Baseline Study Report

Market System Development of Safe Poultry and Poultry Products

Implemented by: Ghashful

Supported by

Palli Karma-Sahayak Foundation (PKSF)
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Acronyms

AI	Avian Influenga, Artificial Intelligence
BAU	Bangladesh Agricultural University
BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka
BLRI	Bangladesh Livestock Research Institute
BSTI	Bangladesh Standard Testing Institute
CRD	Chronic Respiratory Diseases
DANIDA	Danish International Development Agency
DC	Duck Cholera
DH	Duck Hepatitis
DOC	Day-old-chicks
DP	Duck Plague
FAO	Food and Agricultural Organization
FGD	Focus Group Discussion
Fig.	Figure
gGAP	Global Good Agricultural Practices
GDP	Gross Domestic Products
Govt.	Government
HACCP	Hazard Analysis on Critical Control Points
HHS	Household Survey
HH	Household
HSC	Higher Secondary Certificate
HRD	Human Resource Development
Hrs	Hours
IBD	Infectious Bursal Disease
ICT	Information and Communication Technology
IDF	International Development Fund
IFAD	International Fund for Agricultural Development
JSC	Junior School Certificate
Kg	Kilogram
KII	Key Informant Interview
LEO	Livestock Extension Officer
LSP	Local Livestock Service Provider
MCTC	Multi-color Table Chicken
MS	Microsoft
ND	New Castle Disease
NGO	Non-Government Organization
n	Population number

nos	Numbers
PG	Producer Group
PPF	Project Participant Farmers
PSP	Poultry Service Provider
PKSF	Palli Karma-Sahayak Foundation
RMTP	Rural Microenterprise Transformation Project
SPSS	Statistical Package for Social Science
SWOT	Strength, weakness, opportunity and threat
SSC	Secondary School Certificate
UAE	United Arab Emirates
ULO	Upazila Livestock Officer
Vit-A	Vitamin-A
VS	Veterinary Surgeon
Yrs	Years
%	Percent
$	Dollar

Executive Summary

Ghashful is implementing a sub-project named "Market System Development of Safe Poultry and Poultry Products" at five upazilas in Naogaon district under Rural Microenterprise Transformation Project (RMTP) of PKSF. The project is providing support to increase income, ensure food security and improve family nutrition of marginal and small farmers and poultry related backward and forward market entrepreneurs. The objective of the sub-project is to increase the income, food security and nutrition status of marginal, small farmers and small entrepreneurs in the project areas through poultry value chain activities. A total of 10000 project participant members (backyard and commercial poultry farmers and entrepreneurs, related stakeholders like poultry service providers, input suppliers, market traders, product processors) will get different technical and logistic supports through this sub-project. Under this sub-project, a baseline study was conducted with a view to obtain a snapshot assessment of the current socioeconomic, poultry management and safe poultry meat and egg production and products marketing status in the project areas.

The direct interviews were taken from 98% female respondents and 2% male respondents. About 97% were male headed families. Among 264 interviewed families, 72% of them were Muslim, 19% were Hindus and 9% were Christian. The average age of the project participant farmers (PPF) was 36.24 years, and highest about 65% of them were in active age group from 31 to 50 years old. Most of the farmers (about 35%) had primary level of education. The average family size was 4.28 members, whilst highest about 39% belonged to standard family size having 4 members. Among the interviewers, about 22% were ultra-poor, 42% transitional-poor and 36% enterprising-poor. All project PPF had their own homestead land (on an average 6.28 decimal per HH), while 53% of them had their own cultivable lands (on an average 77.8 decimal per HH). The main occupation of the PPF was agriculture (about 31%), followed by rickshaw and motor driving (about 23%), daily laborer (about 16%), technical workers like mason, carpenter, electrician etc (about 8%) and rest of other types. About 38% farmers were occupied for secondary income source. Highest about 19% PPFs were occupied in agriculture besides their main occupation other than agriculture. The PPFs had an average of 1.22 earning members in their family who earned a monthly income of BDT 14000.0 including secondary income source and income from traditional backyard poultry farming.

