“Bogura’s Livestock Rising: Building Value, Changing Systems”

A Project **Impact Assessment Report** on Measuring Systemic Changes in Safe Meat and Dairy Products Market Development Project focusing on Sustainable Business Model and Value Chain Approach

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Gram Unnayan Karma (GUK)
Rural Microenterprise Transformation Project (RMTP)
Market System Development of Safe Meat and Dairy Products

PREFACE

"Measuring Systemic Changes in Safe Meat and Dairy Products Market Development Project focusing on Sustainable Business Model and Value Chain Approach" is an impact assessment document of the sub-sector project "Market System Development of Safe Meat and Dairy Products." It has been prepared for Gram Unnayan Karma (GUK) under the Rural Microenterprise Transformation Project (RMTP), by Palli Karma-Sahayak Foundation (PKSF) and jointly funded by the International Fund for Agricultural Development (IFAD) and the Danish International Development Agency (DANIDA). The system change assessment was conducted by Md. Saifuddin Khaled, an independent consultant specializing in market systems development, monitoring and evaluation, and inclusive private sector engagement.

The author gratefully acknowledges the valuable contributions of Dr. Md. Mahbub Alam, Senior Director, GUK, Ziauddin Sarder, Assistant Director, GUK and Dr. Md. Ziaur Rahman, Project Manager of the "Market System Development of Safe Meat and Dairy Products" sub-project, as well as the dedicated Value Chain Facilitators (VCFs) of all six interventions, for their collaboration and support throughout the assessment process.

EXECUTIVE SUMMARY

The study titled “Measuring Systemic Changes in Safe Meat and Dairy Products Market Development Project focusing on Sustainable Business Model and Value Chain Approach “was conducted in May 2025 to assess the outcomes and system-level impacts of interventions implemented by Gram Unnayan Karma (GUK) under the Rural Microenterprise Transformation Project (RMTP). RMTP is implemented by the Palli Karma-Sahayak Foundation (PKSF) and jointly funded by the International Fund for Agricultural Development (IFAD) and the Danish International Development Agency (DANIDA). The overarching goal of the project is to strengthen the livestock value chain, reduce poverty, create employment, and enhance nutrition through inclusive, market-driven interventions.

Project Overview and Objectives

Focusing on the livestock sub-sector as a viable pathway for inclusive rural growth, GUK implemented a comprehensive set of six interrelated interventions aimed at transforming traditional practices into commercially viable, safe, and sustainable value chains. These interventions addressed animal health, production, processing, livestock hygiene, mechanization, digital integration, and access to finance. The project reached thousands of rural producers, processors, and service providers in Bogura district, catalyzing systemic improvements across the livestock ecosystem.

Systematic Constraints

In Bogura, the livestock sector faces systemic constraints, including a shortage of skilled service providers, limited access to land and quality fodder, low adoption of modern farm practices, inadequate dairy logistics, lack of investment in safe husbandry knowledge, and minimal interest from financial and ICT providers due to perceived sectoral risks.

Core Contributions and Achievements

The facilitator, GUK, successfully demonstrated the value of applying a Market Systems Development (MSD) approach in the livestock sector. By strategically investing in key areas of animal health, feed, mechanization, dairy, meat, and access to finance, the project catalyzed inclusive growth and strengthened the resilience of cattle value chains in Bogura. Most project targets were achieved, leading to significant improvements in livestock productivity, service delivery, and market access for producers and entrepreneurs.

Through awareness campaigns, training, and the expansion of local service networks, over 27,000 farmers were made aware of better animal husbandry practices. The increased availability of vaccines, medicine, and veterinary services contributed to improved cattle health and reduced mortality rates. Collaborations with private companies and local entrepreneurs improved access to quality feed, silage, and fodder, supporting better nutrition management and year-round cattle productivity.

Mechanization efforts introduced modern tools for feeding, milking, and waste management, which saved time and labor while creating entrepreneurship opportunities in machine trading and composting. The dairy value chain saw expanded access to formal markets through milk chilling centers and stronger linkages with processors. Improved milk hygiene, handling practices, and certification standards boosted buyer confidence and market competitiveness.

In the meat value chain, improved rearing practices, slaughtering standards, and cold chain infrastructure supported quality meat production and premium market access. This encouraged investment from butchers and traders, increasing business volumes and profit margins.

To ensure long-term sustainability, the project linked producers with MFIs and digital tools for record-keeping, advisory services, and market access. For access to finance, only GUK MFI disbursed loans to 9312 participants of the project. These interventions collectively improved incomes, fostered entrepreneurship, and demonstrated scalable, inclusive development in the livestock sector.

The project brought a number of noteworthy innovations into practice, helping to address the systemic constraints identified in the sector:

- **Vaccine Hubs**: Made preventive care accessible in rural areas.
- **AI Services**: Improved breed productivity at scale.
- **Feed Market Development**: Created formal markets for categorized feed and sustainable fodder.
- **Livestock Machinery Promotion**: Demonstrations dispelled myths, increasing adoption of machines like choppers, milking machines, and compost makers.
- **Compost Enterprises**: Transformed waste into income-generating compost products.
- **Chilling Plants**: Established cold chains in underserved areas for better milk marketing.
- **Garol (Sheep) Promotion**: Offered a new pathway for meat market diversification.
- **Online Marketing**: Supported rural entrepreneurs to launch and expand online businesses via Facebook and YouTube.

The challenges and recommendations from the project implementation are:

Challenges:

- Vaccine coverage remains limited despite early success in reducing livestock mortality.
- High feed prices and lack of land restrict sustainable livestock nutrition.
- Costly mechanization hinders wider adoption among smallholders.
- Remote chilling plants suffer from weak market linkages and milk surplus issues.
- Milk adulteration risks damage trust and market access for all farmers.
- Beef prices remain unaffordable due to market syndicates.
- Consumer preference for fresh meat limits frozen meat market growth.
- Tele-veterinary services face low farmer uptake and vet disincentives.

Recommendations:

- Scale vaccination via pharma partnerships, cold chains, and LSP training.
- Introduce tailored loan products to finance livestock mechanization.
- Empower women in livestock through training, finance, and market access.
- Promote digital marketing and e-commerce for livestock products.
- Facilitate BSTI, Halal, and HACCP certifications to access premium markets.
- Replicate successful models like vaccine hubs and chilling plants across new areas.

The “Market System Development of Safe Meat and Dairy Products” initiative under RMTP has successfully demonstrated how behavior of market actors and smallholder farmers can be changed based on improved capacities and identified incentives leading to sustainable economic growth of the sector. The innovations and lessons from this project offer a scalable model for future livestock development programs in Bangladesh and beyond.

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1 INTRODUCTION

1. INTRODUCTION

1.1 Background

Jointly funded by the International Fund for Agricultural Development (IFAD) and the Danish International Development Agency (DANIDA), the Rural Microenterprise Transformation Project (RMTP) is implemented by Palli Karma-Sahayak Foundation (PKSF) to improve income, food security, and nutrition of small and marginal farmers, micro-entrepreneurs, and value chain actors involved in selected high-value agricultural products. In addition to the objective of extending financial services, the project promotes value chain development for selected agricultural sectors with strong market demand and high growth potential.

To alleviate poverty in Bangladesh, the RMTP project delivers financial and technical assistance, ensures access to safe inputs and services, facilitates technology transfer, and supports the mechanization of farms and processing facilities. It also promotes the production, certification, and marketing of processed agricultural, fisheries, and livestock products. Through 76 value chain sub-projects across the livestock, fisheries, and agriculture sectors, RMTP has reached 611,491 farmers, entrepreneurs, and market actors in 47 districts nationwide. “Market System Development of Safe Meat and Dairy Products” is one of the sub-projects under PKSF’s broader RMTP initiative, implemented by Gram Unnayan Karma (GUK). Through this sub-project, GUK is strengthening the resilience of small-scale enterprises by promoting safe dairy and meat production and increasing market linkages among livestock value chain actors.

1.2 Project Approach

The implementer of the sub-project, GUK, successfully identified that livestock smallholders and microenterprises primarily rely on the private market for their livelihoods, as state service provisions are very limited. Since consumers depend on markets to meet their needs, and producers, processors, and workers rely on these markets to sell their products and services—GUK adopted a market systems approach stemming from a value chain analysis of the livestock sector in target locations.

1.3 Objectives of this Document

This document presents the findings of an evaluation commissioned by the GUK to determine the extent to which the introduced business models have contributed to systemic changes in the targeted value chains, particularly focusing on the Adopt, Adapt, Expand, and Respond (AAER) framework[1]. The study aimed to provide a snapshot of outcome level changes of the dairy and meat value chain sub projects activities through systemic market development approach. This involved examining the current activities, progress of the project, and working conditions at the micro-enterprise level through sustainable economic growth lens. The focus was given on those micro-enterprises expected to participate in the project activities.

1.4 Scope and Methodology

The sample respondents were selected from the sub-project implementation areas within Bogura district.

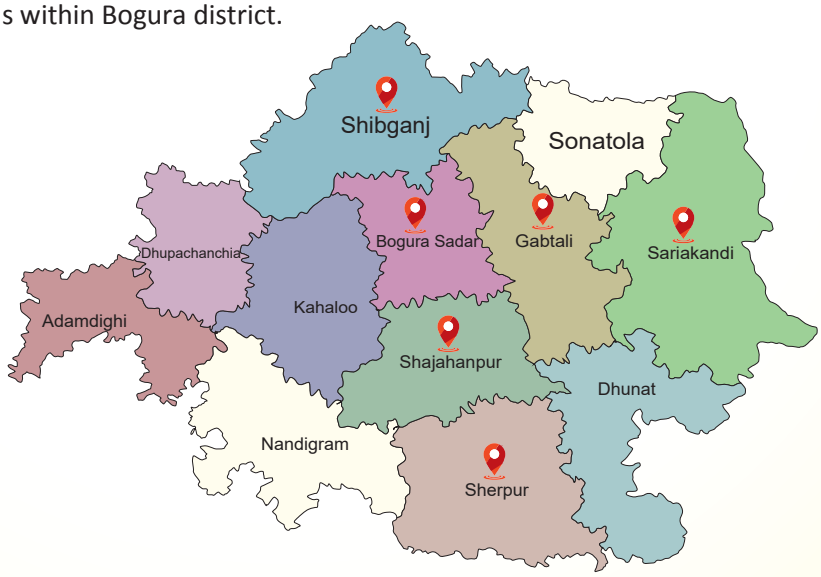


Figure 1:Assessment Locations

To identify the extent of systemic changes for the business models pursued by the project interventions, market actors were interviewed using the following set of questions.

Adopt-Adapt-Expand-Respond: a framework for managing and measuring systemic change processes, BEAM Exchange, 2014

AAER	Key Change Indicators	Key Questions
Adopt	**Commercial viability of the models/Benefitsof practice change**	Is the innovation commercially viable? Has the revenue increased for dairy and meat sub-sector actors for adopting the innovation? Does the innovative or practice change provide some benefits for example created new markets, increased customer base?
	Division of labor or Partners; contributionto the change	Do the project partner stake appropriate share of responsibility? Have different stakeholders invested financially and non-financially to make the change?
	Satisfaction levels	Are the beneficiary groups satisfied with the benefits from the innovation or improved practice?
Adapt	**New investments or improvementsof the model**	Has the innovation introduced in new market without project support? Have the market actors make any improvements or changes in the innovation to make it market-fit?
	Target groups' benefits sustain	Is the innovation continuing to benefit the target groups after being tailored? Is the new/improved business model continuing to benefit the poor or marginalized?
Expand	**Competitoror new players crowding-in**	Are other players copying the original innovation made by the project? Are their competitors offering variants of the pro- poor innovation originally made by the project?
	Scale agents	Are their scale agents on-boarded to promote the innovation or new business model?
	Competitive markets	Is there more openness to accept and replicate the Innovation or new business model? Have the barriers to entry into the dairy and meat markets are less or fewer than before?
Respond	**Market reaction**	Are non-competing players in supporting systems respond with practice changes of their own that enable early and late 'adopters' to operate more effectively or further improve their performance?
	Resilience toshocks	Can the practice changes of early and late 'adopters' withstand adverse events?

2 PROJECT DESCRIPTION

2. PROJECT DESCRIPTION

2.1 Livestock Sector Overview

An analysis of data from the Bangladesh Bureau of Statistics and the Directorate of Animal Resources over recent years reveals a growing contribution of the livestock sector to Bangladesh's economic development. This increasing contribution to the country's GDP highlights the sector's significance amid population growth, rapid industrialization, urban expansion, and concentrated economic activity. Despite favorable climatic and environmental conditions, Bangladesh continues to face a major shortage of animal products. Although meat and milk production have been rising annually, they still fall short of meeting existing demand.

Additionally, the average weight of cattle—100 kg for cows and 150 kg for bulls—is 25–30% lower than that of Indian cattle. While the livestock sector employs approximately 20% of the national workforce (DLS, 2019–2020), the garment sector's stagnation, partly due to unequal competition and the COVID pandemic, limits new job creation. With around 5 million youths entering the labor year, coordinated actions in the livestock sector are essential for employment generation and balancing the supply-demand gap for milk and meat in line with Vision 2021 and 2041.

Moreover, although conventional dairy production is notable, there remains a shortage of safe, high-value, and diversified dairy products. Processed and ready-to products are gaining popularity but remain limited in scale. To unlock the livestock sector's potential in earning foreign currency through exports of meat, milk, and eggs, the country must promote best practices in animal husbandry, mechanization, product certification, diversification, and the adoption of information and technology.

