh as well as preserved green fodders. Therefore, demonstration on fodder production and preservation bears a commercial value. Low-cost balanced feed formulation for different classes of livestock and for various stages of production and scientific feeding practices are the demanding areas of the farmers.

Improving animal productivity, health, and welfare, including livestock breed selection, fecundity, milk production and liveweight gains are the areas where improvements can be made. to enhance farm efficiency. **Maximising feed from farm residues, and promotion of concentrated feeds**, if adopted should improve farm economics. This relies on a holistic farm approach with improved soil and nutrient management and better feeding practices. Farming livestock more efficiently can improve business profitability. Adequate investment in farm-based production systems,

adoption of best agricultural practices, improving infrastructure for slaughter and value addition and building resilience against adverse effects of climate change should transform the national livestock sector.

Component B: Market Linkage and Value Chain Development

The value chain approach adopted by LDDP seeks to facilitate changes in household and consumer behaviour and improve the competitiveness of firms, thereby contributing to inclusive economic growth. The three interrelated expected results are of proposed interventions under this project component are

1. Reduction of rural poverty in general, with a specific focus on small-scale livestock producers; increase in sustainability and resilience of small-scale producers in a context of rapidly changing environment and climate,
2. Empower small-scale livestock producers, particularly women, organisationally and economically, in an inclusive manner.
3. Given the involvement of large number of small holders, and the potential impact on poverty reduction, and combatting malnutrition, the value chains selected for this purpose are dairy milk, bovine and small ruminants' meat and poultry.

The data presented in Table 3 indicate that current deficit in milk and meat is indeed very high. Between 2006 and 2020, national production of milk has grown five times, with a CAGR of 16.25%. Total milk yield in the country presently is 10.47 million MT. Despite the growth, there is a deficit of 4.5 million MT of milk which is largely met from imports. There is considerable scope for increasing domestic production to meet national demand. Nevertheless, recent expansion in the poultry sector has resulted in more production than demand.

Table 3: Demand, Production and Availability of Animal Protein

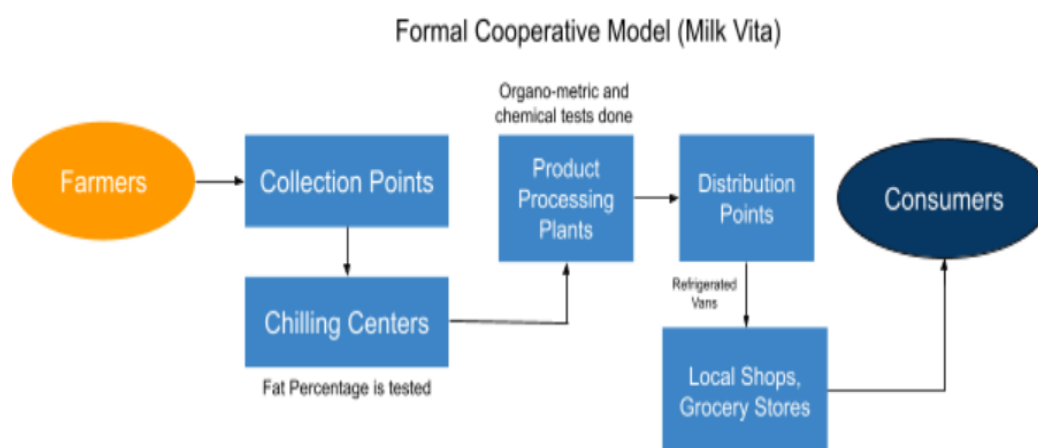
Product	Demand	Production	Deficit	Availability Per Capita
Milk	15.49 Million MT (250 ml/day/head)	11.99 Million MT	3.5 Million MT	193.38 (ml/day/head)
Meat	7.44 Million MT (120 gm/day/head)	8.44 Million MT	1.40 Million MT	136.18 (gm/day/head)
Egg	17659 Million number (104 number/year/head)	20576 Million numbers	2917 Million	121.18 (number/year/head)
Source: DLS (2021).				

The Bangladesh dairy value chain can be categorised into two models: the informal sector, and the formal organised sector. An important characteristic of the informal sector is the milk directly goes to consumers from farmers. One of the major issues of dairy farmers is the low price of milk paid at the farm gate. Intermediaries are involved in this system. They purchase milk at low prices from the farmers and sell in the city consumers at much higher prices. A farmer receives Tk. 35-40 for a litter of milk depending on the fat content, whereas the cost of production is on average Tk. 43 driven by rising prices of fodder and concentrates. Low prices act to demotivate farmers to produce milk for industrial processors and maintain the quality of the milk.

According to a study by Ayeshi et al. (2021) by Light Castle, 91% of milk is handled by the informal sector, while 9% is managed by the organised sector. The dairy sector is moving towards corporatisation through the growth of industrial processors of dairy products. In the formal

division of the market, there are both cooperatives and corporates. Even in the early seventies, the Government felt the need to collectivise milk producers. Government-run cooperative organisation Milk Vita pioneered the corporatisation of dairy in Bangladesh in the '70s by setting up a milk processing plant and starting various uses of milk. With the advent of artificial insemination in 1990s, milk production dramatically increased. The government also imposed import tax on milk powder and provided duty draw backs for dairy machinery imports, leading milk's corporatisation to boom.

Currently, there are over two dozen large dairy companies. The well-known brands are Bangladesh Milk Producers' Cooperative Limited (Milk Vita), BRAC Dairy and Food Project (Aarong Dairy), Pran Dairy Ltd (Pran Milk), Aftab Milk and Milk Producer Ltd (Aftab Milk), , Uttar Bango Dairy (Ultra), , Ichhamoti Dairy and Food Products (PURA), Baro Awlia Dairy Milk and Foods Ltd (Dairy Fresh), American Dairy Limited (MOO), Akij Food and Beverage Ltd (Farm Fresh Milk), Danish Dairy Farm Ltd (Ayran Igloo Dairy Limited (Igloo), Purbo Bangla Dairy Food Industries (Arwa), Cowhead Pure Milk (Cowhead), and Tania Dairy and Food Products (Safe). Some of the other upcoming brands are Tulip Dairy, Bikrampur Dairy, Ultra Shelaidah Dairy, and Rangpur Dairy. Since 2007, Grameen Danone is a force to reckon with in the yogurt segment. The latest entrant is EON which is marketing pasteurised milk under the Bakara brand. The efforts for corporatisation of milk market have resulted into an oligopolistic structure. Milk Vita dominates with 40% market share in the pasteurised milk market, followed by Pran and Aarong with a 24% market share each (Noyon & Ali, 2021). Milk Vita's business model is illustrated below.



Source: LCP Primary Research

Figure 1 Milk Vita Cooperative Model
Source: Quoted by Ayeshi and Saif (2021)

PRAN follows a hub and spoke model as illustrated in the figure below. Over sixty village milk collection centers were set up by PRAN in the project area in north-western Bangladesh. Each collection center is equipped with cooling tanks and equipment for milk testing. Extension and technical services are offered to the about 13,000 farmers who have been registered for milk delivery to the collection centers. A noteworthy point of the PRAN model is it supplies credit, veterinary services, AI services, training, chopper, and milking machines to farmers.