Among PPFs, about 93% of them kept native chicken and 68% kept native duck. About 31% interviewed PPFs had cattle, 34% had goat and few of them had other poultry species like Geeze, Muscovy and pigeon. The average population size of different poultry species as estimated in this study were 10.4, 12, 7.2, 4.5, 1150, 450 and 1100 nos per HH, irrespective of ages for native backyard rearing chicken and duck, Muscovy, Geeze, commercial layer duck, broiler and sonali chicken, respectively. The rearing system of native chicken and duck was scavenging. Chicken scavenge in the premises of the homestead and duck in the nearby pond, river, haor and beel. The rearing system for commercial chicken was full confinement and free range for commercial ducks. In backyard poultry farming, all (264) PPFs used to provide feed supplement (mixed of homemade ingredients like rice broken, boiled rice, corn etc.) of an average daily allowance of 50 g per chicken and 95 g per duck (mainly homemade wet mix of boiled rice, polish and wheat bran). For chick and duckling hatching, all farmers used to keep male birds for mating purpose without maintaining sex ratio. The average numbers of hatching eggs set by the broody hen were 12.21 for chicken eggs and 10.64 for duck eggs. When ducklings are hatched by broody duck, an average 13.88 eggs are usually set for hatching. The average hatchability of chicken eggs was 86.73%, while it was 85.74% for duck eggs when hatched by broody hen and 85.76% when hatched by broody duck. The chick and duckling mortality were about 33% for both. The rate of livability of chicken and duck were 52 and 54%, respectively including chicks and ducklings destroyed by predators. The age at first lay as investigated in this study for backyard rearing chicken and duck and commercial layer chicken and duck were 5.87, 6.00, 4.50 and 5.50 months, respectively. The persistence of a laying clutch of native chicken and ducks were averaged to 16 and 30 days, respectively and in that clutch 13.5 and 20 numbers of eggs were produced. The annual egg production of native chicken, native duck, layer duck (backyard rearing) and commercial layer ducks were estimated as 190, 160, 261 and 280 nos, respectively. The

persistence of broodiness of native chicken and ducks were 14 and 10 days, respectively. According to farmers' perception, native chicken and duck and commercial layer ducks attained live weight to 1.0 kilogram at the ages of 6.6, 5.5 and 4.5 months, respectively. From this study, the cost-profit analysis revealed that a farmer earned a gross profit of BDT. 2180.0 and 2200.0 per year by selling eggs from a native chicken and a duck if they don't hatch by broody hen and duck. On the other hand, by selling a live chicken and a duck, a farmer earned a gross profit of BDT. 365.0 and 360.0 per 6 months, respectively. In case of commercial broiler farm, a producer earned a gross profit of BDT. 30.0 per bird at 40 days after marketing. The commercial layer duck producer earned a gross profit of BDT. 2170.0 per duck per year. The sonali chicken producers did not get any profit.

In backyard poultry farming, chicken and ducks were taken care by mostly housewife (about 96%). No farmers had knowledge on bio-security maintained for rearing poultry. Even very few farmers (about 2.29%) vaccinate their birds as a preventive measure against most prevalent diseases. In backyard poultry rearing, no farmers de-wormed their birds at regular intervals. However, commercial poultry farmers regularly vaccinate and de-wormed (layer chicken and duck) their birds. About 82% chicken keeper farmers and 75% duck keeper farmers reported that their adult birds had been died in previous six months. The cumulative mortality of layer chicken and ducks up to start to lay were 4.42 and 6.5%, respectively, and during laying it were 1.23 and 0.50%, respectively. On the other hand, the cumulative mortality of broiler and color meat chicken (sonali, MCTC) were 5.00 and 3.25%, respectively. The most fatal diseases caused death to native chicken and ducks were ND and DP, while in case of commercial layer and it was CRD. Bird flu (AI) and IBD were the most fatal diseases caused death to broiler. IBD caused death to about 65% sonali chciken.