2.2 Analysis-Symptoms and Systemic Constraints

This section provides an analysis of the "symptoms" of market failure and the related "systemic constraints" in the livestock sector.

Symptom 1: Lack of improved and modern livestock services leads to high frequency of cattle diseases and low per capita meat and milk production.

The livestock sector in Bogura is constrained by limited access to quality semen, medicine, and vaccines, especially in remote areas. AI services often fall short of demand, and confusion between AI and exotic breeds leads to substandard cattle with poor health. The government's decision to halt Brahma semen imports has further affected meat cattle development. Additionally, service providers are inadequate in number and coverage. Even where available, many lack proper knowledge, particularly in prescribing medicines, resulting in incorrect doses, increased costs, and higher mortality.

Systemic Constraint 1:

Lack of service providers with knowledge and capacity to provide appropriate livestock services to farmers.

Symptom 2: Unavailability of quality concentrated and green grass resulted in low production and reproductive performances of animals.

Most dairy and meat producers lack knowledge about high-yielding fodder like Napier, Sorghum, Jumbo, and German due to limited access to technical information. This leads to misconceptions about its economic value, resulting in low adoption and poor dairy productivity. Additionally, many smallholder producers lack sufficient land for fodder cultivation and see little incentive with only 1–4 cattle. Landowners also prefer leasing land for staple crops, unaware of fodder's profitability, which further contributes to green fodder scarcity and poor cattle nutrition.

Systemic Constraint 2:

Lack of access to land for fodder cultivation and shortage of service providers with capacity to provide quality and affordable fodder for small holder farmers.

Symptom 3: Lack of modern farm management technologies increases the cost of milk and meat production and hinders the scope for commercialization of farms.

Despite advancements in Bangladesh's dairy industry, many smallholder farmers in Bogura still rely on traditional practices with minimal mechanization. Most use family labor, limiting efficiency and increasing production costs due to high labor-to-cattle ratios. Additionally, marginal farmers lack proper milking management knowledge. Irregular milking times and poor post-milking care lead to mastitis, reducing milk quality and quantity. These issues hinder productivity and prevent farm expansion and sustainability.

Systemic Constraint 3:

Lack of capacity and incentives of livestock service providers on promoting modern farm management technologies.

Symptom 4: Absence of dairy mechanization, product diversification, certification, packaging, brand, sales service and supply network caused lower number of national buyers interested in sourcing milk and meat from locality.

The dairy sector faces significant challenges due to limited storage facilities and the absence of small-scale options for milkmen and collectors, especially during adverse weather, restricting access to larger markets and chilling centers.

The lack of cold chain infrastructure leads to high spoilage during transport, as milk isn't cooled to 4°C before reaching processors. Additionally, producers lack the skills, knowledge, and technologies to process milk into value-added products like yogurt or cheese, missing opportunities to reduce spoilage and increase income through product diversification.

Systemic Constraint 4:

Low number of dairy related logistics service providers with the right capacity to ensure smooth and timely services to small holder farmers.

Symptom 5: Lack of knowledge on safe animal husbandry practices hinders commercial growth and market linkage opportunities with premium buyers for the locally produced animals.

In the study area, only 30–35% of fattened cattle were from improved breeds, limiting farm profitability. Many producers lack knowledge about the benefits of improved breeds and cannot afford high-cost calves like Frisian, relying instead on underperforming local breeds. Traditional fattening methods and poor feed management further reduce cattle growth, as the use of ready feed is limited due to cost concerns. Additionally, some producers use harmful steroids due to low awareness of ethical, safe meat production practices.

Systemic Constraint 5:

No investment in promoting knowledge and services related to safe and improved husbandry production practices for milk and meat.

Symptom 6: Limited access to financial and ICT services results in poor business management and poor business growth.

Most dairy farmers surveyed are poor and rely on local moneylenders (Mahajan) with high interest rates of 30-35% due to the complex and lengthy borrowing process from formal financial institutions, which also require documentation many farmers lack. This limits their capital, forcing them to feed cows poorly and neglect proper animal care, resulting in low productivity. Additionally, farmers lack knowledge and access to ICT services that could provide timely information on farm management, market updates, and weather forecasts. Service providers also lack ICT tools to effectively support and extend services to these producers.

Systemic Constraint 6:

Financial and ICT service providers do not invest in business opportunities in the livestock sector due to risks compared to other sectors.

2.3 Interventions

To address the systemic constraints, the project designed six key interventions areas. which is outlined below.

Intervention 1

Development of livestock Service Market

- **Create access to improved and modern libestock service by developing LSPs for improved animal health and productivity.**

Intervention 2

Development of livestock Feed Market

- **Increase production and reproductive performaces by strengthening the supply network of high yielding fodder, silage and ready-feed through local suppliers**

Intervention 3

Farm Mechanization and Waste Management

- **Engage relevant private sector for strengthening the supply chain of machine and equipent for fram mechianization**

Intervention 4

Development of Safe Milk and Meat Product Market

- **Develop industry-grade dairy products through modernization of small processing units and strengthening its supply chain through promotional activities and linkage with national/premium markets.**

Intervention 5

Development of Safe Meat Market

- **Promote contract farming and sub-contracting business models to adopt good husbandry practices for producing safe meat.**

Intervention 6

Easy access Information Technology and Credit Services

- **Create access and usage of advanced financial & ICT services for better transformation of livestock enterprises into profitable business.**

2.3.1 Development of Livestock Service Market

The intervention aimed to improve animal health services and increase cattle productivity by establishing vaccine hubs at the union level. These hubs stocked both public and private vaccines, enabling local vaccinators to conduct scheduled immunization campaigns village by village or through farm visits. This decentralized approach ensured timely access to vaccines, reduced disease outbreaks, and ultimately led to increased livestock production in the targeted areas.

Additionally, the project promoted veterinarians as well as developed and trained Local Service Providers (LSPs) to strengthen veterinary services and support producers with immediate health management solutions. Training focused on vaccination protocols, disease prevention, artificial insemination (AI), and overall cattle health management. Dairy producers also received training on basic cattle care, enabling them to adopt improved animal husbandry practices and reduce economic losses due to illness or poor productivity.

Photo 1: Capacity Building Training on Livestock Rearing

In parallel, Veterinary Service Points were established at the local level to offer one-stop services. These facilities included vaccine hubs and diagnostic centers to ensure timely access to vaccines, medicines, AI, and basic treatment services. Farmers were also trained on cattle health to increase awareness and encourage the adoption of veterinary services. The project undertook the following activities under this intervention:

1. Promote and facilitate the services of private veterinarians focusing on veterinary care, entrepreneurship, and business management.

Photo 2: Improved training for registered veterinarians

2. Develop the capacity of Local Service Providers (LSPs) on cattle health services, including disease management and basic veterinary practices.
3. Establish Vaccine Hubs and Veterinary Service Points through joint collaboration with the Department of Livestock Services (DLS) and interested private sector actors (e.g., input companies).
4. Conduct awareness sessions for farmers on animal health, safe meat and milk production, and the benefits of regular vaccination.
5. Provide improved Artificial Insemination (AI) services to enhance milk and meat productivity in cattle.
6. Introduce AI services for goats, sheep, and buffalo to diversify livestock improvement efforts.

7. Develop a comprehensive curriculum on Good Agricultural Practices (GAP) tailored for dairy and meat producers.
8. Identify and train Master Trainers on GAP to ensure quality knowledge dissemination at the grassroots level.
9. Provide training to producers on GAP to promote safe and sustainable dairy and meat production.
10. Establish vaccine hubs in strategic locations and ensure continuous availability of vaccines through collaboration with pharmaceutical companies.
11. Develop and operationalize One-Stop Service Points offering veterinary diagnosis, medicines, vaccination, deworming, and AI services.
12. Develop local diagnostic laboratories to support accurate and timely livestock disease detection.
13. Organize policy meetings with the Department of Livestock Services (DLS) to align interventions and scale successful models.
14. Conduct issue-based meetings with market actors to address bottlenecks and improve market access for livestock products.

2.3.2 Development of Livestock Feed Market

The project strengthened dairy producers' capacity on fodder cultivation and feed preparation by organizing training sessions, workshops, farmer meetings, and demonstration plots in collaboration with DLS and seed companies. High-yield fodder varieties such as Napier, German, Jumbo, and Sorghum were introduced, along with training on the preparation of quality feed like UMS, UMT, and UMB. To address land scarcity, the initiative supported the development of fodder entrepreneurs to ensure smallholder farmers had consistent access to fresh fodder.

It also established Local Land Lease Committees to facilitate short-term leasing of khaas and private land, enabling fodder cultivation. This intervention particularly benefited female producers, many of whom face challenges in accessing and utilizing agricultural land, by creating easier access to land and feed resources essential for livestock productivity.

In parallel, the project promoted the use of cattle feed by engaging feed companies in awareness campaigns and information dissemination. To further enhance feed availability, the project developed dealers and sub-dealers for categorized cattle feed at upazila and union levels. This decentralized distribution system helped ensure that quality feed was accessible in rural areas. In addition, the project promoted improved silage-making by providing training on silage development and fostering entrepreneurship among interested producers to support sustainable livestock feed practices.

Photo 3: Fodder dealer point

The project undertook the following activities under this intervention:

1. Develop local suppliers of feed and fodder, including dealers, sub-dealers, and retailers, to ensure last-mile availability of quality livestock inputs.

2. Conduct field demonstrations on ready feed, green grass cultivation, silage production, Urea Treated Straw (UTS), and Urea Molasses Straw (UMS) to showcase effective feeding practices to producers.
3. Organize joint feed and fodder marketing and promotional campaigns in collaboration with DLS and seed companies to enhance outreach and farmer awareness.
4. Develop and implement a social media marketing plan to promote improved feed and fodder products and facilitate producer access to these inputs.

Photo 4: Training session on fodder and silage

5. Provide technical training and business development support to prospective silage entrepreneurs to promote silage as a viable feed option.
6. Train Local Service Providers (LSPs) on fodder cultivation techniques and quality feed preparation to strengthen extension services.
7. Conduct exposure visits for silage entrepreneurs to successful models and sites to build practical knowledge and motivation.

2.3.3 Farm Mechanization and Waste Management

The project enhanced dairy farm productivity by promoting mechanization, which had the potential to increase production by up to 40 percent. It developed a curriculum on farm machinery and equipment and trained dairy producers and local machine manufacturers on proper usage and maintenance. To ensure practical learning, the project conducted field demonstrations in the presence of manufacturing company representatives, which helped build farmers' confidence in using new technologies. The project also collaborated with machinery manufacturing companies to ensure availability, technical support, and adaptation of equipment suited for smallholder dairy farms.

In addition to mechanization efforts, the project established One-Stop Service Points managed by local entrepreneurs to provide comprehensive services related to livestock and farm mechanization. These service hubs offered vaccines, medicines, diagnostics, machinery demonstrations, product sales, and after-sales services.

Photo 5: Farmer using milking machine

To modernize waste management, the project supported the setup of compost plants within livestock farms. These plants enabled farmers to convert livestock waste into organic fertilizer, improving soil health, increasing crop yields, and reducing dependency on chemical fertilizers. The commercial viability and environmental benefits of compost production encouraged more farmers, particularly women, to adopt composting as an income-generating activity. Women entrepreneurs played a growing role in this space, gaining visibility and economic empowerment through compost plant management.

The project undertook the following activities under this intervention:

1. Develop the capacity of farmers, food processors, and other market actors on the use, maintenance, and benefits of farming and processing machinery through hands-on training sessions and workshops.
2. Provide grant support to farmers to enable the purchase of appropriate and efficient farming and processing machinery.
3. Collaborate with machinery manufacturing companies to ensure availability, after-sales services, and localized solutions for machinery use.

Photo 6: Mechanization in composting

4. Organize product demonstration sessions to showcase the application, usage, and advantages of various farming machines and equipment in improving productivity and efficiency.
5. Conduct training on livestock waste management techniques to promote environmentally friendly and sustainable farming practices.
6. Provide both technical assistance and grant support to develop compost and biogas entrepreneurships, particularly targeting smallholder farmers and women entrepreneurs.

2.3.4 Development of Safe Milk and Milk Product Market

The project developed the knowledge and skills of dairy producers on value-added dairy production by training them in making ghee, yogurt, cheese, Ghol, Matha and sweetmeats. Producers, particularly women and youth, were also trained in packaging and branding to create entrepreneurial opportunities and strengthen market linkages. These efforts aimed to boost the sale of processed dairy products and expand income sources for smallholder farmers.

To strengthen market infrastructure, the project established milk collection hubs and small-scale processing units in emerging milk zones like Bogura. These hubs included milk Chilling plant and packaging facilities that enabled bulk collection, improved inter-regional trade, and generated rural employment. The initiative contributed to local value addition while addressing potential environmental concerns.

Additionally, the project facilitated the establishment of new chilling centers and milk collection points through local entrepreneurs. These facilities ensured fair pricing for producers based on milk quality and enhanced access to forward markets.