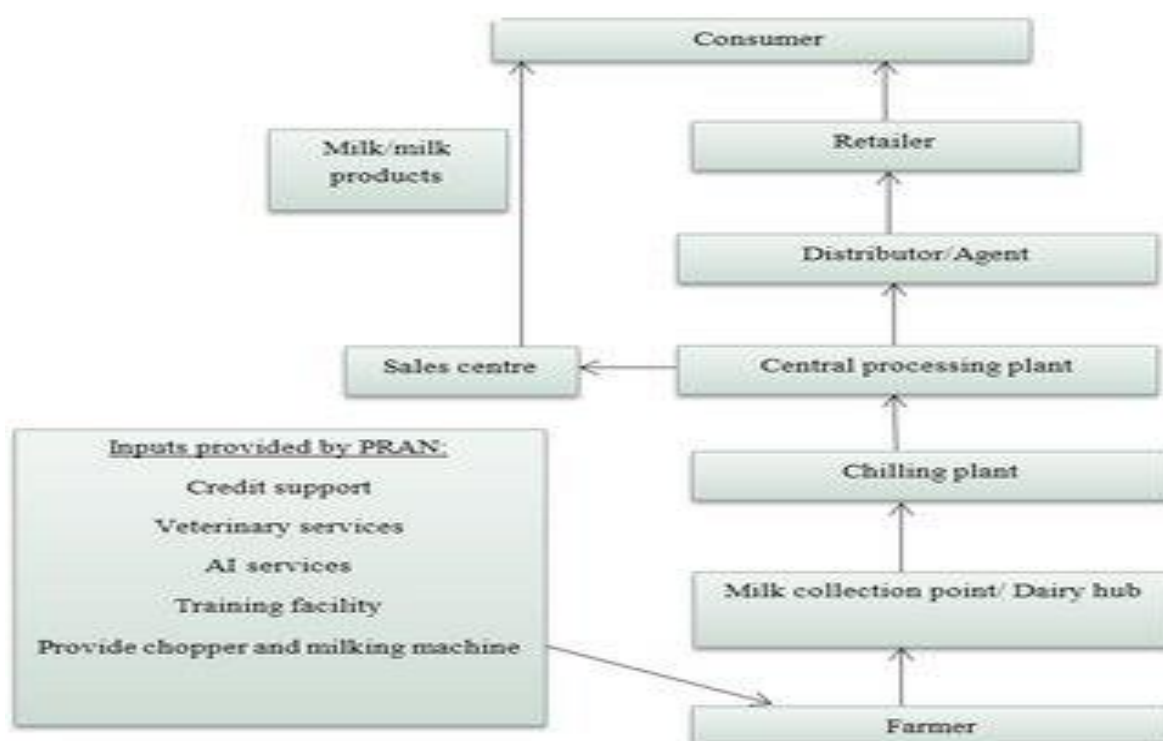


Figure 2: PRAN Milk Collection Model
Source: Das et al. 2021).

LDDP is proposing a hub and spoke model to organise the farmers into Producer Organisations/ VMCC, who in turn will supply to dairy hubs. LDDP through sub grants will improve the animal extension services for disease control and increasing fodder and feed availability. Through the matching grant scheme, it will address the issue of inadequate funding of VMCCs, lower the cost of production of fodder and feed, introduce quality control to reduce adulteration of milk, and provide incentives for farmers to shift to higher yielding cattle breeds, using AI and in some cases embryo transfer to accelerate yield increases.

A quarter of all milk is used for producing sweets and desserts. The value chain is relatively simple. Channel 1: farmers supply milk to sweet shops who directly sell produce to customers. Channel 2: farmers and wholesalers supply milk to sweet shops who sell to customers. Channel 1 is widely prevalent in rural Bangladesh. The dessert and sweet making are largely in the informal sector. Bengali traditional sweets have their distinctive characteristics as they were evolved through the ages and continuing to occupy prominent place as niche products. Sweetened milk products conserve the nutrients of highly perishable milk for many weeks. Bangladesh has some unique niche products which can be taken to world market. These products are largely made of *khoa* (thickened milk) and *channa* (curd cheese), made out of cows' milk. Some of the well-known sweets and desserts are:

- Yoghurt (Doi) of Bogra
- Chanar Polou of Jamalpur
- Balish Misti of Netrokona
- Sandesh of Satkheda
- Porrabarri Chomchom of Tangail
- Channamukhi of Brahmanbaria
- Rasamanjari of Gaibandha
- Rosomalai of Comilla
- Kachagolla of Natore

- Pera Sandesh of Naogaon
- Sabitri and Rosokodombo of Meherpur

The poultry and egg value chain follows four channels, namely, Channel I: farmer – petty trader – wholesaler- retailer- consumer; Channel II: Farmer – village trader – wholesaler; Channel III: farmer – wholesaler- retailer- consumer; and Channel IV: Farmer - wholesaler – consumer (Ami et al. 2020). The margin for all channel players is modest. A study by Islam et al (2016) of poultry meat and egg show that margin of profit for farmers is 13% to 16.5%; 5.09% and 0.28% for wholesaler and 7% to 8% for retailer.

Slaughterhouses occupy a pivotal place in livestock value chains. A slaughterhouse is where an animal is slaughtered to provide food for humans. Slaughterhouses supply meat, hide and skins, which are valuable for the economy. Slaughtering animals on a large scale poses significant issues in terms of logistics, animal welfare, and the environment, and the process must meet public health requirements. The number of slaughtered cattle and buffaloes for meat was estimated at 2.73 million thousand heads in 2019. **The problem of unhygienic slaughtering is most acutely felt during the three-day period over Eid ul Adha every year when nearly 30% of all stock is slaughtered, with over 350,000 cattle/buffalo slaughtered in Dhaka alone.** According to an article in The Business Standard (2021), **more than 9.01 million cattle were sacrificed across the country during Eid-ul-Azha in July 2021**, around 0.4 million down from last year. Among the slaughtered animals, more than 4.05 million cows and buffaloes, and over 5.04 million were goats and sheep. **None of the slaughterhouses have capacity to handle such a sharp peak demand.**

According to a study by UNIDO (2019), **the traditional open air slaughter accounts for nearly 93% of beef supply.** Trusted village traders play multiple roles, some of them are not only calf suppliers, but also important go-betweens in terms of transporting beef cattle from farms to slaughterhouses, particularly to urban markets. **Both in rural and urban areas, consumers prefer to buy freshly slaughtered beef directly from butchers in the wet markets.** Due to lack of trust, less than 1% of the beef consumed in the country is purchased at formal sector shops, supermarkets, and restaurants.

The current practice of slaughtering and processing the animals in kitchen markets are known sources of germ infection, and hazardous diseases, including the zoonotic ones. Zoonotic diseases are by a pathogen (an infectious agent, such as a bacterium, virus, parasite, or prion) that gets transmitted from an animal (usually a vertebrate) to a human. The proximity of butchers to animals exposes them to various health risks, including, salmonellosis and zoonotic diseases, such as brucellosis, Q fever, leptospirosis. The risks can be controlled by setting up modern slaughterhouses, duly equipped with facilities like lairage, ante mortem examination, stunning section, flaying, dressing, and washing of the carcass, post-mortem inspection section, meat processing plant, animal quarantine centres, by-product processing sheds and **effluent treatment plant.** Sadly, only few abattoirs in Bangladesh follow modern slaughter management practices. Several studies have noted that most slaughterhouses were found to maintain moderate to poor hygienic conditions where very few maintained good condition (Khurshed et al 2020). A common sight in slaughterhouses are piles of cattle excreta lying on the blood-smeared floor, causing a putrid smell. Further, in a study of 40 slaughterhouses in Mymensingh district, Rudra et al (2019) observed that **humane treatment of slaughter animals is not satisfactorily practiced** mainly due to poorly developed and implemented animal welfare legislation resulting in stress conditions and excessive suffering of animals.

The Government is acutely aware of concerns for public health, environment and animal welfare at the slaughterhouses managed by city corporations. To meet the concerns, Dhaka South City Corporation (DSCC) and Dhaka North City Corporation (DNCC) is rebuilding five slaughterhouses -- two at Kaptan Bazar and Hazaribagh under DSCC and three at Gabtoli, Mohammadpur Krishi Market and Mohakhali under DNCC. Likewise, **a modern slaughterhouse**, the first of its' kind in the city, **has been commissioned in Chittagong in May 2019**.

It can be inferred that by-products, viz, hide, skins, and bones are valuable materials but due to lack of management, Bangladesh slaughterhouses are not able to utilize those materials (Abdulla et al., 2021). Therefore, upgrading, and modernising slaughterhouses and proper usages of by-products is a priority under LDDP.