About 30% backyard chicken keeper farmers and 16% duck keeper farmers reported that they used to sell their birds and among rest farmers who did not sell birds used for self consumption. About 66% chicken keepers and 70% duck keepers of them reported that their birds died before sell those. Usually the live weight of cock and hen attained to about 820 g and 670 g, respectively with market prices of BDT. 400.0 and 300.0 when they sold them. On the other hand, the live weight of drake and duck attained to about 1200 g and 1000 g, respectively with market prices of BDT. 500.0 and 400.0 when they sold them. Only 15% chicken keeper farmers and 22% duck keeper farmers used to sell eggs and among rest of them about 80% chicken keepers and about 75% duck keepers used eggs for both hatching and self consumption. Among color meat chicken (sonali) producers, 50% of them reported that they did not get profit from the last batch due to low market price and less growth. On the other hand, all broiler keeper farmers reported that they did not get profit from last batch due to low market price.

Among project participant poultry farmers, about 36% of them reported that they used to collect poultry feeds and medicines from local market and 15% collected poultry equipment from local market. About 77% farmers collected poultry medicine from away market. About 74% poultry farmers claimed that they did not get any treatment facility by anyone. Most of the backyard rearing chicken and duck keeper farmers used to sell their birds from their house to the traders (bepari). About 68% native chicken and duck keeper farmers used to sell eggs to the neighbour and 32% to the bepari. About 50% commercial chicken (broiler, sonali) producers used to sell their birds to the wholesaler and 50% to the retailers. 50% commercial layer producers sold their eggs to the wholesaler from their farm-gate and 50% to the retailers in the local market.

The experience of poultry keeper farmers varied on type of farms. The backyard poultry rearing farmers keep chicken and duck as a family tradition. Under the project participant members, commercial layer, duck, broiler and color meat chicken (sonali) farmers had 8 to 12, 5 to 10, 6 to 10 and 1 to 2 years of experiences. Among project participant poultry farmers, only 2% of them (mainly commercial farmers) had training on poultry taken from government organizations. No farmers used modern poultry equipment, mobile apps or online sources for IT related to poultry farming and online platforms to sell their products. Similarly, none of them had any idea on gGAP for poultry farming.

About 65% poultry farmers (172 out of 264) used to keep poultry droppings and farm wastes outside the farm with not proper disposal method. About 67% poultry farmers (177 out of 264) confessed that their poultry birds were affected with natural calamities mostly dead of birds. About 36% farmers reported that birds were

died due to extreme weather and climates. Most of the backyard poultry farmers (about 66%) did not use antibiotics as a preventive measures against diseases, but about 31% used it when disease occurred. Most of the backyard poultry farmers had no knowledge on the withdrawal period after administering antibiotics in poultry birds. However, though commercial poultry farmers know about it but most of them do not follow it. No backyard poultry keepers used growth promoter and egg enhancer in meat and laying birds, while commercial farmers used it when growth and egg production difficulties aroused. Under the project participant farmers, about 22% of the commercial poultry entrepreneurs had wage based labor, while in case of backyard poultry, it is not necessary and need to spend themselves about 1.13 hours in a day for taking care of native poultry birds. Some commercial poultry farmers (about 33%) had taken loan mostly (about 67%) from NGOs and there was no insurance facility for poultry.

Based on the findings it may be concluded that the backyard poultry rearers though, availed necessary input and supplies for poultry birds, but they had lack of preventive measures and services resulting high mortality of birds, difficulty and relaxation to ensure good management and environment facilities to the birds. While, commercial poultry farmers are facing problems with low market price of live birds resulting huge losses. Finally, it may be recommended that the interventions should be given to develop a good marketing approach under the project lead by Ghashful as to ensure stable fair price of birds and eggs. Farmers should be motivated Training on gGAP, HACCP should be given to all stakeholders to ensure safe poultry meat and products.

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INTRODUCTION

The economic strength of Bangladesh is mainly based on agriculture. Livestock and poultry are the important components in agriculture (crop, livestock, poultry fisheries and forestry) which are playing important roles in national economy, with a GDP growth rate at 3.10% and contributing 1.9% in national economy. The share of livestock in agriculture GDP is about 16.52% and contributions of direct and indirect employment are 20% and 50%, respectively (BBS, 2022). Livestock and poultry provide about 44% animal protein for human in their daily intake. Furthermore, it plays a pivotal role in the rural socio economic system as maximum households directly involved in livestock. It has created job opportunity for more than 6 million people. The poultry industry has been engaging supply of quality protein to the Bangladesh population at the lowest price in the world (Hamid et al., 2016).