Photo 7: Milk collection point

The project undertook the following activities under this intervention:

1. Train producers on milk and milk product processing through hands-on sessions and demonstrations.
2. Establish small-scale milk and meat processing units at the local level to support value addition and entrepreneurship.
3. Prepare business plans for producers and entrepreneurs to commercialize processed dairy products.
4. Facilitate BSTI and ISO/HACCP certification processes to ensure product quality, marketability, and commercial viability.
5. Create market linkages with industrial processors and institutional buyers by supporting improved packaging, branding, and marketing strategies.
6. Promote local dairy products through targeted social media marketing campaigns to expand consumer reach.

Photo 8: A2 Ghee, with greater nutritional value

7. Encourage producers to diversified dairy products by introducing fortified and flavored milk, yogurt drinks, and region-specific delicacies.

2.3.5 Development of Safe Meat Market

The project raised awareness among dairy producers on ethical rearing techniques by discouraging the use of harmful steroids and hormonal medicines for rapid cattle growth. Instead, producers were introduced to safer, alternative technologies and practices that supported healthy livestock development without compromising food safety. Awareness campaigns, training sessions, and field demonstrations were conducted to shift producer behavior toward more ethical and sustainable practices.

To improve meat safety, the project upgraded infrastructure and machines in selected slaughter facilities. Basic hygienic standards were introduced, particularly in wet markets where such facilities were absent. The project worked to install essential slaughtering infrastructure to reduce contamination risks and ensure safer meat handling.

Photo 9: Meat processing unit

Additionally, the project built the capacity of butchers and slaughterers through practical training on hygienic and ethical slaughter techniques. These sessions emphasized cutting methods aligned with institutional buyers' standards. The intervention ensured that all actors along the meat value chain benefited economically, incentivizing continued adherence to improved practices.

The project undertook the following activities under this intervention:

1. Develop the skills of producers on improved breeding and beef fattening techniques through training and technical assistance.
2. Establish small-scale meat processing units to support value addition and increase rural employment opportunities.
3. Introduce high-quality meat varieties such as Mirkadim, Pabna, Goyal, Buffalo, Crossbred cattle, BB Goat, and Sheep to ensure supply of graded meat and diverse meat cuts.
4. Improve the infrastructure of existing slaughterhouses and establish new slaughter points to ensure hygienic and efficient meat processing.

Photo 10: Inauguration Ceremony of the Model Slaughter house

5. Facilitate BSTI and HALAL/HACCP certification for meat producers and processors to enhance the marketability, commercial viability, and quality of meat products.
6. Create market linkages between producers and industrial processors or institutional buyers through contract farming models.
7. Conduct policy advocacy to ban unethical practices in the meat market and ensure compliance with national food safety standards.

2.3.6 Easy Access to Information Technology and Credit Services

The project introduced and facilitated specialized loan products tailored to the needs of small-scale livestock and dairy producers. These financial services offered flexible repayment systems to ease the burden on producers and support business expansion or new enterprise establishment. To ensure proper utilization of credit and maximize return on investment, the project facilitated training sessions on cattle business planning, financial literacy, and enterprise operations in partnership with financial institutions.

In parallel, the project created stronger forward market linkages through the use of ICT tools. Producers were trained on using social media platforms like Facebook, WhatsApp, and YouTube to promote their dairy and cattle products, connect with festival-based cattle market traders, and negotiate directly with institutional buyers, bypassing middlemen.

The project undertook the following activities under this intervention:

Photo 11: Mst. Afsana Nira: Revolutionized the Meat Pickle Market using social media

1. Develop customized financial products tailored to the needs of livestock and dairy market actors.

2. Provide training to producers and market actors on financial literacy and business management.
3. Introduce digital applications such as S-Manager and e-Tally to enable accurate digital record-keeping for small-scale producers.
4. Onboard farmers and Local Service Providers (LSPs) onto online platforms and mobile applications to enhance access to livestock services.
5. Provide training on effective use of social media for marketing livestock and dairy products.
6. Facilitate access to livestock insurance products to mitigate risks for farmers.
7. Promote cashless transactions through Mobile Financial Services (MFS) and bank e-services to improve financial inclusion and transparency.

3 FINDINGS

3. FINDINGS

3.1 Summary of Key Results

The interventions significantly increased farmers' productivity and income by strengthening animal health services, improving access to quality feed, introducing modern technologies, and creating stronger market linkages. Over 18,900 farmers were trained on improved animal health practices, contributing to healthier livestock and higher yields. Artificial insemination and improved breed management boosted both milk and beef production, supported by better access to essential veterinary and telemedicine services.

With the introduction of structured feeding systems, including silage production, fodder dealer points, and partnerships with feed companies, cattle received more nutritious, age-appropriate diets. This contributed to increased milk yields and healthier beef cattle. Mechanization played a critical role: over 200 livestock machines such as milking machines, fodder choppers, and compost units were distributed to enhance efficiency, reduce labor time, and create entrepreneurship opportunities across the value chain.

Multiple value chains were developed and strengthened. Thirteen chilling plants preserved milk quality at the grassroots, linking farmers to processors like PRAN and Milk Vita. Milk testing and ISO/BSTI certification ensured quality control, while training helped 120 entrepreneurs improve dairy processing, packaging, and digital marketing. These processors are now thriving in competitive markets.

In the beef sector, hygienic meat practices were introduced through butcher training, safe slaughtering facilities, and modern meat processing plants. Garol rearing, halal certification and stainless-steel equipment set new standards for hygiene, improving consumer confidence and expanding market access.

Digital tools and financial access further accelerated transformation. Nearly 1,000 LSPs and 5,000 farmers adopted ICT tools like Sudokkho and Khamar-Bondhu apps. Telemedicine centers, e-ledgers, and cattle insurance pilots enhanced service delivery and financial security. Over 9,312 loans were issued through GUK, and digital marketing training led to new online livestock businesses.

The following sections highlight findings from the field that show positive signs of the project interventions resulting in systemic changes.

3.2 Assessment of Systemic Changes

The following sections provide intervention-wise outputs of activities and then elaborate findings from the field showing potential systemic changes.

3.2.1 Livestock Service Market

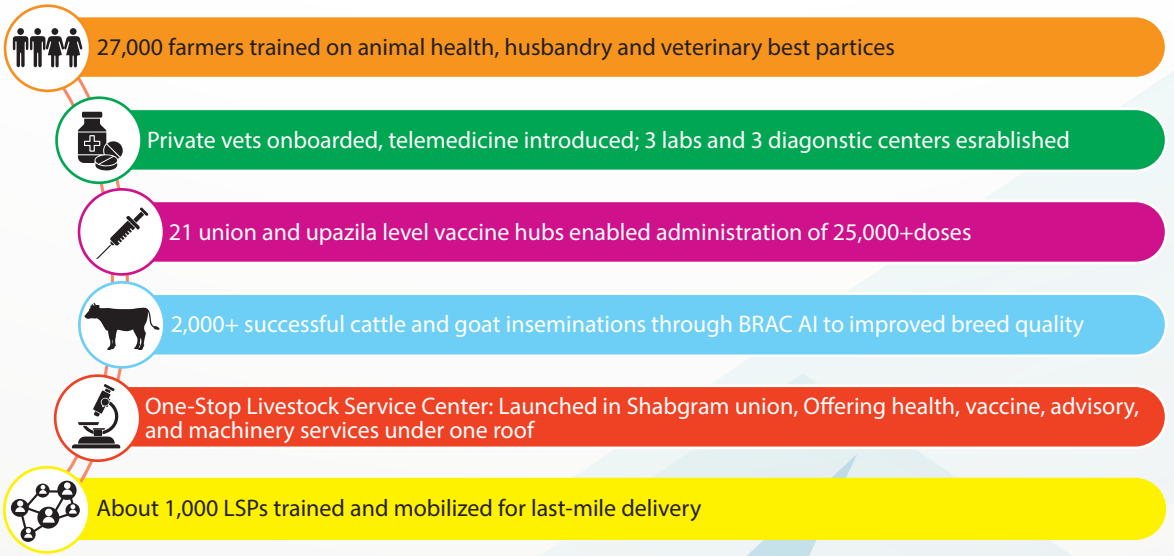
Systemic Constraint 1:

Lack of service providers with knowledge and capacity to provide appropriate livestock services to farmers.

The intervention was designed to improve animal health services and increase cattle productivity across target areas. To build farmer awareness and capacity, 25,000 farmers were trained on essential animal health and veterinary practices. Simultaneously, training sessions were conducted for both government and private stakeholders to strengthen public-private collaboration in livestock service delivery. To ensure widespread access, **21**vaccine hubs were established at the union level, which enabled the administration of over 25,000 doses of vaccines, with a target of more than 28,000. Artificial Insemination (AI) services were introduced for both cattle and goats in collaboration with BRAC AI, resulting in over **2,000** successful inseminations to improve breed quality.

To support last-mile service delivery, about **1,000Local Service Providers (LSPs)** were trained and mobilized, with high-performing LSPs recognized and awarded to encourage continued excellence. Further strengthening the veterinary infrastructure, the project established 3 laboratories and 3 diagnostic centers to provide timely disease diagnosis and treatment support. A one-stop livestock service center was also launched in Shabgram union of Bogura, offering farmers access to a range of health, vaccine, advisory, and machinery services under one roof. Additionally, 20private veterinarians were trained and onboarded to complement the public veterinary workforce and expand outreach to remote communities.

To promote inclusive learning and dialogue, issue-based trainings were conducted regularly with the active participation of government representatives. The intervention also introduced telemedicine services, making veterinary consultations more accessible for rural farmers. Moreover, consistent policy dialogues and coordination meetings were held with the Department of Livestock Services (DLS), ensuring alignment with national priorities and facilitating long-term sustainability and scale-up of the interventions.



Adopt

The innovations have proven commercially viable, particularly for private actors. The establishment of private veterinary chambers and the engagement of trained veterinarians have opened up new income-generating opportunities. These private vets report increased earnings, while farmers benefit from more accessible and timely animal health services. Vaccine hubs, similarly, are operating as successful micro-enterprises. Owners report growing revenue as farmers increasingly seek vaccinations to prevent diseases like LSD and FMD, which had previously caused high livestock mortality. All these provide strong indication about sustainability of the services beyond the project period.

The adoption of AI services, in collaboration with BRAC AI, has not only improved livestock productivity but also created a growing market for breeding services. Farmers, now more aware of the benefits of improved genetics, are actively seeking AI services. This has expanded the customer base for BRAC AI and encouraged new entrants into the AI service delivery profession.

Various stakeholders have contributed financially and non-financially to support these innovations. The project facilitated technical training and initial mobilization, while private vets, vaccine hub owners, and AI providers have invested their own resources to scale their operations. This joint investment model strengthens the foundation for sustainable service delivery beyond the life of the project.

Beneficiary groups, particularly smallholder farmers express satisfaction with the improved practices. They now experience fewer disease outbreaks, have healthier livestock, and understand the value of preventive and reproductive services. Overall, the adoption phase indicates that the innovations are not only being embraced by stakeholders but are also delivering tangible economic and social benefits across the dairy and meat sub-sectors.

Adapt

Veterinary service providers have expanded their services beyond basic treatment, now offering deworming, mineral supplementation, and advanced diagnostics like ultrasound. These additions respond to growing farmer demand and reflect the providers' initiative to evolve their businesses and improve service quality.

In the vaccination domain, what began with conventional vaccines has progressed significantly. Newer and more specialized vaccines—such as those for Leptospirosis, Infectious Bovine Rhinotracheitis (IBR), and Vibriosis—are now becoming available. Moreover, vaccine hubs have adapted into more integrated service points, stocking essential medicines so that farmers can access both prevention and treatment in one place.

BRAC AI has also shown clear signs of adaptation. Beyond maintaining its initial AI services, it has reinforced its field workforce and invested in ongoing training. This commitment not only meets rising demand but also ensures long-term service quality and sustainability.

Expand

Initially, the sub-project supported 20 veterinarians, but the number has now more than doubled, showing organic replication driven by market demand. Several veterinarians have scaled their operations by opening multiple offices in different locations, indicating business growth and an expanding customer base. Additionally, vet supply shops, chemical stores, and pharmacies—beyond the project's 21 supported vaccine hubs—are now53 independently stocking livestock vaccines, further validating the commercial viability of these services. This is a positive sign towards scaling up of services introduced by the project interventions.

The vaccine market has also grown more competitive. What started with only Renata's vaccines has now diversified, with Eskayef, Incepta, and ACME entering the market. This not only offers farmers a wider range of options but has introduced price and service competition, contributing to better access and affordability.

In AI services, BRAC is now joined by ACI, Paragon, and American Dairy Limited, all engaging with Artificial Insemination Service Providers (AISPs). Their entry indicates that the service model is profitable and scalable. Importantly, the groundwork laid by the project—through awareness-raising and market facilitation—has reduced barriers for new entrants, making it easier for businesses to participate and invest.

Response

New actors like telemedicine service providers are entering the ecosystem, offering remote advisory and treatment support in collaboration with local veterinarians. This innovation not only fills service gaps in remote areas but also ensures continuity during emergencies such as floods or disease outbreaks. Simultaneously, feed and dairy companies are integrating animal health advisory services into their operations, working with veterinarians to ensure that their supply chains remain healthy and productive, especially during critical periods.

Meat processors and dairy entrepreneurs are increasingly mandating veterinary check-ups and services to maintain livestock health and improve productivity. This shift signals a proactive approach to risk mitigation and builds systemic resilience across the value chain. Dairy entrepreneurs, in particular, are promoting improved cattle breeds for higher milk yields, showing a strong understanding of long-term productivity and sustainability.