Most of the slaughterhouses in Bangladesh are service-oriented and, as such, perform only the butchering and dressing of animals without any further onsite operations. Many of these slaughterhouses are more than 70 years old with inadequate basic amenities viz. proper flooring, drainage, air circulation, piped water supply, lairage, loading and unloading docks for vehicles etc. In addition to these deficiencies, **slaughterhouses suffer from exceptionally low hygiene standard posing a major public health and environmental hazards due to odour, and disposal of untreated wastes**. The waste produced are manure, blood, grease, and offal. Direct disposal of highly polluted wastewater and organic residues into the drains, wetlands, or sewerage system results in clogging of drains, and deoxygenation of water bodies and rivers.

The feasibility of resource recovery from slaughterhouse waste is dependent on a variety of factors such as availability of adequate quantity of materials, demand for by-products in the market, cost of processing etc. In such situations, different methods of processing and disposal must be investigated.

Amin (2010) studied the management options of slaughterhouse wastes in Khulna city and how pollution abatement could be improved through community participation. In a sample survey of 100 citizens, respondents ranked bio methanation (biogas plant) as the priority, followed by improved bio methanation, composting and disposal of wastes at dumping sites.

Producing biogas or even potentially biodiesel from slaughterhouse waste could be a technological solution to address some of the environmental issues arising from animal waste. Proper handling of slaughterhouse waste has the of reducing health and environment hazards caused by wanton dumping, but also deploying biogas for cooling, cooking, or lighting. A model for this approach is the slaughterhouse waste-based biogas plant constructed by the Local Government Engineering Department (LGED) in the Tongi Area of Gazipur City Corporation in 2011. The plant is providing biogas for cooking purpose to residents at a fixed monthly fee. The Tongi experience is being replicated in new plants in Dhaka.

Component C: Improving Risk Management and Climate Resilience of Livestock Production

Bangladesh is experiencing erratic weather patterns along with a sustained rise in temperature and precipitation. Bangladesh has three major climate change affected areas: coastal belt in South-Western area, Drought-prone North-Western area and Flood affected middle part of the country. **Evolving climatic conditions are primarily due to increased temperatures and frequency and intensity of heat waves**. Other **climatic hazards are heavy rainfall and water logging, sea level rise and saline intrusion, tidal surge, cyclones in coastal areas**. These environmental conditions can affect livestock health by causing reduced feed intake, milk yield and weight gain, metabolic disruptions, **oxidative stress**, and immune suppression causing infections and death. **Climate change particularly elevated temperature also causes reduced herbaceous growth resulting** in shortage of roughage feed supply to livestock and increased incidence of parasitic diseases. Bangladesh government is paying increasing attention to reduce

impacts of climate change on animal health and the spread of pathogens – as many emerging diseases have an animal origin. ***Animals do adapt to climate change faster than crops as animals are more resilient to marginal conditions and withstand climate shocks*** (FAO 2020, Bernabucci 2019).

Livestock insurance is at an early stage of evolution in Bangladesh (World Bank 2010). Non-life insurance penetration was 0.15% in 2017 well below the average of emerging economies (Sultana, and Kaisar (2021). Livestock insurance protects the people from monetary loss incurred due to the unexpected death or disability caused by accidents, injury, illness, or diseases. of their cattle. Several private companies have initiated cattle insurance against death of cattle, theft of cattle and permanent and complete disability of cattle. The cost of premiums for comprehensive insurance against death, theft and permanent disability is approximately 5.5% annually on total cattle value.

LDDP proposes to scale-up livestock insurance countrywide in active collaboration with private insurance providers. While doing so, it would incorporate the experience gained within the country and in other developing countries. ***Global experience shows that insurance schemes which explicitly target improving farmer income and integrate insurance with other development interventions; giving farmers a voice in the design of products; investing in local capacity; and investing in science-based index development have been relatively more successful than standalone insurance instruments*** (Hansen et al. 2015).

To sum up, all the three project components address important constraints plaguing livestock sector in Bangladesh. Among the many areas that require attention are:

- a. ***strict enforcement of the Animals Slaughter (Restriction) and Meat Control Act, 1957 and The Food Safety Act, 2013;***
- b. ***training of butchers in scientific slaughter, processing and meat preservation techniques;***
- c. ***existing slaughter houses should be redesigned and upgraded;***
- d. ***breeding and multiplication farms in private sector should be promoted by the DLS;***
- e. ***fiscal and technical support to be facilitated for promoting growth of private sector poultry hatchery and feed mill;***
- f. ***removal of input constraints, and establishment of a regulatory body for quality assurance;***
- g. ***improvement of dairy breeds, feeding practices, and veterinary services;***
- h. ***improvement in vaccination coverage and vaccine availability against major animal diseases, and***
- i. ***greater integration of milk producers with processors at local and regional level.***

Annex 2

PROFILE OF INTERNATIONAL AND NATIONAL EXPERTS

Name of Experts	Position	Responsibilities
International Experts Contracted by AFC, Germany		
Dr. Andrew Lambert	Team Leader	▪ The team leader for the package on Agribusiness Planning, Technologies and Marketing Advice and Implementation Support to LDDP will accomplish the following tasks in coordination with the entire team. ▪ Maintaining coordination with the PD/PMU to ensure, in line with the approved GoB Development Project Proposal (DPP), compliance to WB financing and project agreements and its covenants. ▪ Project controls (plan, schedules, risks etc.) and work with the multi-disciplinary team to ensure effective operation and program deliverables. ▪ Provide for consistency and compliance with the agreed GoB and WB procedures and key results to be achieved during project implementation. ▪ Assist the team to finalize annual work plans and implementation schedule. ▪ Provide technical inputs on agribusiness development, market research/assessment, milk and meat value chains development and analysis. ▪ Provide technical advice to the experts in setting up dairy hubs, VMCCs, organizing POs/FOs and linking them with network. ▪ Implementation support for micro-small-medium enterprise under grants schemes and development of market infrastructure including slaughterhouse facilities. ▪ Monitoring the quality of services of individual experts, reviewing their reports, and providing feedback. ▪ Taking timely measures to ensure that deliverables are not hampered by undue delays. ▪ Assist in establishing a cohesive and effective team management. ▪ Assist the team to minimize implementation problems and issues that may arise from time to time. ▪ Responsibility of delivering the reports to the Client.
Under the process of replacement	International Agribusiness Development Expert-1 International Agribusiness	International Agribusiness Development Experts will work under the supervision of the Team Leader and in close cooperation with the other team members. They will perform the following major tasks: ▪ Developing strategies for setting and linking the smallholder groups with dairy hubs and processing plants, through POs and VMCCs, establishing VMCCs linking with dairy hubs.

Name of Experts	Position	Responsibilities
& Dr. Dala Ram Pradhan	Development Expert-2	- To provide technical assistance in developing dairy hubs, livestock business (beef, goat, and poultry), market analysis, business support, public-private platforms and partnerships, and entrepreneurship development, - Providing technical assistance to develop institutional modalities for managing and financing the dairy hubs and processing plants. - Conduct value chain analysis taking into account the regulatory environment. - Providing technical inputs in introducing food safety and control points, traceability system, analysing standards and quality aspects to meet the market demand and requirement. - Provide technical assistance on emerging technology to improve production yields, best husbandry practices and value-added operation opportunities, developing productive partnership between POs/FOs for value chain development. - Assist in setting up training facilities, institutionalizing value chain upgrade through the development entrepreneurship and managerial skills. - Preparation of reports for the Client. - Other works related to agribusiness as suggested by the team leader;
Dr. Prasun Kumar Das & Dr. Manab Chakraborty	International Agro-Economist and Financial Expert-1 International Agro-Economist and Financial Expert-2	Under overall supervision of the Team leader and close cooperation with the team, the Expert will accomplish the following major tasks: - Providing technical assistance to develop institutional modalities for managing and financing the dairy hubs and processing plants under matching grants schemes. - Providing technical assistance to the PMU in establishing Grants Schemes procedure following Grants and Matching Grants manual. - Undertake and in-depth technical assessment of the structure, current and future status of livestock production and productivity, consumption patterns, input suppliers and processors, markets as well as the current import patterns in the sub-sector. - Assessment of agribusiness plan (MSMEs). - Analysis of comparative advantages for livestock and dairy production, its contribution to socio-economic improvement. - Preparation of financial statements/reports. - Other works as suggested by the team leader/team. - Preparation of report for the management and the Client.
Prof. Dr. Md. Ali Akbar	International Animal Husbandry Expert	Under the overall supervision of the Team leader and close cooperation with the team members, the Expert will accomplish the following major tasks:

Name of Experts	Position	Responsibilities
		- Provide smallholder and producer groups with technical assistance on emerging technology to improve production yield, best husbandry practices, and value-added operations opportunities. - Provide technical support in designing and management of improved animal husbandry including climate smart livestock production system. - Suggest animal legislation or strategies and guidance to address endemic and emerging threats. - Livestock productivity improvement through vaccination, genetic improvement under the sub-grant schemes. - Provide technical assistance on animal health/animal disease diagnostics and control technologies (including vaccines), - Any other works as suggested by the team leader. - Prepare technical progress report for the management and the Client.
Dr. Balasankari Palghat Krishnan	International Renewable Energy Expert	Under overall supervision of the Team leader and close cooperation with the team, the Expert will accomplish the following major tasks: - Prepare assessment report in consultation with the Client, sharing with the team and finalization. - Identification of locations in cooperation with the Client for producing renewable energy. - Planning, designing, and management of renewable energy production. - Analysis of marketing strategies, opportunities, problems, and prospects. - Technical assessment of renewable energy production plant. - Setting up renewable energy and bio-gas production and its use. - Institutionalization of the activity as sustainable measure. - Other related works as suggested by the team leader. - Preparation of reports for the management and the Client.
National Experts Contracted by SSIL, Bangladesh		
Prof. Dr. Md. Jasimuddin Khan	National Animal Feed Expert	- Under overall supervision of the Team leader and close cooperation with the team, the Expert will accomplish the following major tasks: - Analysis of existing feed problems, providing technical support to the large processors for developing/upgrading feed technology. - Assessment of quality of feed and its role in agribusiness and livestock value chain systems. - Developing/ assessing on optimization of animal feeding, feed conversion and other productivity enhancing and cost-saving methods under different agro-climatic conditions. - Knowledge and understanding of dairy / livestock activities in Bangladesh - Other works as suggested by the team leader/Client. - Preparation of report for the management and the Client.

Name of Experts	Position	Responsibilities
Md. Abul Kalam Azad	National Agribusiness Expert-1 (Dairy, VMCC, etc.) Working station: Dhaka with occasional travels within the project area.	Under the overall supervision of the team leader, the expert will work in collaboration/cooperation with other team members/client to attain the objective of the assignment. He / She will provide technical assistance to the Client covering the following major areas: - Development of strategies for setting and linking the smallholder groups with dairy hubs and processing plants through producer organizations (POs) and VMCCs. - Provide technical assistance to establish 300 VMCCs owned by participating processors or by around 3500-3700 POs/ MSMEs linked to any of 20 dairy hubs under LDDP. - Provide technical assistance in developing dairy hubs and other livestock business (beef, goat, and poultry). - Examine the internal and external risks of dairy hub development and mitigation strategies. - Undertake market analysis to establish marketing arrangements major processors, consumers, and the level of competition in the milk market. - Preparation of progress report for the team/client. - Any other project related works as desired by the team leader.
Md. Mostafa Kamal	National Agribusiness Expert-2 (Grant Scheme) Working station: Dhaka with occasional travels within the project area.	Under the overall supervision of the team leader and in consultation with the other team members, the National Agribusiness Expert (Grants Schemes), will provide technical assistance to the Client on the following major areas: - Providing technical assistance to develop institutional modalities for managing and financing the dairy hubs and processing plants. - Providing technical assistance to the PMU in establishing Grants Schemes procedure following Grants and Matching Grants manual. - Preparation of report for the Client. - Any other relevant activities as suggested by the team leader/ team.
Mirza Altaf Hossain	National Agribusiness Expert-3 (Value Chain-1) Working station: Dhaka with occasional travels within the project area)	Under the overall supervision of the team leader and in consultation with the other team members, the National Agribusiness Expert (Value Chain) will provide technical assistance to the Client on the following major areas: - Conduct value chain analysis for identification of opportunities, challenges taking into account the regulatory environment and selection of interventions. - Undertake and in-depth technical assessment of the structure, current and future status of livestock production and productivity, consumption patterns, input suppliers and processors, markets as well as the current import patterns in the sub-sector. - Preparation of report. for the Client. - Any other works as suggested by the team leader/team.

Name of Experts	Position	Responsibilities
Under the process of replacement	National Agribusiness Expert-4 (Value Chain-2) Working station: Dhaka with occasional travels within the project area)	Under the overall supervision of the team leader and in consultation with the other team members, the National Agribusiness Expert (Value Chain) will provide technical assistance to the Client on the following major areas: - Conduct value chain analysis for identification of opportunities, challenges taking into account the regulatory environment and selection of interventions. - Undertake and in-depth technical assessment of the structure, current and future status of livestock production and productivity, consumption patterns, input suppliers and processors, markets as well as the current import patterns in the sub-sector. - Preparation of report. for the Client. - Any other works as suggested by the team leader/team.
Md. Mudasser Billah	National Agribusiness Expert-5 (Monitoring and Evaluation) Working station: Dhaka with occasional travels within the project area	Under the overall supervision of the team leader and in consultation with the other team members, the National Agribusiness Expert (M&E) will provide technical assistance to the Client on the following major areas: - Identification of factors affecting successful establishment of farmer groups, dairy hubs, and processing plants. - Analyzing the progress on practices of upgraded slaughtering facilities and preparation of location specific operational business model. - Assessing the scale of adaptation of the technology by the slaughterers, butchers and its impact on their productivity and consumers behaviour. - Provide inputs to the other team members as and when necessary. - Preparation of report for the client. - Any other works as suggested by the team leader / team.
Under the process of replacement	National Agribusiness Expert-6 (Food Safety & Quality Assurance) Working station: Dhaka with occasional travels within the project area	Under the overall supervision of the team leader and in consultation with the other team members, the National Agribusiness Expert (Food Safety and Quality Control) will provide technical assistance to the Client on the following major areas: - Introducing food safety and control points, traceability system back to the individual farmer. - Undertake an analysis of standards and quality aspects to meet the market demand and requirement. - Introduce food safety and control points, traceability system back to the individual farmers. - Assist the team in implementing other relevant activities. - Preparation of report for the Client. - Any other works as suggested by the team leader / team.

Name of Experts	Position	Responsibilities
S.M.A Samad	National Agribusiness Expert (Training and Communication) Working station: Dhaka with occasional travels within the project area	Under overall supervision of the Team leader, National Agribusiness Expert (Training and Communication) will provide technical assistance to the Client on the following major areas: - Assist in setting up training facilities to dairy hubs for providing training to farmers, extension workers, national institutes, NGOs, service provide including relevant University teachers and students. - Provide support in institutionalizing value chain upgrade through the development entrepreneurship and managerial skills. - Support the Client in developing/updating training materials, training plan, implementation, and evaluation of the training programs. - Support other team members in implementing relevant activities. - Preparation of report for the Client. - Other works as suggested by the team leader/ team to attain the objective of the assignment.
Md. Rezaul Karim	National Agribusiness Expert-8 (Livestock Product Development) Working station: Dhaka with occasional travels within the project	Under the overall supervision of the team leader and in consultation with the other team members, the National Agribusiness Expert (Livestock Product Development) will provide technical assistance to the Client on the following major areas: - Provide smallholder and producer groups with technical assistance on emerging technology to improve production yields, best husbandry practices and value-added operation opportunities. - Upgrade and incorporate through active cooperation of stallholders and producer groups. - Provide technical assistance to develop productive partnership between POs/ FOs under LDDP for value chain development decided by PMU. - Preparation of reports for the Client. - Help other team members in implementing relevant activity. - Other works as suggested by the team leader.