Since all introduced innovations—vet services, vaccination, AI—are localized, they remain functional and effective even during political unrest or logistical disruptions. These ensure that the market system is more resilient to external shocks than before. Moreover, vets and local service providers (LSPs) are trained to handle livestock-related shocks, such as disease outbreaks during natural disasters.

Business Case 1.1: Dr. Md. Abdur Razzak's Transformation into a One-Stop Livestock Service Provider

Dr. Md. Abdur Razzak, a committed private veterinarian in Shabgram, Bogura Sadar, started his professional journey with a modest chamber offering only basic lab and consultation services. His monthly income hovered between BDT 35,000-45,000 limiting his ability to expand. However, he had a bigger dream—to establish a comprehensive livestock service center for local farmers. Recognizing his potential, the sub-project partnered with him to transform his facility into a one-stop livestock service center.

With grant support and technical assistance, he expanded to a larger space and upgraded his services. Today, his center offers vaccination, laboratory testing, AI, diagnostic services, and access to livestock machinery. Additionally, he became a dealer for Paragon Feed, further diversifying his business. The expansion not only boosted his service capacity but also created employment, as he now employs one staff member. His monthly income has increased to BDT 80,000-90,000 making him a key service provider and trusted partner for farmers in the region.

Business Case 1.2: Dr. Ripon Kumar Mondol's Journey to Advanced Veterinary Services

Dr. Ripon Kumar Mondol, a veterinary graduate from Bangladesh Agricultural University, established R.K. Vet and Pet Care Center five years ago in Bow Bazar, Bogura, to provide quality veterinary care and diagnostic services. Two and a half years ago, his partnership with GUK became a turning point. GUK supported him with equipment grants — an ultrasonography machine, a microscope, and a refrigerator — and training in veterinary practices, RMTTP dairy training, and GAP Master Trainer certification.

With this support, his monthly income grew from BDT 40,000–50,000 to BDT 60,000–70,000. Today, R.K. Vet and Pet Care Center provides veterinary treatments, laboratory diagnostics, and affordable veterinary medicines, making quality services accessible for low-income farmers. The center now employs two staff members and has inspired others in the area to launch veterinary ventures. Through technology and training, Dr. Mondol has strengthened animal health services in Bogura, becoming a trusted service provider for the local farming community.

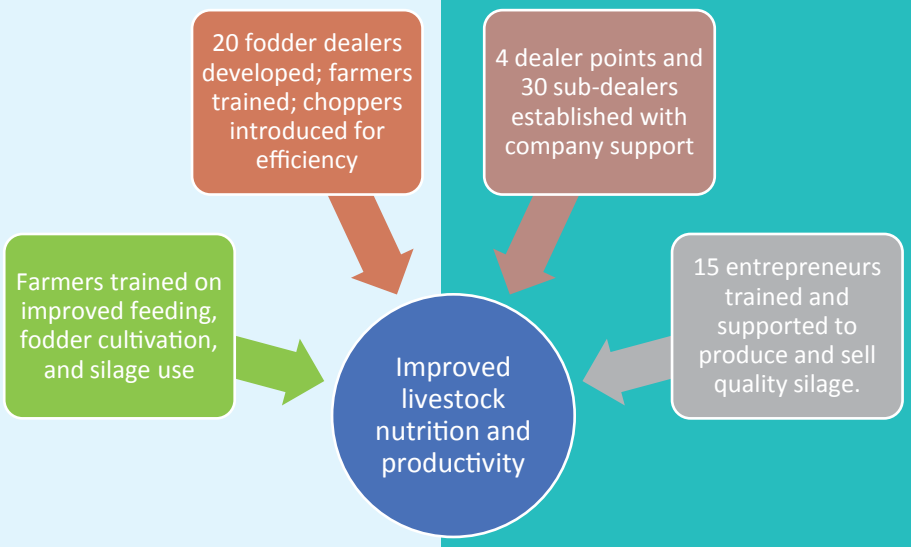
3.2.2 Livestock Feed Market

Systemic Constraint 2:

Lack of access to land for fodder cultivation and shortage of service providers with capacity to provide quality and affordable fodder for small holder farmers

The intervention aimed to strengthen the cattle feeding ecosystem by promoting improved access to quality feed, fodder, and silage. To address the lack of structured fodder markets, the project provided training on fodder cultivation and entrepreneurship, enabling farmers to grow and sell green fodder sustainably. As a result, **20 fodder dealer points** were developed through a combination of technical guidance and grant support. To enhance operational efficiency, fodder choppers were introduced by engaging machinery companies, helping farmers cut and process fodder in significantly less time. Before the intervention, there was no distribution channel in the region. To fill this gap, the project collaborated with major feed companies such as Nourish, Paragon, Quality feed and Alalto establish **4 upazila-level dealer points** in Shahjahanpur, Gabtoli, Sadar, and Sherpur. These points were further supported by **30 sub-dealers**, all of whom received grant assistance and technical training. A variety of categorized feeds—designed specifically for calves, heifers, dairy, and beef cattle—are now accessible to farmers, ensuring better nutrition management based on cattle type and age.

In addition to feed and fodder, the project focused on developing a commercial silage market. A total of **15 silage entrepreneurs** were trained and financially supported to produce and distribute high-quality silage. These entrepreneurs are using advanced techniques and specialized machines for fodder cultivation and silage preparation, ensuring better quality and efficiency. To expand their market reach, they are leveraging both traditional linkages and online marketplaces, enabling them to supply not only within Bogura but also to other districts where maize is scarce. This intervention is expanding the availability of nutritious cattle feed and contributing to more resilient and productive livestock systems.



Adopt

The intervention on improved cattle feeding practices—through feed, fodder, and silage—has shown strong commercial viability and high participant satisfaction. Farmers, who previously relied mainly on hay, are now aware of and adopting improved feeding practices. This shift is resulting in visibly healthier cattle, increased milk production, and better meat yield, proving the benefits of the practice change.

Fodder entrepreneurship has emerged as a viable business model. Many individuals have started leasing land to cultivate fodder commercially. Selling 1,000 bundles of fodder can yield a daily profit of 5,000–6,000 BDT in summer and up to 10,000 BDT in winter. Similarly, feed dealers and silage entrepreneurs have experienced significant income boosts—some doubling their earnings after receiving technical and financial support from the project. A dealer selling 30 tons of feed per month can earn up to 50,000 BDT, while a silage entrepreneur selling 200 tons/month may earn 140,000–150,000 BDT.

Market actors took increasing ownership in driving this transformation alongside the project. While the project initially provided technical support, financial grants, and facilitated company linkages, dealers, fodder growers, and silage entrepreneurs gradually assumed key responsibilities. They invested their own capital, established supply chains, and maintained relationships with input companies and farmers. Feed dealers managed logistics and stock, silage entrepreneurs-built networks to reach underserved areas, and fodder producers scaled operations independently. These shared responsibilities and co-investments from both the project and market players contributed to the model's success.

Adapt

In the Adapt stage of the AAER framework, the intervention has led to significant improvements and reinvestments by market actors, indicating growing sustainability and long-term benefit for target groups. Fodder entrepreneurs, who initially received support from the project, are now leasing land independently to expand their cultivation, showcasing confidence in the business model and a commitment to scaling up.

Feed dealers have responded to market demand by introducing diversified products, such as specialized calf and heifer feeds and high-performance variants like supra-hipro, providing tailored nutrition solutions that better meet farmers' needs. Likewise, silage entrepreneurs are investing in silage cutters from various machinery suppliers, aiming to reduce dependency on manual labor and increase operational efficiency. They are also sourcing raw materials from neighboring districts.

Furthermore, these entrepreneurs are actively promoting their businesses via social media, reaching more farmers and generating strong customer engagement. These adaptive actions reflect that the benefits of the improved feeding systems are sustained, with market actors taking initiative, investing independently, and evolving their models in response to opportunities.

Expand

Where once a typical market had only one fodder shop, there are now three to five, indicating growing demand and business opportunity. From the 20 fodder dealers initially supported by the project, an additional 35 dealers have emerged independently, replicating the model without direct support – a very positive sign of scaling up of services in the sector.

Farmers themselves are also adapting, cultivating fodder on their own land—both for personal use and for sale—creating a more localized and sustainable supply chain. Similarly, in the feed market, many new dealers and sub-dealers have entered the scene. Even enterprises in adjacent sectors like milk collection and animal health services are now taking feed dealerships, offering farmers bundled services in one place and increasing accessibility. Additionally, other feed companies such as Krishibid, Tamim, and Quality are entering the market due to its growing potential.

In silage, the expansion is just as notable. Beyond the 15 entrepreneurs supported by the project, 25 additional entrepreneurs in Bogura are now commercially producing silage, offering products at varying price points and quality levels, which strengthens market competitiveness and gives farmers greater choice. This robust expansion indicates a healthy, growing, and competitive market ecosystem.

Respond

Two key actors are playing proactive roles in sustaining and accelerating the intervention's outcomes. Mechanization partners are now actively manufacturing and supplying fodder choppers, feed mixers, silage cutters, and other essential equipment. Their responsiveness to rising demand ensures that entrepreneurs and farmers have access to tools that improve efficiency and reduce labor dependency.

As the scale and profitability of these enterprises have grown, financial institutions—including MFIs and banks—are now viewing fodder and silage entrepreneurs as credible borrowers and are offering financing, which was not common earlier. This increased financial inclusion reinforces the markets adaptability and resilience. Additionally, veterinarians, LSPs, and telemedicine providers are advising farmers to adopt improved feeding systems, recognizing the direct link between nutrition and livestock health.

Business Case 2.1: Md. Abdus Samad: A Fodder Entrepreneur's Journey

Md. Abdus Samad started his fodder business five years ago in Shabgram Bazar, Bogura, selling just 100–150 bundles per day. Through RMTP, he received grant support and established connections with key market actors, helping him expand his business significantly. Today, he sells around 1,000 bundles of fodder daily and earns a profit of Tk. 5,000–6,000 per day, making Tk. 100,000–150,000 per month.

He has leased 20 bighas of land for fodder cultivation and employs five people for planting and shopkeeping. Customers now call him from distant areas after finding his number on Facebook, making him a trusted supplier across the region. The income has transformed his life — he is building his own house, a dream he once thought was out of reach. Md. Abdus Samad is now an iconic example of how fodder entrepreneurship can create prosperity and uplift rural communities.

Business Case 2.2: Idris Al Sadat: Building a Thriving Feed Business

Idris Al Sadat started M/S Mondol Traders two and a half years ago in Dublagarihat, Shahjahanpur, Bogura, with a focus on livestock feed sales. An informal conversation with a GUK officer at a local shop became the turning point, opening doors to training, market linkages, and promotional support. GUK's awareness campaigns, field days, and help with social media marketing strengthened Idris' connections with farmers, boosting both sales and visibility.

Today, his monthly income has doubled — from BDT 50,000 to BDT 100,000 — with sales reaching 60 tons. His shop now sells feed, broken rice (khud), and polished rice, employing three full-time staff and actively involving women entrepreneurs. Idris has inspired others in the area to launch similar ventures, and many seek his advice and mentorship.

With plans to expand further, Idris aims to build stronger supply chains and create more jobs, cementing his role as a leading feed entrepreneur in the local livestock sector.

3.2.3 Farm Mechanization and Waste Management

Systemic Constraint 3:

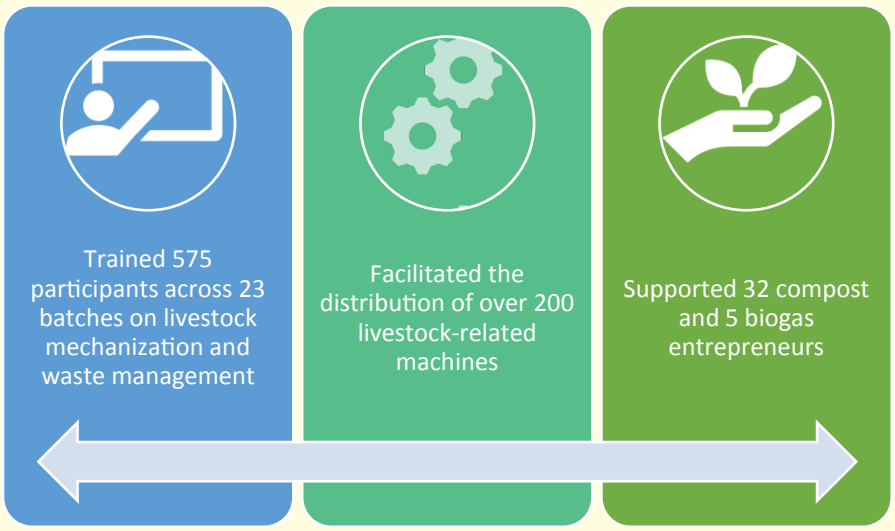
Lack of capacity and incentives of livestock service providers on promoting modern farm management technologies.

The intervention focused on enhancing livestock productivity through mechanization and improved waste management, with a strong emphasis on developing rural entrepreneurship.

A total of **23 batches** of participants (with **25 trainees** each) received hands-on training on the effective use of livestock machines and modern waste management practices. To strengthen market linkage, machine demonstration events were organized where manufacturers and company representatives directly interacted with farmers, demonstrated machine functionality, and took direct orders. This helped build farmers' confidence in machine usage and ensured post-training follow-up support.

To support widespread adoption, the project provided grant support for purchasing essential equipment: over **100 fodder choppers, 27 milking machines, 32 compost-making machines, 15 feed crushers, 7 Total Mixed Ration (TMR) machines, 22 fogging machines, and 4 pellet machines** were distributed. Compost entrepreneurs also received specialized training, and support regarding branding and packaging to build business capacity and expand operations.

As part of a broader waste management strategy, in the beginning the project supported **5biogas entrepreneurs,** the project also promoted **vermicompost entrepreneurship**, which contributes to improved manure management, enhances soil fertility, and creates additional sources of income and employment. Additionally, the project collaborated with machine manufacturers to improve machine design and increase capacity, making them more suitable for local needs. This has not only improved livestock productivity but also fostered entrepreneurship and job creation, making the intervention a catalyst for sustainable economic growth in the livestock sector.



Adopt

The intervention promoting livestock mechanization and waste management has demonstrated strong commercial viability and high satisfaction among target groups. Machines such as fodder choppers, milking units, and compost makers have proven both cost-effective and time-efficient. For instance, a fodder chopper can process 1 ton of fodder in just one hour and runs on electricity, eliminating fuel costs. Milking machines significantly reduce labor time—from 20 minutes to just 5—and minimize contamination risks. Compost machines are gaining popularity for their income potential, with some entrepreneurs earning up to 2–3 lakh BDT per month through proper use, branding, and marketing.

The practice changes have also seen joint commitment. Alongside the project's technical and financial support, farmers and entrepreneurs invested their own resources, further validating the model's potential. Compost entrepreneurs especially have reinvested in scaling their operations. This strong division of responsibility, with both the project and local stakeholders contributing, has led to wide adoption. Farmers report increased efficiency, cost savings, and higher returns, indicating strong satisfaction and sustainable uptake of mechanized solutions in livestock management.

Adapt

The livestock mechanization initiative has evolved significantly as market actors continue to invest in newer and more sophisticated technologies in response to increasing demand. Initially driven by the popularity of fodder choppers and milking machines, machine companies are now expanding their product range to include Total Mixed Ration (TMR) machines, butter churners, cream separators, dewatering machines, cooling tanks, transport cans, and fogging machines. This product diversification reflects the growing maturity and competitiveness of the market.

Furthermore, new roles have emerged—particularly Machine Service Providers (MSPs)—as some Local Service Providers (LSPs) and farmers now offer chopping and feed mixing services for a fee. This not only opens up a new income-generating avenue but also ensures that machine access and utility extend beyond ownership. These adaptations highlight how the target groups are sustaining and enhancing the benefits, reinforcing the model's resilience and long-term viability.

Expand

The livestock mechanization and waste management sector has seen remarkable growth, driven by increased competition and replication of successful models. At the project's inception, Trade Global Limited was the sole actor involved in importing and manufacturing livestock machines. However, the market has since diversified significantly. In Bogura alone, prominent local manufacturers such as Unique, Habib Workshops, and Momin Workshops have emerged, boosting the availability of machines and fostering a competitive environment.

Moreover, nationally renowned companies like ACI and RFL have recognized the sector's potential and are entering the market with a broader range of livestock machinery. In parallel, the compost sector is witnessing strong crowding-in effects. Although only 32 compost entrepreneurs initially received project support, many farmers and entrepreneurs have now replicated the model. Seeing the profitability of compost, they are independently operating as compost producers - collecting manure through their own supply systems - thus contributing to smallholder farmers access to sustainable soil health solutions.

Respond

The market has shown strong reaction and adaptability to the evolving mechanization and compost models in the livestock sector,

indicating growing resilience and sustainability. Fertilizer companies such as ACI, South Bengal, and Ispahani have taken proactive roles by collaborating directly with compost entrepreneurs. This collaboration is not only enhancing product credibility and expanding distribution but also increasing market resilience by linking compost to larger agri-value chains.

In the machinery sector, various market actors—fodder and silage entrepreneurs milk chilling plant operators and milk food processors—are actively adopting different types of livestock-related machines. Their investment is facilitating both market

expansion and sustained machine usage, even beyond the project's initial support. Moreover, two new types of occupational groups have emerged: mechanical service providers, who repair and maintain machines, and machine service operators, who offer paid services using these machines (e.g., chopping or milking).

Business Case 3.1: Suraiya Farhana Resma – A Trailblazer in Organic Farming

Suraiya Farhana Resma from Sherpur, Bogura, began her entrepreneurial journey in 2010 as a tailor. By 2014, she stepped into livestock farming, starting modestly with cows and goats. Her turning point came in 2017 when she received eight ring slabs from the Union Parishad, enabling her to initiate organic farming. In 2018, her efforts expanded with support from PKSF's PACE project, focusing on vermicomposting and green fodder.

In 2022, she partnered with RMTP, which marked a significant transformation in her enterprise. RMTP supported her with a BDT 25,000 startup grant, BDT 70,000 for machinery, and BDT 28,000 for waste management. Technical assistance in fertilizer testing, branding, packaging, and social media training helped modernize her operations.

Her monthly income doubled—from BDT 1.5 lakh to BDT 3 lakh—and she now employs 30 people, many from underprivileged backgrounds. With training provided to 32 entrepreneur batches, her success is a catalyst for local growth.Suraiya expanded her operating land from 2 to 4 bighas to meet demand, selling 200 tons of products monthly, including vermicompost, tricho compost, cattle, and crops. Her story exemplifies resilience, innovation, and community empowerment.

Business Case 3.1: Md. Mostafizur Rahman: Mechanizing Silage Production for Growth

Md. Mostafizur Rahman started his silage business, Fiz Silage, in Dhunat, Bogura, after gaining hands-on experience working for a silage company. Though he lost his initial investment of BDT 4 lakhs, he refused to give up. Today, three years later, he is a successful silage entrepreneur, thanks to resilience, hard work, and critical support from GUK.

Through GUK, Md. Mostafizur received financial and technical backing that transformed his business. GUK contributed BDT 2 lakhs for a 4D hydraulic machine and C4 chopper (out of a total cost of BDT 7 lakhs), BDT 10,000 for a vacuum machine, BDT 30,000 for silage sales promotion, and training to expand his online marketing efforts.

Before GUK's support, Md. Mostafizur earned around BDT 40,000 per month. Today, he sells 300 tons of silage monthly across 30 districts, earning approximately BDT 2 lakhs in monthly profit. He employs 68 people and sources silage from 400 bighas of farmland, inspiring many others to launch silage ventures and create new rural economic opportunities.

3.2.4 Safe Dairy Product Processing Practices

Systemic Constraint 5:

No investment in promoting knowledge and services related to safe and improved dairy product processing practices for milk.

The intervention on Development of Safe Milk and Meat Product Markets aimed to improve milk quality, enhance market access, and increase incomes for dairy value chain actors. To ensure safe collection and transportation of milk, the project established **13 milk chilling plants,** strategically located across the region. These plants, with capacities ranging from **700 to 3000 liters**, help preserve milk quality at the grassroots level by reducing spoilage and contamination. The chilled milk is then supplied to both local milk processors, including curd and sweet shops, and large national dairy companies such **as PRAN, Milk Vita, and Grameen Danone**, creating strong market linkages.

In addition to infrastructure development, the project provided targeted technical assistance to chilling plant operators and entrepreneurs on milk preservation, handling, and business development. Milk testing facilities were installed at collection centers to monitor milk quality, ensuring buyers—whether large corporations or small processors—can confidently assess the safety and value of the milk they purchase. The project also introduced quality assurance measures like **ISO** and **BSTI** certification processes, helping entrepreneurs meet national standards and improve competitiveness in the growing dairy market.As a result of these certifications, consumer confidence in the products has increased, driving both local and national demand and reinforcing the market position of small and medium dairy enterprises.

To strengthen the milk product value chain, **120 entrepreneurs** were trained on milk processing and product diversification. The training focused on improving packaging, branding, and digital marketing, enabling entrepreneurs to better position their products in local and national markets. To further enhance food safety and set a replicable standard, the project also provided grant support to **four processors** to improve their kitchen hygiene and ensure compliance with food safety protocols. Additionally, the project facilitated a dairy product fair where trained entrepreneurs showcased and sold their products, enhancing visibility and fostering stronger market connections.

Adopt

The establishment of chilling plants has proven to be a commercially viable intervention for the dairy sector in Bogura. Prior to the intervention, farmers faced income instability due to milk spoilage and dependency on informal market actors like goalas (middlemen). With the introduction of chilling plants, farmers now have reliable access to cold storage facilities that ensure the quality of their milk and enable them to sell at a consistent, fair price. This shift has eliminated exploitation, strengthened transparency in transactions, and provided milk collectors with the ability to store milk safely for extended periods, enhancing their bargaining power and expanding their customer base.

The model has also created a more equitable division of labor. Farmers, milk collectors, chilling plant owners, and food processors are now working collaboratively in a structured value chain. Chilling plant entrepreneurs are not only storing and distributing milk but are also actively investing in infrastructure, forming linkages with large dairy companies like PRAN, Milk Vita, and Grameen Danone, as well as local processors. Meanwhile, milk processors and sweet producers—particularly in Bogura's renowned curd and sweet industry—benefit from uninterrupted access to high-quality milk, enabling them to scale production and meet growing demand for value-added dairy products such as ghee, matha, curd, and butter.

Participants across the value chain express high satisfaction with the improvements. Farmers enjoy fairer prices and better income predictability; collectors and entrepreneurs report increased profitability and expanded market opportunities; and processors are responding to surging consumer demand. The success of this intervention is reflected in increased investments by chilling plant owners and processors.

Adapt

Following the initial support provided by the project, market actors in the dairy value chain have begun to adapt and enhance the model through targeted investments and innovation. While the project originally focused on setting up cooling tanks at chilling plants, owners are now independently investing in additional technologies such as cooling vans, micro chillers, and transport cans to ensure milk quality during transit. These improvements demonstrate that the model is evolving in response to real market needs and helping actors become more competitive and efficient.

To strengthen their market position and attract larger buyers, chilling plant owners are also establishing on-site milk testing facilities that ensure quality assurance and build trust with food processors and national dairy companies. Milk collectors have begun using digital platforms to promote and sell their milk to distant locations, expanding their reach and profitability. Meanwhile, processors are diversifying their product lines by producing value-added and health-oriented dairy products such as A2 ghee and machine-produced base yogurt. They are also modernizing their branding, packaging, and marketing strategies to appeal to a wider customer base. These adaptations not only demonstrate the continued investment and innovation by stakeholders but also ensure that farmers—who are at the foundation of this supply chain—continue to benefit through steady demand and fair pricing for their milk.

Expand

When the project began, chilling plants were scarce in Bogura. However, following the support provided to 13 chilling plants, an additional 10 have been established independently, signaling growing interest in this profitable business model. This has transformed chilling plant ownership into a viable entrepreneurial opportunity in the

region. Large dairy companies, which previously did not actively collect milk in Bogura, are now crowding into the market. These firms are establishing direct linkages with local collection points and chilling plants, increasing competition and creating stronger markets for milk producers. The presence of these companies is driving standards and encouraging consistency in quality and quantity of milk.

Similarly, though the project supported 120 milk processors with training on food safety, digital marketing, and certification, more processors are now independently seeking BSTI and ISO certifications to align with the emerging norms. Even among those who did not receive project support, processors are adopting improved kitchen hygiene and shop layouts modeled after the four initially supported businesses. This shows that the business practices promoted by the project interventions are relevant and feasible in relation to the processors' overall business case.

Respond

The milk and milk product market in Bogura has demonstrated strong responsiveness and resilience through dynamic shifts in value chain collaboration and market facilitation. A unique linkage has been established between milk collectors and processors, where collectors are expanding their storage capacity to meet the increasing demand from processors. This alignment is driven by a rising consumer demand for safe and diverse dairy products, prompting processors to increase their sourcing volume. Large dairy companies are now sourcing milk directly from collection points, recognizing the efficiency and reliability of the system.

Moreover, machinery companies are actively manufacturing and importing cooling and processing equipment to serve various actors in the dairy value chain. The market response also includes retail expansion, as super shops begin sourcing milk and dairy products directly. Financial institutions, particularly MFIs, are playing a crucial role by offering financing options to processors and milk entrepreneurs.

Business Case 4.1:UmmeAtia:From Crisis to Culinary Success in Dairy

Umme Atia of Sherpur, Bogura, turned a crisis into opportunity during the COVID-19 pandemic. With a background in brand promotion, call centers, and graphic design, she chose to pivot and follow her passion for food. Starting small, she began producing traditional sweets like doi and Rajbari chomchom, laying the foundation for what would become her successful enterprise—Atal Food.

Now five years into her entrepreneurial journey, she received transformative support from RMTP in the past two years. With RMTP's financial assistance, she secured BDT 1.6 lakh toward ISO certification, BDT 1.25 lakh for infrastructure, and BDT 1.5 lakh for fortified product development. Also, technical support, especially in social media marketing, boosted her visibility and online sales significantly.

Her monthly income has doubled from BDT 2 lakh to BDT 4 lakh. Atal Food now sells 2,000 pieces of curd and 2,000 kilograms of sweets every month. The enterprise employs 12 full-time staff, and has two retail outlets in Dhaka. Umme Atia's story is one of adaptability, grit, and vision—an inspiring example of how women entrepreneurs can thrive with the right support and determination.