Annex 3

Revised Work Schedule and Deliverables

Sl. No.	Deliverables	2021	2022												2023														
		I2	I	2	3	4	5	6	7	8	9	10	11	12	I	2	3	4	5	6	7	8	9	10	11	12			
D-I	Project Startup and Inception Phase																												
I.1	Mobilize the consultant team																												
I.2	Establish the project office																												
I.3	Recruit and introduce support staff																												
I.4	Organize Kick off meeting																												
I.5	Put in place management procedures																												
I.6	Clarify organizational arrangements with the PMU																												
I.7	Carry out stakeholder mapping																												
I.8	Establish contacts and links with other technical teams																												
I.9	Update situation appraisal																												
I.10	Fine-tune the proposed methodology																												
I.11	Clarify consultation mechanisms with stakeholders																												
I.12	Adjust the proposed work plan																												
I.13	Organize the inception workshop																												
I.14	Analyze risks and challenges																												
Report I	Prepare and submission of the Inception Report		★																										
D-2	Component A: Productivity Improvement																												
2.1	Provide smallholder and producer groups with TA on emerging technology to improve production yields, best husbandry practices and value-added operations opportunities																												
2.2	Upgrade and incorporate through active cooperation of smallholders and producer groups into value chains																												
2.3	Assist in setting up training facilities to dairy hubs for providing training to farmers, extension workers, national institutes, NGOs, service provide incl. relevant University																												

D-3	Component B: Market Linkage and Value Chain Development Sub-Grants																							
3.1	Analyze the progress on practices of upgraded slaughtering facilities and preparation of location specific operational business model																							
3.2	Assess the scale of adaptation of the technology by the slaughterers, butchers and its impact on their productivity, and consumers behavior.																							
3.3	Strategies development for setting and linking the smallholder groups with dairy hubs and processing plants through POs and VMCCs																							
Report-2	Slaughtering Facilities Report																							
D-4	Component B: Market Linkage and Value Chain Development Matching-Grants																							
4.1	Conduct value chain analysis for identification of opportunities, challenges taking into account the regulatory environment and section of intervention (s)																							
4.2	Preparation and upgrading the business plan and marketing strategies, developing business linkages to enhance competitiveness and sustainability																							
4.3	Identify factors affecting successful establishment of farmer groups, dairy hubs and processing plants.																							
Report-3	Value Chain Analysis Report																							
4.4	Undertake and in-depth technical assessment of the structure, current and future status of livestock production and productivity, consumption patterns, input suppliers, and processors, markets, as well as the current import patterns in the sub-sector.																							
4.5	Undertake market analysis to establish marketing arrangement, major processors, consumers and the level of competition in the market.																							
4.6	Provide TA to assist developing dairy hubs and other livestock business (beef, goat and poultry).																							
4.7	Undertake an analysis of Standards and quality aspects to meet market demand and requirement.																							
Report-4	Livestock and Dairy Business Structure Analysis Report																							

[illegible]

Reporting/ Milestone																									
(i)	Inception Report		★																						
(ii)	Slaughtering Facilities Report				★																				
(iii)	Value Chain Analysis Report								★																
(iv)	Livestock and Dairy Business Structure Analysis Report												★												
(v)	Farmers Capacity Development Report																★								
(vi)	Critical Structure and Grants Modality Report																		★						
(vii)	Partnership Development																			★					
(viii)	Draft Final Report																					★			
(ix)	Final Report																							★	

Annex 4 References

- Abdulla, M. S., Islam, M. S., Kabir, M. E., Dadok, F., Zaber, M. A. A., & Sarkar, S. (2021). Utilization of slaughterhouse by-products: a current scenario in Dhaka city. *Asian Journal of Medical and Biological Research*, 6(4), 809–816. <https://doi.org/10.3329/ajmbr.v6i4.51250>
- Ami, U.S. & Happy, Fardous & Arefin, M. & Hasan, M. & Hossain, G. & Bir, M.S.H. (2020). Marketing System and Efficiency of Egg in Selected Areas of Mymensingh District in Bangladesh. *Journal of Agriculture, Food and Environment*. 01. 09-15. 10.47440/JAFE.2020.1202.
- Amin, Md Nurul. (2010). Resource recovery and zero waste management option of slaughterhouse waste in Khulna city corporation of Bangladesh. *Journal of the Bangladesh Agricultural University*. 7. 10.3329/jbau.v7i2.4742.
- sadulghani, Md & Angra, Pawan & Giasuddin, Md & Bari, Latiful & Islam, Md Shahidul & Roy, Chandan & Islam, Md & Islam, Zhahirul & Hasan, Kazi Nadim & Islam, Mohammad & Nabi, AHM Nurun & Farzana, Tasnim & Chowdhury, Jamal & Sultana, Munawar & Mannan, Tania & Rahman, Mohammad & Sikder, Abdul & Salimullah, Md. (2020). Strengthening Biosafety and Biosecurity Status in Bangladesh: A Sustainable Approach. *Applied Biosafety*. 25. 153567602093043. 10.1177/1535676020930430
- Ayeshi, Faiyaz Uddin and Nazarul, Saif. (2021). What's Next for the Dairy Industry? <https://www.lightcastlebd.com/insights/2021/05/dairy-sector-in-bangladesh-promises-and-frailties-under-the-microscope>
- Bangladesh National Nutrition Council (BNNC) (2021). Assessment of Assessment of the Key Bottlenecks for the Coverage of Nutrition Sensitive Interventions and the Underlying Causes, Bangladesh National Nutrition Council (BNNC), Health Services Division Ministry of Health and Family Welfare, Dhaka, https://bnnc.portal.gov.bd/sites/default/files/files/bnnc.portal.gov.bd/page/1f1d0f32_ab6f_49f3_8b9c_b52ccefd63c4/2021-07-30-14-40-acae3cfc0d02da6f35ab4bc7bdf75b7a.pdf
- Bernabucci, Umbreto (2019). Climate change: impact on livestock and how can we adapt, *Animal Frontiers*, Volume 9, Issue 1, January 2019, Pages 3–5, <https://doi.org/10.1093/af/vfy039>
- Das, Onik & Alam, Mohammad & Hossain, Mohammad & Hoque, Md & Barua, Swarup. (2021). Factors Determining the Smallholder Milk Producers Participation in Contractual Agreements: The Case of North-West Bangladesh. *International Journal of Sustainable Agricultural Research*. 8. 164-179. 10.18488/journal.70.2021.83.164.179.
- Department of Livestock Services. (2021). Livestock Economy at a Glance, DLS, Bangladesh. <http://www.dls.gov.bd/site/page/22b1143b-9323-44f8-bfd8-647087828c9b/Livestock-Economy>
- **FAO (2020) Protecting the health of animals to help reduce the effects of our changing climate on hunger and poverty, Food and Agriculture Organisation, Rome.**
- Global Nutrition Report, (2021). Bangladesh: The burden of malnutrition at a glance. <https://globalnutritionreport.org/resources/nutrition-profiles/asia/southern-asia/bangladesh/>
- Hamid, M.A., Rahman, A., Zaman, A.M., and Hossain, K.M. (2017). Cattle Genetic Resources and their Conservation in Bangladesh. *Asian Journal of Animal Sciences*, 11: 54-64. DOI: 10.3923/ajas.2017.54.64
- **Hansen, J. H. Greatrex et al. 2015. Scaling up index insurance for smallholder farmers: Recent evidence and insights.** CCAFS Report No. 14. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).
- Islam, Mohammad Saiful & Khatun, Razia & Ahmed, Shamim & Hasan, Md & Islam, Md & Uddin, A.S.M. & Mahmud, Mohammad Showkat. (2016). Value Chain Analysis of Processed Poultry

Products (Egg and Meat) in Some Selected Areas of Bangladesh. *American Journal of Rural Development*. 4. 65-70. 10.12691/ajrd-4-3-2.