Business Case 4.2: JibonPramanik: Expanding a Milk Business Chilling Plant

Jibon Pramanik, a milk collector and owner of

a chilling plant in Shariakandi Upazila, Bogura, started by collecting 400–500 liters of milk daily from goalas and local farmers. Without a cooling facility, he struggled to maintain quality.

With support from RMPT, he invested Tk. 3,25,000 in a milk cooling tank, receiving Tk. 1,00,000 as a grant. He also gained training, learned to use a lactometer for quality checks, and built new business linkages. Today, he collects around 1,700 liters of milk every day — from both farmers and his own 18 cows — ensuring higher quality and better prices.

Through the cooling tank and lactometer, his milk meets higher standards, allowing him to supply to sweet shops in Bogura and a leading dairy company, PRAN. He promotes his business online through a Facebook page and YouTube channel, attracting new customers.

With four staff members, Jibon now earns Tk. 1,200–1,500 per day, or roughly Tk. 40,000–45,000 per month, and serves as a role model for aspiring entrepreneurs.

3.2.5 System Change Initiatives under Intervention 5

Systemic Constraint 4:

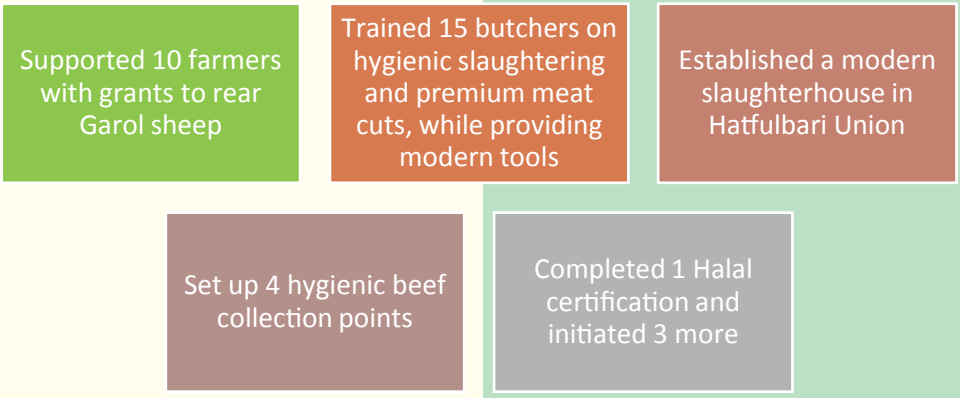
Low number of dairy related logistics service providers with the right capacity to ensure smooth and timely services to small holder farmers

Under Intervention 5, the project focused on establishing a hygienic, commercially viable, and well-connected beef value chain. Contract farmers received training on rearing improved beef breeds, with emphasis on nutrition, animal health, and meat quality. These practices help ensure the production of high-quality, healthy beef. To enhance premium market access, apart from cattle, **10 farmers** were provided with grants to rear **Garol**, known for being low-maintenance and producing tender, nutritious meat. This intervention also supported the development of proper animal rearing standards that align with evolving market preferences.

To ensure food safety and hygiene, **15 butchers** were trained on safe slaughtering techniques and how to extract premium cuts for steaks. They were equipped with safety gear, hygienic tools, and environmentally friendly packaging. Traditional wooden surfaces were replaced with stainless steel alternatives to maintain hygiene. **A modern slaughterhouse** was established in Hatfulbari Union, Sariakandi, featuring water supply, shade, and weight measurement facilities. Additionally, a meat processing plant was developed in Shabgram Union, Sadar, where each processed animal is divided into four parts for better quality control and value addition.

To streamline supply and marketing, **4 beef collection points** were established where hygiene is strictly maintained. Butchers and farmers were linked with meat brokers who supply meat to restaurants in Bogura and beyond, expanding market access. **Two double-decker trucks** were provided to transport entrepreneurs to facilitate live cattle movement efficiently. The project also introduced **contract farming** for livestock farmers, enabling structured agreements between producers and buyers. As a result, large beef processing companies like Quality Livestock Limited are now establishing direct linkages with farmers to ensure consistent sourcing of quality beef.

Furthermore, **2 Halal certification** was completed and 3 more are in process, ensuring religious compliance and enhancing product credibility. These interventions are collectively contributing to a more sustainable, profitable, and hygienic beef market ecosystem.



Adopt

The meat value chain model introduced through the project has proven to be commercially viable, generating tangible benefits for both farmers and butchers. Farmers rear higher-value animals like Garol, which require low maintenance but produce healthier, more nutritious meat. The growing consumer preference for safer red meat options—particularly Garol, which sells at a premium of BDT 1000–1200 per kg—demonstrates the success and acceptance of this model. Beef butchers are also earning more by accessing better market linkages and receiving higher prices for premium cuts supplied to restaurants through meat brokers. The use of hygienic slaughterhouses and collection points equipped with weight machines has further reduced conflict, improved transparency, and added trust to the process.

Partners have played a crucial role in ensuring the successful division of labor and effective practice changes. Farmers focus on producing quality beef while the slaughterhouse and collection points facilitate proper processing, storage, and marketing. Cold storage and retail systems, including super shops and high-end meat outlets, are also engaged, helping store and sell frozen meat. This diversification—from wet markets to frozen supply—has opened up new customer segments and sustained demand. Meanwhile, butchers, now equipped with better tools and hygiene protocols, are improving meat quality and operational efficiency, which leads to increased customer satisfaction and repeat sales.

Overall, all stakeholders—from farmers and butchers to brokers and retailers—express strong satisfaction with the system. Hygiene, efficiency, profitability, and product quality have all improved significantly. With growing consumer awareness and demand for safe red meat, the adoption of this improved model has firmly taken root in Bogura and surrounding areas. Additionally, fee-based safe slaughtering is emerging as a viable enterprise model, creating new income-generating opportunities. Butchers have shown keen interest in the system, as it enhances the perceived quality and safety of their meat, thereby increasing customer demand and market value.

Adapt

The beef value chain model has demonstrated adaptability through strategic business innovations and continued investments, ensuring long-term sustainability and expanded benefits for target groups. One key adaptation emerged at the slaughterhouse, where maintaining hygiene and operations required a dedicated individual. As a sustainable solution, a socially respected individual was assigned this role, with incentives tied to the sale of non-edible or less commonly consumed parts like cattle stomachs and tongues. These byproducts, often overlooked, are now being monetized through linkages with secondary markets, generating income for the caretaker while keeping the slaughterhouse clean and functional—transforming a challenge into a business opportunity.

The adaptation extends beyond beef sales alone. Butchers are increasingly engaging with broader value chains that allow them to trade in non-meat components, opening new revenue streams and creating micro-entrepreneurship opportunities around the beef sector. Moreover, value-added processing is evolving—women entrepreneurs are producing beef pickles, while meat processors are catering to diverse consumer needs by offering products such as sausages, beef keema, nalli bones, and steak cuts. These innovations demonstrate how the model continues to adapt with market demand, enhance livelihoods across stakeholder groups, and sustain the benefits for farmers, butchers, and entrepreneurs alike.

Expand

The beef value chain interventions are showing clear signs of market expansion and crowding-in by new players, driven by demonstrated success and commercial viability. Initially, only a limited number of farmers and butchers received training on premium beef rearing and safe, hygienic meat cutting techniques. However, the impact of these methods has spread organically. Many untrained farmers and butchers have begun replicating the practices, especially after witnessing improvements in meat quality, hygiene, and customer satisfaction. This indicates growing competitiveness and normalization of improved standards in the local beef market.

Out of the 15 butchers provided with modern equipment and machines, 12–13 additional butchers have independently purchased the same tools, recognizing their operational efficiency and customer appeal. Similarly, while only 10 farmers were initially supported to rear Garol, and now more than 45 new farmers in Bogura have begun Garol rearing, motivated by the high demand and lucrative returns.

Furthermore, the slaughterhouse model's success has caught the attention of government officials: the District Livestock Officer (DLO) of Bogura and the Upazila Livestock Officer (ULO) of Sariakandi visited the Hatfulbari slaughterhouse and expressed keen interest in replicating the model across all upazilas in Bogura. Serving as a role model for safe meat production, this initiative has demonstrated how improved hygiene, infrastructure, and management can significantly enhance meat quality and safety. This institutional interest signifies a strong potential for scale and sustainability within competitive markets.

Respond

The beef value chain interventions have triggered a significant and dynamic market response in Bogura, reflecting strong demand-driven adjustments and evolving consumer preferences. Super shops like Shwapno, Freshzone, and BCL are now regularly sourcing beef and premium steak cuts from trained butchers and local suppliers. This marks a shift from informal, unregulated meat sourcing to more structured and quality-driven procurement channels. Additionally, large meat processing companies such as Bengal Meat and the newly entered German Butcher are sourcing premium beef through local brokers, validating the market's growing sophistication and appeal.

A key advancement is the introduction of contract farming, enabling structured links between beef farmers and buyers. Quality Livestock Limited has begun partnering with local farmers to source premium beef, ensuring consistent quality while encouraging better rearing practices and feed use. The contract farming model has resulted in mutual benefits for the company and the farmers, and given presence of strong consumer demand, it is expected that the company will scale up the model.

Consumer behavior is also shifting. Until recently, steak was virtually unknown in Bogura. Now, in affluent neighborhoods like Jalesharitola, several restaurants are offering steak dishes, sourcing their meat locally, and enjoying growing popularity. This increased demand for high-quality cuts is influencing upstream actors too. Feed companies are responding by introducing both regular and high-performance beef feed variants like Supra and Hipro to support better weight gain and meat quality. Moreover, veterinarians and Local Service Providers (LSPs) are actively offering advisory support on animal health and rearing techniques, enhancing the quality of meat across the value chain. These reactions collectively demonstrate a resilient and evolving market, well-aligned with consumer demand and value chain innovations.

Business Case 5.1: Hatfulbari's Model Slaughterhouse Sets a New Standard

In Hatfulbari union of Sariakandi, Bogura, a transformation quietly reshaped the local meat

market. The community's only slaughterhouse was once a grim sight—unhygienic, disorganized, and unsafe. Recognizing the health and economic risks, RMTP stepped in to establish a model slaughterhouse, securing land with support from the UNO of Sariakandi. With an investment of BDT 10 lakh, the project developed a hygienic facility equipped with water supply, shaded areas, a weighing scale, a butcher's washroom, and a health screening zone for livestock. The slaughterhouse was thoughtfully divided into two parts—resting and slaughtering—to ensure humane practices and cleanliness.

To ensure sustainability, RMTP introduced an innovative business model. Ten local butchers use the facility, each contributing BDT 300–500 monthly for maintenance. A cleaner maintains hygiene daily. Masud Rana, a respected community leader, was appointed as coordinator. His incentive? He collects and sells non-edible and low-value parts of the animals, earning a steady profit.

The model is thriving. Customers are praising the quality, and even large restaurants and processors are taking notice. Recently, district livestock officers (DLO and ULO) visited and expressed plans to replicate the model across Bogura—turning a small village initiative into a potential district-wide standard.

Business Case 5.2: Shamsul Pramanik Salam: Pioneering Garol Sheep Farming

Shamsul Pramanik Salam, from Hatfulbari village in Shariakandi, returned to Bangladesh after working in Saudi Arabia, seeking a rewarding business opportunity. Though he owned a few shops in the market, he decided to try something new — Garol sheep farming — as a side venture. Garol was largely unknown in the area, making it a unique and promising enterprise.

With RMTP's support of Tk. 50,000, along with training and veterinary care, he started rearing Garol sheep. Today, he has 10–15 Garols and aims to expand to 100 in the future. Garols, known for their delicious and nutritious meat, sell for Tk. 16,000–17,000 each, yielding a solid profit of Tk. 13,000–14,000 per animal. At Tk. 1,000 per kg, their meat is gaining popularity due to its taste and quality.

Shamsul is happy with the low maintenance and low risk of Garols — they are calm, inexpensive to raise, and require little hands-on care. His success sets an inspiring example for others to embrace Garol farming as a sustainable and rewarding livelihood.

3.2.6Financial and ICT Services

Systemic Constraint 6:

Financial and ICT service providers do not invest in business opportunities in the livestock sector due to risks compared to other sectors.

To strengthen access to finance and technology among livestock value chain actors, GUK utilized its microfinance wing, a leading microfinance institution, to facilitate **984 loans** by April 2025 to farmers, processors, and other stakeholders. Through this direct linkage with GUK MFI, beneficiaries are gaining easier access to loans, enabling them to expand their businesses and invest in improved practices. To ensure informed financial decisions, farmers were also trained on basic bookkeeping, ledger keeping, and e-tally systems. This was delivered using a group-based approach, where GUK branch officers, trained through a project-supported ToT, provided training sessions to their respective group members, building capacity at the grassroots level.

In the ICT domain, significant strides were made by on boarding **1,000 LSPs** onto the Sudokkho app and **5,000 farmers** onto the Khamar-Bondhu app. These platforms help store cattle health records and provide remote advisory services. mPower Social served as the ICT partner for this initiative. Additionally, **telemedicine services** were introduced, enabling LSPs to provide medical support through telephone. **Four telemedicine centers** were established in four upazilas, helping farmers' access timely veterinary advice. In a pilot insurance intervention, the project partnered with Green Delta to insure **107 cattle** owned by **87 farmers** using muzzle images for identification. The project covered a one-time premium of BDT **2,600**, allowing claims of up to BDT **100,000** in case of cattle death, creating a safety net for livestock holders.