- Khurshed, Mohammad Alam & Yoshino, Keiko & Hossain, Mm. (2020). Present Working Conditions in Slaughterhouses and Meat Selling Centres and Food Safety of Workers in Two Districts of Bangladesh. *Pertanika Journal of Social Science and Humanities*. 28. 867-881.
- Noyon, Abbas Uddin & Ali, Shawkat (2021). Corporatisation of dairy in Bangladesh. *The Business Standard*. Dhaka. <https://www.tbsnews.net/supplement/corporatisation-dairy-bangladesh-254152>
- Rudra KC, Mazumdar S, Shanta SA, Rahman AKMA, and Islam MA. (2019). Assessment of animal welfare status during transportation and slaughtering of ruminant animals at local slaughter houses in Bangladesh. *J. Vet. Med. OH Res*. 1 (1): 85-98.
- Rudra KC, Mazumdar S, Shanta SA, Rahman AKMA, and Islam MA (2019). Assessment of animal welfare status during transportation and slaughtering of ruminant animals at local slaughter houses in Bangladesh. *J. Vet. Med. OH Res*. 1 (1): 85-98.
- Sultana, Dipu, and Kaisar, Fahmid. (May, 2021) Evolution of Micro Insurance in Bangladesh: Financial Cushion for the Bottom of the Pyramid Population. <https://www.lightcastlebd.com/insights/2021/05/evolution-of-micro-insurance-in-bangladesh-financial-cushion-for-the-bottom-of-the-pyramid-population>
- The Business Standard. (2021) Lesser number of animals sacrificed this Eid. *The Business Standard*, 24 July 2021. <https://www.tbsnews.net/bangladesh/country-sees-less-sacrifice-animals-eid-online-sales-mark-sharp-rise-278392>
- UNIDO (2019). The dairy and beef value chain in Bangladesh. Diagnostics, investment models and action plan for development and innovation. Draft Report, May 2019. <https://www.unido.org>
- World Bank. 2010. *Agricultural Insurance in Bangladesh: Promoting Access to Small and Marginal Farmers*. Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/12624> License: CC BY 3.0 IGO.

Annex 5

Terms of References

Terms of References

Terms of Reference for consulting services of Agro-Business Planning, Technology and Marketing Advice and Implementation Support to Livestock and Dairy Development Project (LDDP)

1. Background

Bangladesh lies within the Ganges-Brahmaputra-Meghna Delta, the world's largest, most densely populated delta and one of the richest in aquatic resources. In 2014, Bangladesh crossed the threshold to become a low middle-income country (LMIC), and per-capita income reached US\$ 1,602 in 2017. Bangladesh's remarkable development achievements notwithstanding, high levels of poverty and population density remain pressing development challenges.

Given increasing population pressure, the Government of Bangladesh (GOB) has recognized that the expansion of dairy and meat production as well as processing, value addition, marketing and consumption, can offer an important pathway to sustainable economic development and future poverty reduction opportunities for Bangladesh. The livestock sector is taking an increasingly major role in this performance, accounting for approximately 16% the agricultural GDP and emerging as a major growth driver in the last two decades showing an incremental GDP growth rate as compared to the fisheries and crops sectors. The livestock sector also plays an important role in the food supply and food security of the country's millions of smallholder livestock farmers. Milk, meat and eggs provide 50% of all animal protein consumed in Bangladesh. Livestock also plays a major role in employment as of the total population 20% is directly and 50% is indirectly and associated with the livestock sector. In Bangladesh, milk, meat and eggs are important to address malnutrition and hidden hunger, particularly among poor women and children in the rural areas.

The GOB recognizes the potential for the country to increase the value of its dairy, meat and eggs production and processing through improved sustainable animal husbandry practices and by doing so improve the lives of the poor subsistence farmers. Several key sector wide challenges necessitate government intervention and investments to enable private sector driven growth. These include (i) the absence of an effective regulatory framework for managing the dairy and meat sectors in particular processing and onward value addition; (ii) limitations in the basic public infrastructure necessary to enable private sector investment; and (iii) limitations in both public and private sector capacity for improved livestock management and optimal productivity.

To overcome these challenges and enable private sector investment, Bangladesh can learn from both regional and global experiences and good practices for investing in dairy and meat value chains reforms. Global experience highlights the need to first establish a core public sector governance framework, including an agreed sector vision, coherent policy, and an enabling legal framework, to allow the design, piloting, and implementation of dairy and meat processing activities supported by adequate institutional capacity building. The latter entails first and foremost building the Department of Livestock Services (DLS) capacity to

implement an effective management system to address the constraints currently hampering private sector livestock development.

2. Project description

2.1 Background

The LDDP project seeks to promote climate resilient productivity growth, enhance market access, and improve risk management among smallholder livestock farmers and agro-entrepreneurs, by providing support for climate smart livestock production systems, farmer empowerment and commercialization.

The project will foster a market-led transformation of livestock production, while ensuring that the supply response to growing demand is sustainable, inclusive, safe, and environmentally conscious. To this end, the project will improve the ecosystem for value chain development by financing key infrastructures including markets, and access to market, insurance and financial products and services, capacity building and knowledge.

Climate resilient livestock production systems will be developed through the promotion of appropriate climate smart agriculture (CSA) practices addressing feeding strategies, animal health and welfare, animal husbandry and breeding, as well as manure and waste management, improved storage and processing. The project will build on existing experience to foster the generation of renewable energy from solar and livestock manure sources.

The project is designed and will be implemented taking into consideration the different gender roles. The project will actively pursue the participation of women across all project components. LDDP will cover all over Bangladesh (61 districts and 465 Upazlias) except 3 hilly districts.

2.1 Project objective

The project development objective (PDO) is to improve productivity, market access, and resilience of smallholder farmers and agro-entrepreneurs operating in selected livestock value chains in target areas.

2.2 Key expected results of the Project

- Farmers adopting improved agricultural technologies (following CSA principles) (50% female).
- Increased productivity of targeted species by direct beneficiaries (aggregated over cattle, buffalo, goat, sheep and poultry).
- Increase in market access reflected in increased sales (milk and/or processed milk products, live animals and meat, and egg) among the livestock producers and value chain actors in project areas (40% female).
- Farmers, value chain actors have adopted either food safety standards and/or traceability system, and/or livestock insurance (including climate induced risks) (50% female benefit)

2.3 Project components

- Project Component A: Productivity Improvement and Innovation

- Project Component B: Market Linkages and Value Chain Development
- Project Component C: Improving Risk Management and Resilience of Livestock Production Systems
- Project Component D: Project Management

2.4 Project duration

The deadline of the project is December 2023. The duration of the assignment was initially 36 months. However this is a lump sum form of contract. So the duration of the assignment would be 36 months (in case the project deadline extends) or present project completion date (December 2023) which comes earlier.

3. Duties and responsibilities

The agribusiness Consultants will closely cooperate with the Project Management Unit (PMU) of LDDP under the guidance of its Project Director (PD). The PMU will assist the agribusiness consultant as required.

The PMU, in cooperation with the agribusiness consultant, will ensure that the objectives of the Project will be achieved within the agreed time schedule, and that the contents of the reports and recommendations are acceptable to the PMU of LDDP. The agribusiness consultant will direct the planning process and work program, supervise the studies and monitor progress according the scope of services to be rendered.

The PMU will make available the following data, services and facilities to the consultant:

- All available district wise livestock data and records on dairy, beef, sheep, goat, poultry;
- Available reports and study related documents;
- Any other services available with PMU to help the agribusiness consultant to carry out the data collection program as per ToR

The agribusiness consultant will carry out the services as specified in the Scope of Services in the best interest of the LDDP with excellent care, skills, expertise and diligence with sound professional, administrative and best global practices.

4. Scope of Services

The overall objective of this request for service is to provide technical assistance for a comprehensive development of the livestock industry in Bangladesh and take advantage of the existing and emerging business opportunities within the livestock sectors in the country. LDDP seeks to improve productivity and market access for micro and small scale livestock producers for income generation, promote economic growth and reduce poverty.

The program provides sub-grant funds (100% grant) and matching grant funds (maximum 50% grants) to Micro, Small and Mid-Sized Enterprises (MSMEs), Producer Organizations (POs), Dairy Enterprises (DEs), as well as other relevant Agribusiness Buyers (ABs), jointly referred to as Beneficiaries, for the development of new or expansion of existing businesses in the sector. The agribusiness consultant will have to assist in establishing these Grant Schemes through support in agribusiness development plans, including technology and marketing

advice, and implementation support keeping in view the relevance of the investment, its effectiveness and the key factors driving long-term sustainability (i.e. economic and financial feasibility, market, technology, environmental sustainability, organizational capacity and management).

The agribusiness consultant will act as technical assistance provider to help the Beneficiaries of the Grant Schemes, in the preparation of detailed business plans to strengthen their linkages to financial services, assist in value-added processes and linkage to markets, thus contributing to the development of the sector. The services of the Agribusiness Consultant will primarily focus on supporting the implementation of the Sub-Grant and Matching Grant Scheme as follows¹:

- Component A - Productivity Improvement: In total the disbursement of over 193,000 sub-grants with a value of US\$85 million (ranging from US\$100 to US\$208,000) to potential beneficiaries and including e.g. simple vaccinations, supply of hygienic milk tools and supporting breeding stations in genetic improvement. Given the large number of sub-grants the LDDP will make use of the existing DLS District Livestock Officers (DLOs) and DLS infrastructure to reach the large number of beneficiaries. In addition, LDDP will assign 4,200 Livestock Service Providers (LSPs), 10 in every Upazila, to streamline LDDP activities
- Component B – Market Linkage and Value Chain Development Sub-Grants: In total the disbursement of 647 sub-grants with a value of US\$109 million (ranging from US\$28,000 to US\$10 mln) to improve critical agribusiness infrastructure with focus on animal slaughtering on (i) wet markets, (ii) the realisation of slaughter facilities at district level, and (iii) the construction of 3 large and advanced slaughterhouses in larger cities (Chittagong, Khulna and Rajshahi). In addition, selected sub-grants will be for the construction of Village Milk Collection Centres (VMCCs) and biogas plants.
- Component B – Market Linkage and Value Chain Development Matching-Grants: In total the disbursement of 2,365 Matching Grants with a value of US\$30 million (ranging from US\$1,000 to US\$315,000) a/o to DEs and ABs such as large dairy processors for the establishment of dairy hubs, animal feed millers to improve processing technology and power generation from animal manure.

In addition, sub-grants are available for a School Milk Program but this will hopefully be outsourced to UN organisations (FAO or WFP) and support of livestock insurance (high productive dairy cattle) which will be under a separate Livestock Insurance Management Unit. Hopefully UNIDO will be involved in supporting the Food Safety aspects of the Project.

Given the complexity of the agriculture and agribusiness environment in Bangladesh as well as the wide range of project activities and huge scale of operations (with a project value of US\$500 million the LDDP is the largest livestock project ever implemented by World Bank), staff of the agribusiness consultant to be selected should demonstrate excellent capabilities and with experience to work in a complex environment.

¹ For detailed information on the Grant Schemes it is referred to the Draft Operations Manual for a Sub-Grant and a Matching Grants Scheme (Version 3, December 2019)

In order to implement the Sub- and Matching Grant Schemes (SMGSs) the Agribusiness Consultant should a/o carry out following tasks (non-exhaustive):

Component A related tasks:

- Provide technical assistance to small holder and producer groups on new technologies to increase production outputs, best husbandry practices and opportunities for value added operations;
- Upgrading and integrating smallholders and producer groups into value chains through productive networks and partnerships;
- Capacities of national institutions on agribusiness development and management (DLS and relevant NGOs, banks, academics, private sector, etc) are improved

Component B (sub-grants) related tasks:

- Support with feasibility analysis related to upgrading slaughtering practices at Upazila/growth centre level wet markets, district facilities and modern slaughterhouses;
- Assess the adaptation of upgraded slaughtering practices by slaughters and butchers using the improved facilities, and assess impact on butcher and slaughterer profitability, as well as reception of improved/safer products by consumers;
- Develop strategies for setting up and linking smallholder groups with the dairy hubs and processing plants (through POs and VMCCs);

Component B (matching grants) related tasks:

- Undertake a detailed value chain analysis to identify investment opportunities and challenges taking into account the regulatory environment, and propose interventions for exploiting the business opportunities;
- Prepare business plans, upgrading/modernization plans and marketing strategy for producer group networks to facilitate business linkage development, thus improving the competitiveness and sustainability for the industry;
- Conduct an in-depth assessment that would highlight factors that will contribute to the successful establishment farmer groups, dairy hubs and processing plant and enhancing competitiveness
- Undertake an in-depth technical assessment of the structure, current and future status of the livestock production and productivity, consumption patterns, input suppliers, and processors (at various stages of the value chain), markets as well as the current import patterns in the sub-sectors
- Undertake market analysis to establish marketing arrangements, major processors, major consumers and the level of competition in the market;
- Technical assistance provided to assist developing dairy hubs and other livestock businesses (beef, goat and poultry) for sustainable development of the industry
- Undertake an analysis of standards and quality aspects to meet market demand and requirements
- Undertake an in-depth analysis that will reveal potential business opportunities in livestock sector based on existing and potential comparative and competitive advantages in the sector development process

- Technical assistance for the establishment of 300 Village Milk Collection Centers (VMCCs,) owned either by preferably, participating processors or by around 3500-3700 Producer Organizations/MSMEs linked to any of 20 Dairy Hubs under LDDP.
- Support the setting up training institutes attached to dairy hubs for providing training facilities to farmers, extension workers, NGOs, service provide including relevant University teachers and students
- Introduction of food safety and control points, including a traceability system back to the individual farmer (hopefully in cooperation with UNIDO/FAO)
- Technical assistance for developing institutional modalities for managing and financing the dairy hubs and processing plants
- Assist in institutionalizing value chain upgrade through the development entrepreneurship and managerial skills
- Analyse the potential internal and external risks of dairy hub development and the mitigation strategies
- Technical Assistance to support the PMU in establishment of all procedures for the Grant Schemes in accordance with the Grants and Matching Grants Manual.

5. Key Expert Team indicative composition

The assignment shall be carried out by a multi-disciplinary team of international experts, supported by national experts including the following positions.

SL No	Position	Input (Person/ Month)	Intended Experience/Qualification
1	Team Leader (TL) (International)	28 PM	• Advanced degree in business administration, agricultural economics or related agricultural subjects with minimum 10 years of international experience related to rural business development, in the agribusiness sector including micro finance and marketing, as well as competitiveness and value chain analysis. • Developing businesses in agro/livestock sector, sector evaluations, feasibility studies, and/or assessments; • Leading multi-disciplinary teams: the TL should at least have held a senior leadership/management position on related projects • In-depth knowledge and experience in the agribusiness development practices • Demonstration of strong knowledge in setting up dairy hubs, VMCC and other businesses in the livestock sector • Track record in conducting similar assignments in developing countries • At least three (3) similar assignments related to the preparation, formulation and development of agribusinesses within the last five (5) years. • Experience in working with rural micro-to-small scale

SL No	Position	Input (Person/Month)	Intended Experience/Qualification
			businesses through the provision of either business development services, training and/or technical assistance.
2	International agribusiness development experts; 2 positions (24 PM each)	48 PM	- Advanced degree in livestock sciences or relevant disciplines with minimum 7 years of international experience in agribusiness development with preferably four (4) years of experience in design and management of agribusinesses and agribusiness development practices - Proven record of working in similar types of projects in similar environments. - Proven experience in technical assessments on livestock/agriculture businesses in the national/international context. - Demonstrated knowledge and understanding of agriculture/dairy/livestock related sectors in Bangladesh or in the countries of the region - Good understanding in setting up dairy hubs and VMCC is an advantage
3	International Agro-Economists and Financial experts: 2 positions (18 PM each)	36 PM	- Advanced university degree in Business Administration (MBA) and Management or Economics or related discipline. - At least 7 years international experience in economic research, assessments of agribusinesses, policy development and business analysis, especially focused on the low-income population segment including women. - Work experience in a development institution, economic policy think-tank/research organization, or economic policy development and analysis consultancy firm will have an added advantage. - Knowledge of business plan preparation and ability to prepare financial statements - Knowledge of business plan preparation for MSME and large enterprise using business tool such as COMFAR, Rural Invest or other is an advantage - Experience in establishing Grant Schemes
4	International/National Animal Feed Expert	24 PM	- Advanced degree in livestock sciences or relevant disciplines with minimum 7 years of international or national experience in scientific feed formulation - Proven record of working similar type of project in similar environment - Proven experience in scientific assessments on optimizing animal feeding, feed conversion, and other productivity