Further, the project trained **400 entrepreneurs** in digital marketing, enabling them to promote products on Facebook and YouTube. **Fifty entrepreneurs** launched online businesses and received startup grants. **Two hundred fifty participants** adopted cashless transactions via Rocket. To enhance transparency in milk quality, a dashboard is being developed for **8 entrepreneurs** to manage data on milk quality from up to **50 farmers** using IoT based milk analyzers, offering quality-based feedback and recommendations—thus integrating finance, ICT, and quality monitoring into one comprehensive support system.

9312 loans facilitated through GUK's microfinance wing

Onboarded 1,000 LSPs to the Sudokkho app and 5,000 farmers to the Khamar Bondhu app

Livestock insurance for 107 cattle using muzzle image identification

Trained 400 entrepreneurs in digital marketing; 50 launched online businesses with grants

Established 4 telemedicine centers to deliver timely veterinary advice

Adopt

Although this intervention was cross-cutting in nature, it brought together targeted activities that enabled various actors in the dairy and beef value chains to grow more efficiently. A key player was GUK MFI, which identified value chain actors as potential customers due to the growing commercial nature of their operations. GUK reported a strong loan recovery rate from RMPT participants, reflecting a sound credit culture and growing trust. As more entrepreneurs within the ecosystem recognized the benefits of financial support, demand for loans from similar institutions began to rise—signaling a sustainable business case for MFIs operating in this space.

Changes in behavior, particularly, in areas related to the adoption of digital facilities by smallholder farmers usually take time. However, field findings show that adoption of ICT-based services was significant. Around 90% of users, including LSPs and farmers, are still actively using the Sudokkho and Khamar-Bondhu apps, indicating strong user satisfaction and consistent utility. These platforms provide veterinary support, record-keeping, and advisory services that improve animal health and productivity. Telemedicine services have further strengthened support systems, enabling 24/7 access to LSPs at low cost and within the shortest possible time. In addition, 50 online entrepreneurs saw notable growth in their customer base through e-commerce and f-commerce, which enabled them to deliver dairy and meat products across wider geographical areas. Even fodder and silage sellers are leveraging platforms like Facebook to receive direct orders, reflecting a shift toward digital lead generation and customer acquisition.

Regarding livestock insurance, although still in the pilot phase, the model demonstrates promise. The one-time premium of BDT 2,600 is relatively affordable, and if more farmers join, economies of scale will reduce premium costs while increasing potential claims. While not fully tested, the insurance scheme shows clear potential for commercial viability.

Adapt

Notable improvements and investments are being made by market actors to strengthen and sustain the models. GUK's MFI wing has begun to scale its rural lending portfolio after witnessing strong loan recovery rates and increasing interest from entrepreneurs. Based on this success, GUK is improving its group-based financial literacy approach and expanding loan offerings to more farmers and processors without direct project facilitation—indicating long-term institutional adoption.

In ICT, both LSPs and farmers have integrated digital platforms such as Sudokkho and Khamar-Bondhu into their routine operations. The consistent use of these applications—by nearly 90% of registered users—shows that the digital services are not only improving animal health management but also becoming essential tools for productivity and record-keeping. As a result, private ICT partners like mPower Social are investing further in app updates and services, and even exploring possibilities to commercialize advisory packages based on user feedback.

Digital entrepreneurship also witnessed meaningful adaptations. After the initial support to 50 online entrepreneurs, others have followed suit, investing in Facebook-based marketing and online delivery models independently. Furthermore, the insurance pilot by Green Delta, which uses muzzle photos for cattle ID, is generating interest among private insurers exploring scale-up options with shared premium models.

Expand

Following GUK's lead, other MFIs have shown growing interest in financing dairy and beef value chain actors, given their increasing business capacities. Some processors have

also secured loans from commercial banks to expand their operations, reflecting the financial sector's recognition of this segment's viability. This competitive environment is fostering a more dynamic market for financial services tailored to livestock entrepreneurs.

Additionally, the ICT platforms introduced by the project, such as mPower Social's tools, have started gaining traction among non-project farmers. These farmers are independently on boarding themselves and using the digital platforms for livestock health tracking and expert advice. More LSPs are intending to extend their telemedicine support, and many have started in an informal way. This trend points to organic expansion driven by perceived value. Likewise, the digital marketing training initially extended to 50 entrepreneurs has inspired a wider wave of online adoption. Many processors and entrepreneurs have since launched their own digital storefronts on social media, reaching broader customer bases and delivering products to new markets.

The early promotion of Rocket mobile banking accounts has also led to a growing appetite for digital transactions among value chain actors. A number of entrepreneurs have independently adopted digital wallets to facilitate smoother, cashless payments from customers. This not only boosts financial transparency and convenience but also signals a cultural shift toward formalization and financial inclusion within the livestock sector.

Respond

The increasing volume of online orders has led to the emergence of supporting logistical and packaging services. Renowned delivery companies such as Sundarban, Steadfast, and Pathao are now partnering with entrepreneurs and processors to facilitate timely delivery of dairy and meat products, ensuring the digital sales channels function smoothly. In addition, digital marketers and e-commerce experts have begun engaging with local processors and entrepreneurs to enhance their social media presence, run product boosting campaigns, and manage online marketplaces. This has strengthened entrepreneurs' marketing capacity and contributed directly to their financial growth, visibility, and customer acquisition.

Beyond traditional MFIs and banks, agriculture-focused aggregator services like iFarmer and WeGro have expressed interest in supporting farmers with customized financial products and insurance schemes. This emerging support ecosystem indicates strong market validation of the intervention's model and signals a broader shift toward more inclusive, tech-enabled financial services in the livestock sector.

Business Case 6.1: Md. Babul Islam's Rise in Veterinary Retail through Telemedicine

After enduring a difficult chapter in life, Md. Babul Islam turned things around by starting a poultry farm in 2014. His determination soon led him to open a veterinary medicine shop in 2016. Over time, he expanded his offerings to include medicines and vaccines for dairy, beef, poultry, and fish, as well as animal feed.

In 2022, his journey took a transformative turn when he partnered with RMTP. With their financial support, he purchased refrigerator for vaccine storage and a computer to enable telemedicine services. This innovation became a game-changer. He also received technical training on animal health and entrepreneurship.

While many farmers visited his shop seeking treatment, Babul was not able to provide veterinary service. Now, with his telemedicine setup, he connects them to veterinarians in real-time, ensuring prompt and expert care. Farmers prefer his shop for both treatment and products, boosting his credibility and customer base. Thanks to telemedicine, Babul reports a 10–15% increase in sales and profits. Inspired by his success, other medicine shop owners are now eager to adopt the same model.

Business Case 6.2: Masuma Akhter: From Home Kitchen to Online Meat Pickle Success

When Masuma Akhter, a 27-year-old entrepreneur from Kai Gari, Bogura Sadar, started making meat pickles, it was to support her family after her husband lost his job during the pandemic. What began as a small kitchen endeavor quickly evolved into a thriving online business, thanks to the RMTP project and GUK's guidance.

With training and equipment support — deep freezers, gas stoves, packaging sealers, and wet scales — she mastered packaging and quality control. By launching mini-packs of beef pickles, sourced from the Bogura Meat Processing Plant, Masuma was able to attract students, service holders, and families online. The results were remarkable. Today, she sells 190–200 kg of pickles monthly, making a solid profit of roughly BDT 75,000. Her attractive packaging and dedicated Facebook page have brought in over 200 online orders, growing her customer database and strengthening her brand.

Expanding further, she introduced "Bhuri and Paya" in 1-kg and 500-g boxes, gaining a strong following across Bangladesh. Masuma's online presence has not only revitalized her family's income but also inspired other entrepreneurs to harness digital platforms for rural business growth.

3.3 Major Innovations

3.3.1 Innovations in the health service market

Establishment of Vaccine Hubs:

The establishment of 21 vaccine hubs up to the union level stands out as a major innovation in improving livestock health services. Traditionally, farmers sought veterinary support only when their animals fell ill, often overlooking the importance of preventive care. This reactive approach not only increased treatment costs but also contributed to high mortality rates and reduced productivity. Recognizing this challenge, the project strategically introduced vaccine hubs alongside awareness campaigns and farmer training on animal health and disease prevention. By ensuring the availability of refrigerators and proper storage facilities, the project made vaccines accessible even in remote areas. This proximity to services encouraged farmers to adopt a preventive mindset, significantly reducing animal mortality and improving overall herd health. As a result, livestock are living longer and producing more, leading to higher incomes for farmers. The vaccine hub model has thus not only changed farmer behavior but also laid the foundation for a more resilient and sustainable livestock sector.

Promotion of AI Services:

The introduction of Artificial Insemination (AI) services at the community level has significantly boosted livestock productivity and breed improvement. Previously, farmers had limited access to AI and relied on traditional methods with low success rates. To address this, the project collaborated with BRAC's AI and supported its AI service providers through training and financial support. Awareness sessions also helped farmers understand the benefits of AI. As a result, adoption has grown, with over 2,000 procedures completed so far. Improved access has led to higher conception rates, better breeds, and increased milk and meat yields. This intervention has not only reduced reliance on traditional practices but also helped LSPs establish viable businesses, transforming rural livestock systems.

3.3.2 Innovations in the feed market

Development of Feed Market Value Chains

One of the most impactful innovations introduced by the project has been the development of the feed value chain to improve cattle health and productivity. It has long been known that proper feeding practices—including access to quality fodder, feed, and silage—play a crucial role in livestock performance. However, these resources were often scarce or unavailable in many areas. The project not only raised awareness among farmers but also strategically developed the value chains for these inputs. A key innovation was the promotion of entrepreneurs in silage and fodder production and the establishment of dealer and sub-dealer points for commercial feed companies. Additionally, technical training was provided to farmers and entrepreneurs on how to cultivate and process these items efficiently. This intervention ensured wider access to quality feed inputs while increasing affordability due to greater market competition. As a result, cattle productivity and overall animal health have improved significantly.

3.3.3 Innovations in livestock machinery

Dispelling Myths Around Livestock Machinery

While livestock machinery existed before, many farmers were hesitant to use it due to widespread misconceptions. They believed that chopper machines lacked durability, cooling tanks couldn't preserve milk effectively, and milking machines hurt cows or contaminated

the milk. The project challenged these myths through direct action—providing grants to farmers to test the machines themselves. Once in use, farmers saw real results: increased productivity, improved milk quality, and smoother operations. Cooling tanks, once doubted, are now enabling new entrepreneurship opportunities for milk collectors. As trust in these technologies grew, machinery was no longer seen as a risk but a reliable investment. Many farmers are now buying machines with their own money, and new workshops are entering the market with livestock-focused tools. The project's grant support and demonstration efforts were crucial in shifting mindsets and driving this innovation, making machinery a vital part of modern livestock farming.

Compost Making: Turning Waste into Wealth

Waste management emerged as a crucial innovation through the project's support to compost processors. With 32 compost processing machines provided, cow dung—once a burden for farmers—has become a valuable resource. Entrepreneurs now collect dung by paying farmers, transforming waste into profit. Compost making has evolved into a thriving business with strong income potential. This success reflects the project's groundbreaking approach to recycling energy and creating sustainable, circular solutions in livestock farming.

3.3.4 Innovations in the milk market

Chilling Plants: Bridging the Gap in the Dairy Value Chain

Chilling plants have become a game-changing innovation in the dairy sector. Previously, farmers without preservation facilities were forced to sell milk at low prices or discard it before it spoiled. On the other hand, milk processors and companies often struggled to access timely, quality milk in adequate quantities. The establishment of chilling plants cum milk collection points solved this challenge by creating a reliable middle ground for storage and collection. Now, farmers can sell milk at stable prices without fear of spoilage, while processors receive high-quality milk on time to meet demand. This innovation has not only reduced post-harvest loss but also stabilized incomes and strengthened the dairy value chain, benefiting both producers and processors.

3.3.5 Innovations in the meat market

Garol Sheep: A Breakthrough in Meat Diversification

Introducing Garol sheep farming in Bogura has emerged as a significant innovation under intervention five, aimed at providing farmers with access to high-quality and healthy meat. Ten selected farmers received both financial and technical support to rear this promising breed. Garol sheep are low-maintenance, requiring only household grass and a clean environment—no expensive feed or intensive medical care. With market prices ranging from BDT 1,000–1,200 per kg, their profitability is drawing attention. The simplicity of rearing and high returns has inspired many locals to adopt this practice, and even farmers from outside Bogura are visiting to learn more and collect Garol calves. This initiative not only boosts income but also introduces a new, improved meat source, adding valuable diversification to local livestock systems.

3.3.6 Innovations in access to finance and access to ICT

Transformation of Rural Businesses through Online Marketing

Among all the innovations introduced through this intervention, the most pivotal has been

training on online business and digital marketing applications. Traditionally, value chain actors and market players operated in entirely physical spaces, with little exposure to virtual platforms. The project identified a major opportunity to bridge this gap, especially for rural entrepreneurs and processors. With targeted training, participants such as veterinarians, silage entrepreneurs, feed dealers, and food processors—producing items like ghee, sweets, yogurt, cheese, and meat pickles—learned to showcase their products and services online using photos, videos, and engaging content. As a result, businesses experienced a significant transformation—their customer reach expanded beyond local markets, and many reported increased sales and visibility. This shift to the digital landscape empowered rural entrepreneurs to compete more effectively, marking a groundbreaking change in how agricultural and livestock-based businesses operate and grow.

4 LESSONS LEARNED & CHALLENGES

4. LESSONS LEARNED & CHALLENGES

4.1 Key Take Away

Farmers' willingness for paid vet services

Prior to the project intervention, farmers rarely sought veterinary services, leading to a lack of interest from veterinarians in working in these areas. Animal healthcare was largely neglected, and traditional treatment methods were common. Recognizing this gap, the project conducted awareness sessions and training programs to build trust in veterinary support. To encourage early adoption, both farmers and vets were provided with incentives. As a result, demand for veterinary services has grown significantly. Farmers now regularly consult vets for vaccinations, feed, and medication advice. As farmers witness improved cattle health, reduced mortality, and increased productivity, they are now willingly paying for veterinary services out of their own pockets. This behavior change has not only improved livestock health and productivity but also created a sustainable environment where farmers are willing to pay for quality veterinary services.

Training has significantly improved productivity and farm management

Comprehensive training for farmers has led to major improvements in livestock productivity and overall farm management. Before, many farmers lacked knowledge about proper animal care, nutrition, and environmental management. Now, they are well-informed about good health practices, vaccination schedules, and disease prevention. They understand the value of quality feed, fodder, silage, and hay in boosting milk and meat output. Moreover, training on mechanization has encouraged the use of milking machines, chopper machines, and mist fans, especially during hot seasons, which has reduced animal stress and improved production. These advancements have not only raised productivity but also made farm operations more efficient and sustainable. As a result, trained farmers are seeing higher incomes and are more confident in adopting modern livestock practices for long-term success.

Government agencies need to take over the slaughterhouse model

The slaughterhouse established under the project has emerged as a model for hygienic, organized meat processing in Bogura, built on an innovative and sustainable approach. However, replicating and scaling this success demands strong support from government agencies like the DLS, as the initial investment is too high for private actors alone. Currently, it operates more as a demonstration than a full enterprise. Public–private partnerships could bridge this gap, allowing butchers to secure long-term supply contracts with major buyers like Shwapno or Bengal Meat, making the model more viable. Greater engagement from both the government and private sector will be vital to institutionalize and expand this impactful initiative, ensuring access to safe meat and creating long-term benefits for local entrepreneurs, farmers, and communities.

Livestock market actors are a potential customer base for financial institutes

In just two and a half years, GUK successfully facilitated 984 loans for project participants, with strong repayment records. This demonstrates that livestock market actors—including farmers, processors, and entrepreneurs—are trustworthy and financially viable customer segments for financial institutions. While many require small to medium-sized loans, some processors may need access to larger financing. Engaging other financial institutions such as banks and non-bank financial institutions (NBFIs) is crucial. Moreover, innovative financing schemes like asset-based financing could further support machinery purchases or business expansion, opening new doors for sustained growth and market development within the livestock sector.

Telemedicine can revolutionize animal health in rural areas

Telemedicine has emerged as a vital solution for addressing the veterinary service gap, especially in remote areas where farmers often wait days for a vet visit. Through this approach, farmers can now consult veterinarians in real-time, obtain accurate diagnoses, and receive instant prescriptions. At the same time, medical shops and vaccine hubs benefit by supplying prescribed medications, making veterinary services more accessible and strengthening rural supply chains. This seamless integration improves animal health, boosts productivity, and creates a sustainable, collaborative business model that serves both farmers and veterinary service providers effectively.

4.2 Challenges & Recommendations

4.2.1 Challenges

Vaccination reduced mortality, but requires wider scale-up

GUK made commendable strides in reducing livestock mortality by establishing 21 vaccine hubs and facilitating over 25,000 vaccine doses to project participants. These efforts have significantly improved animal health and productivity at the community level. However, the current scale is not sufficient to meet the growing demand. Expanding vaccination services across more areas is crucial. To sustain and scale this innovation, greater involvement of pharmaceutical companies, expansion of dealership networks, and continued awareness among farmers are essential to ensure broader access and long-term animal health resilience.

Improved feeding practice increased productivity, but challenges remain

The project has successfully promoted improved feeding practices among farmers by strengthening the value chains of fodder, feed, and silage. As a result, more farmers are now regularly using these inputs to boost livestock productivity. However, despite the progress, significant challenges persist. The rising cost of feed—driven by global economic instability and the Ukraine war—remains a burden for smallholders. In the case of fodder, limited land availability poses a problem, as rice remains Bangladesh's staple crop. Additionally, silage production faces hurdles due to the difficulty in sourcing raw materials like maize, which is not cultivated in all regions. Continued innovation and localized solutions are needed to address these challenges and ensure sustainable livestock nutrition.

Mechanization needs more financial attention

One of the notable achievements of the project was dispelling myths around livestock mechanization and successfully promoting its adoption. However, this required direct financial support through grants to farmers and processors. The high cost of machines—such as cooling tanks, dewatering units, and silage cutters, which range from BDT 1 to 1.5 lakh—remains a major barrier. Many farmers shared that they would be willing to invest if accessible loan facilities were available. Microfinance institutions (MFIs) and banks have a crucial role to play in developing tailored financial products. In waste management, composting has taken off, but biogas presents a much larger opportunity. Companies like ATEC and Grameen Shakti could expand into this market—provided there's proper financial infrastructure to support mechanization-related investments.

Forward market linkages are crucial for chilling plants

Chilling plants have played a pivotal role in connecting dairy farmers with milk processors and companies, especially in Bogura, which is well known for its curd and sweet industries. This has created strong demand and market opportunities. However, some chilling plants, particularly in more remote areas, continue to face challenges due to a lack of forward market linkages. At times, surplus milk creates storage and sales issues. To ensure long-term sustainability, targeted linkage efforts are needed with large sweet shops and milk processors so that chilling plant owners have a consistent and reliable source of income.

Farmers' honesty remains a concern

Chilling plants connected to large dairy companies often measure fat levels to ensure milk quality, with the acceptable range being 2.5% to 3%. Occasionally, fat levels exceed 3.2%, raising concerns about adulteration—such as mixing flour to increase density. Though only a few farmers have attempted this, such practices can damage the reputation of chilling plants and risk losing trust with buyers, affecting all stakeholders, especially farmers. Raising awareness among farmers about the consequences of adulteration is essential to maintaining quality, market access, and long-term benefits for everyone involved.

Challenges Beef price and frozen meat

Despite efforts to stabilize the beef value chain, prices remain high (Tk. 750–850 per kg), making beef unaffordable for lower- and middle-income consumers—contradicting the project's goal of improving access to nutritious meat. A complex syndicate-driven market continues to influence prices, which remains beyond the project's control. Additionally, while frozen meat offers a safer, more hygienic option, consumer preference still leans toward wet market "fresh" beef. However, supermarkets and large meat processors are gradually shifting perceptions, suggesting that consumer education and improved supply chains can promote affordable and safe beef access in the long term.

Ensuring fair value for veterinary services

Although telemedicine has opened new avenues for veterinary care, vet incentives remain a concern. Many veterinarians hesitate to offer services without fair compensation, and some farmers are still reluctant to pay for virtual consultations. To make this model viable long-term, increasing awareness is crucial. Farmers must recognize the value of timely, professional veterinary support and understand that paying for quality consultations ultimately benefits their animals and their businesses. By fostering trust and promoting the benefits of remote veterinary care, both farmers and veterinarians can build a more sustainable, productive partnership.

4.2.2 Recommendations

Scaling Up Vaccination Services for Sustainable Livestock Health

To address the growing demand for livestock vaccination, it is essential to expand and sustain the impact beyond the 21 vaccine hubs and 25,000 doses facilitated by GUK. This can be achieved by strengthening partnerships with pharmaceutical companies to ensure a steady supply of vaccines, expanding dealership and cold chain networks for efficient last-mile delivery, and building the capacity of Local Service Providers (LSPs) to offer regular vaccination services. Additionally, promoting community awareness and co-financing models can increase farmer participation and reduce reliance on project support. These efforts will ensure broader access to vaccines, improve animal health outcomes, and build long-term resilience in the livestock sector.

Expanding Financial Inclusion to Modernize Livestock Enterprises

To accelerate the modernization of farms and processing facilities, expanding access to tailored financial services is critical. Building on the success of GUK's microfinance-led loan facilitation, efforts should be intensified to design and promote specialized loan products that support mechanization and infrastructure upgrades. Facilitating banks, MFIs, and fintech providers to test financing options suitable to the needs of smallholder farmers is critical. Additionally, enhancing financial literacy through targeted training on digital bookkeeping, investment planning, and loan management will empower farmers and processors to make informed decisions. A focused push toward financing mechanized solutions—such as milking machines, feed crushers, and chillers—can significantly boost productivity, efficiency, and competitiveness across the livestock value chain.

Women's Economic Empowerment Through Inclusive Intervention Strategies

Women play a critical role in the livestock sector. However, due to traditions/ norms, the men always take charge of the market related transactions and hence benefit directly from the income. Interventions that increase efficiency of women in performing their tasks in the sector as well as that create opportunities to enhance their, such as in mechanized fodder production, vaccine delivery, meat processing, and digital recordkeeping – can boost women's economic empowerment. Tailored capacity-building initiatives, access to finance, and facilitation of market linkages should be extended to women entrepreneurs and service providers. Moreover, awareness campaigns and community dialogues can help shift perceptions around women's roles in livestock enterprises.

Expanding Online Market Access and Digitalization in the Livestock Sector

To improve efficiency and market reach, the livestock sector should prioritize digitalization and online market expansion for both inputs and processed dairy and meat products. Promoting e-commerce platforms, social media marketing, and digital payment systems can enable farmers, input suppliers, and processors to directly connect with consumers, restaurants, and institutional buyers. Capacity building on digital tools, alongside partnerships with agri-tech companies and online marketplaces, will support wider adoption. This transition enhances transparency, boosts income opportunities, and builds a more inclusive and competitive livestock market system.

Strengthening Certification Systems to Enhance Product Credibility and Market

To ensure quality, safety, and competitiveness in the livestock sector, greater emphasis should be placed on facilitating certifications such as BSTI, ISO, Halal and HACCP for meat and dairy enterprises. These certifications build consumer trust, enable access to premium markets, and align local businesses with national and international standards. The project should support enterprises through technical assistance, awareness building, and linkage with relevant authorities to simplify the certification process. Strengthening these systems will boost product credibility, improve compliance, and unlock new market opportunities, hence creating opportunities for scale.

Scaling Proven Best Practices for Wider Impact Across the Livestock Sector Access

The demonstrated success of interventions such as vaccine hubs, AI services, categorized feed markets, livestock machinery, compost enterprises, chilling plants, sheep rearing, and online marketing highlights the potential for broader systemic change. To maximize impact, these best practices should be scaled to new geographic areas and embedded into local market systems through strategic partnerships with government, private sector actors, and community-based organizations. Continued investment in training, awareness, and access to finance will be critical to replicating and sustaining these innovations, ultimately enhancing productivity, resilience, and inclusivity across the livestock value chain.

5 CONCLUSIONS

5. CONCLUSION

Overall, the RMTP project has made a transformative and highly positive contribution to the livelihoods of thousands of livestock farmers, entrepreneurs, and rural households across Bogura and adjoining regions. Through a holistic market systems development approach, the project successfully addressed key constraints across the livestock value chain—encompassing cattle health, feeding systems, mechanization, milk and meat production, financial inclusion, and digital innovation. As a result, the productivity and income of smallholder farmers and rural enterprises have significantly improved.

The project catalyzed widespread adoption of best practices within the market system on services related to animal health management, feed utilization, hygienic meat processing, and dairy handling. Establishing vaccine hubs, AI services, diagnostic centers, and one-stop livestock service facilities brought critical veterinary services closer to farmers. These efforts not only improved animal wellbeing but also enhanced breed quality, leading to higher milk and beef yields.

Importantly, RMTP successfully developed and strengthened multiple value chains, enabling the emergence of well-connected markets for milk, meat, feed, silage, and machinery. Private sector actors, including feed companies, pharmaceuticals, dairy companies, meat companies, machine manufacturers, silage entrepreneurs, and dairy processors, were strategically engaged to ensure commercial viability and sustainability. Innovations such as telemedicine, digital livestock record systems, milk testing dashboards, and livestock insurance were introduced, bringing modern solutions to age-old rural challenges.

Gender inclusion, youth engagement, and climate resilience approaches were embedded throughout, to ensure equitable and sustainable benefits from project interventions. Additionally, the project's strong emphasis on hygiene, food safety, and halal compliance has contributed to consumer trust and expanded market access.

The approaches and innovations piloted by RMTP offer valuable lessons and experience on how market actors should be facilitated to function in a way that mutually benefits them and smallholder farmers. By laying the foundation for a more inclusive, resilient, and commercially viable livestock sector, the project has set a strong precedent for sustainable rural development in Bangladesh and beyond.

Jointly funded by the International Fund for Agricultural Development (IFAD) and the Danish International Development Agency (DANIDA), the Rural Microenterprise Transformation Project (RMTP) is being implemented by PKSF with the objectimproving income, food security, and nutrition status of small and marginal farmers, entrepreneurs, and other market actors involved in the value chains of selected high-value agricultural products.

RMTP is being implemented all over Bangladesh through the countrywide network of Partner Organizations (POs) of PKSF.

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