SL No	Position	Input (Person/Month)	Intended Experience/Qualification
			enhancing and cost saving methods • Demonstrated knowledge and understanding of agriculture/dairy/livestock related sectors in Bangladesh or in the countries of the region • Good understanding of livestock production in Bangladesh or in the countries of the region
5	International Animal Husbandry Expert	24 PM	• Advanced degree in livestock sciences with minimum 7 years of international experience in animal husbandry including design and management of improved animal husbandry practices. • Proven record of working similar type of projects in similar environment • Proven experience in technical assessments on animal husbandry in the national/international scenario. • Demonstrated knowledge and understanding of agriculture/dairy/livestock related sectors in Bangladesh or in the countries of the region
6	International Renewable Energy Expert	12 PM	• Advanced degree in engineering/energy/environmental sciences with minimum 7 years of international experience in renewable energy including design and management of renewable energy and particularly bio gas production. • Proven record of working similar type of project in similar environment • Proven experience in technical assessments of renewable energy and bio gas production in the national/international scenario. • Demonstrated knowledge and understanding of energy/environment related sectors in Bangladesh or in the countries of the region • Good understanding in setting up renewable energy and bio gas production in conjunction with processing operations
7	National Agribusiness Experts: 8 positions (28 PM each)	224 PM	• National Agribusiness experts will work closely with the Team Leader and International experts, and should have advanced degree in agricultural sciences with 7 years of progressive experience preferably in livestock or agribusiness development design and management, preferably livestock related • Proven record of working in similar type of development project in agribusinesses in similar environment and experience in the agribusiness development practices,

SL No	Position	Input (Person/Month)	Intended Experience/Qualification
			including working experiences with the rural women. • Demonstrated knowledge and understanding of agriculture/dairy/livestock related sectors in Bangladesh • Proven track record in training, preparation of training modules and experiences in working with farmers' groups. • Experience in managing grants preferred

Note: The person-months in the above table is indicative. For lump sum contract, the consultant will deliver deliverables as per delivery schedule.

6. Working arrangement

The assignment of the Agribusiness Consultant will be agreed upon in a separate project document based on this TOR and jointly developed between the Agribusiness Consultant and the PMU. The Agribusiness Consultant will work in close collaboration and regular coordination with PMU, the World Bank and other relevant project stakeholders.

PMU will provide the following:

- Access to the LDDP network and database (will be provided, if available)

7. Reporting Requirements and Time Schedule for Deliverables:

The reporting requirements and time schedule of deliverables for the consultancy services are mentioned below:

The Consultant shall submit three hardcopy of each report and softcopy in pdf or word format following the timeline of deliverables.

This delivery schedule is finalized in the negotiation.

Deliverables	Contents of the Deliverables	Timeline of Deliverables
Report-1: Inception Report	The inception report shall cover the methodology of the whole services to be provided with clear timeline of each activity. Highlight the risks and challenges of activities and plan to overcome those challenges.	Within one (1) month of Contract signing.
Report-2: Slaughtering Facilities Report	The Slaughtering Facilities Report shall include the following deliverables. a) Analysis related to (i) upgrading slaughtering practices at Upazila/growth centre level wet markets, (ii) district level	Within five (5) months of Contract signing.

Deliverables	Contents of the Deliverables	Timeline of Deliverables
	slaughter facilities and (iii) metro level modern slaughterhouses; and prepare location specific operational business model for local authority to run the structures constructed by LDDP. b) Assess the adaptation of upgraded slaughtering practices by slaughters and butchers using the improved facilities, and assess impact on butcher and slaughterer profitability, as well as reception of improved/safer products by consumers c) Develop strategies for setting up and linking smallholder groups with the dairy hubs and processing plants (through Producers Organizations and Village Milk Collection Centres).	
Report-3: Value Chain Analysis Report	Value Chain Analysis Report shall include the following deliverables a) Undertake a detailed value chain analysis to identify investment opportunities and challenges taking into account the regulatory environment, and propose interventions for exploiting the business opportunities b) Prepare business plans, upgrading/modernization plans and marketing strategy for producer group networks to facilitate business linkage development, thus improving the competitiveness and sustainability for the industry c) Conduct an in-depth assessment that would highlight factors that will contribute to the successful establishment farmer groups, dairy hubs and processing plant and enhancing competitiveness	Within eight (8) months of Contract signing.
Report-4: Livestock and Dairy Business Structure Analysis Report	Livestock and Dairy Business Structure Analysis Report shall include the following deliverables a) Undertake an in-depth technical assessment of the structure, current and future status of	Within ten (10) months of Contract signing.

Deliverables	Contents of the Deliverables	Timeline of Deliverables
	the livestock production and productivity, consumption patterns, input suppliers, and processors (at various stages of the value chain), markets as well as the current import patterns in the sub-sectors b) Undertake market analysis to establish marketing arrangements, major processors, major consumers and the level of competition in the market c) Technical assistance provided to assist developing dairy hubs and other livestock businesses (beef, goat and poultry) for sustainable development of the industry d) Undertake an analysis of standards and quality aspects to meet market demand and requirements	
Report-5: Farmers Capacity Development Report	Farmers Capacity Development Report shall include the following deliverables a) Undertake an in-depth analysis that will reveal potential business opportunities in livestock sector based on existing and potential comparative and competitive advantages in the sector development process b) Support the setting up training institutes/facilities attached to dairy hubs for providing training to farmers, extension workers, NGOs, service provide including relevant University teachers and students	Within fourteen (14) months of Contract signing.
Report-6: Critical Structure and Grant Modality Report	Critical Structure and Grant Modality Report shall include the following deliverables a) Introduction of food safety and control points, including a traceability system back to the individual farmer (hopefully in cooperation with UNIDO/FAO) b) Technical assistance for developing institutional modalities for managing and financing the dairy hubs and processing plants	Within eighteen (18) months of Contract signing.

Deliverables	Contents of the Deliverables	Timeline of Deliverables
	c) Assist in institutionalizing value chain upgrade through the development entrepreneurship and managerial skills d) Analyze the potential internal and external risks of dairy hub development and the mitigation strategies e) Technical Assistance to support the PMU in establishment of all procedures for the Grant Schemes in accordance with the Grants and Matching Grants Manual.	
Report-7: Partnership Development Report	Partnership Development Report shall include the following deliverables a) All technical assistance needed to develop productive partnership between farmer's groups/producers groups under LDDP and agribusiness development entrepreneurs committed/selected to work with LDDP for value chain development, as decided by PMU. b) Technical assistance for the establishment of 300 Village Milk Collection Centers (VMCCs,) owned either by preferably, participating processors or by around 3500-3700 Producer Organizations/MSMEs linked to any of 20 Dairy Hubs under LDDP c) Report on Implementation support done to PMU on developed agribusiness planning, technology and marketing advice according to TOR.	Within twenty two (22) months of Contract signing.
Report-8: Draft Final Report	Draft Final Report shall include the following deliverables a) Report on Implementation support done to PMU on developed agribusiness planning, technology and marketing advice according to TOR. b) Submission of draft final report covering the details of services delivered with comments on achievements of targets of the consultancy services.	Within twenty seven (27) months of Contract signing.

Deliverables	Contents of the Deliverables	Timeline of Deliverables
Report-9: Final Report	Final report shall include all deliverables according to the contract.	Within twenty eight (28) months of Contract signing.

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