According to the national health strategy, an adult people need 120 g of meat every day and 104 pieces of eggs per year. However, in Bangladesh, the availability of meat and egg is much lower than the demand and there is a deficit condition to be met up. The present meat and egg production can mitigate only 65 percent of the national demand. The demand for meat, egg and meat and egg products have been expanding dramatically with income growth, population growth, urbanization and dietary changes. Poultry contributes about 22-27 percent of the total animal protein supply in the country. However, presently the availability is only 67.17 and 63.65 percent, respectively (Daily Industry, 2021). Thus, the contribution of poultry meat to the total meat products is 35.25% and egg production is 63.65% of the national need. The per capita poultry meat consumption is much lower (1.9 kg) compare to other Asian countries. The poultry meat consumption in Pakistan is 4.4 kg, Indonesia 7.0 kg, Philippines 11.0 kg, Egypt 11.6 kg, China 12.8 kg, Thailand 12.3 kg, South Korea 16.4 kg, Vietnam 15.6 kg, Malaysia 38.1 kg and Japan 19.1 kg (FAO, 2013).

In the recent time, the food safety is a great concern for human health. Though, a major portion of protein enriched human food comes livestock and poultry, the safe animal products are important concern besides increasing their quantity. Good livestock & poultry farming practices must ensure that animals and their products (meat, milk and eggs) produced from the farm are healthy, safe and suitable for their intended use, and also that the farm enterprise is viable into the future, from the economic, social and environmental perspectives. Most importantly, farmers are in the business of producing animal foods for human consumption, so they must be confident in the safety and quality of the products they produce. Good farming practice underpins the production of animal products that satisfies the highest expectations of the food industry and

consumers. Good animal farming practice also ensures that the beef, poultry meat, milk and eggs are produced by healthy animals in a manner that is sustainable and responsible from the animal welfare, social, economic and environmental perspectives. So implementing good farming practice is good risk management for the short and long term future of the animal farming enterprise (FAO and IDF, 2011).

Ghashful, a well-known organization has been working since 1978 for socio economic development of the marginalized people from the time of its inception. Present days, it has been serving the society by engaging in variety of social works like education, health, microfinance, community development, agriculture, climate change, livelihood and food security and so on.Very recently, Ghashful is implementing the sub-project entitled "**Market System development of safe poultry and poultry products**" at Naogaon Sadar, Manda, Mohadebpur, Patnitala, Bodolgachhi Upazilas of Naogaon District of Bangladesh". This sub-project is jointly funded by the Palli Karma-Sahayak Foundation (PKSF), International Fund for Agricultural Development (IFAD) and Embassy of Denmark under Rural Microenterprise Transformation Project (RMTP) of PKSF. The project will be working to increase income, ensure food security, self-employment creation and improve family nutrition of marginal and small farmers and poultry related backward and forward market entrepreneurs. The sub-project will also work on value addition at various levels, expansion of financial services for enterprise development, and strengthening of the institutional framework for the development of safe eggs, meat and meat products of the value chain. Efforts will be made to scale up and expansion of enterprises through efficient production methods and strong market linkages of marginal and small farmers. It may be anticipated that subject to successful accomplishment of the said sub-project, the income of 70% of the entrepreneurs will be increased by at least 50% and 30% of the project beneficiaries will be able to add nutritious food to their regular diet.

The main goal of the sub-project is to increase the income, food security and nutrition of the farmers and service providers in the project areas through poultry value chain activities. The aim of the project is very pragmatic for the perspective of safe poultry meat, egg and poultry products production and marketing in Bangladesh. For this instance, Ghashfulh as taken an initiative to hire a consultant for the baseline study among project beneficiaries in the project areas.

Purpose of the Baseline Study

The baseline study is intended to provide social, economic, and environmental data towards log frame indicators assessment of the sub project at the beginning stage. The study acts as an accompaniment to the quantitative and qualitative data that is also recommended when implementing a project for the first time at the beginning of the project. This should help to identify any major issues and provide some insights into the opinions of the community concerning the poultry value chains. The baseline results will point to how best the project will be rolled out and set priorities for the project sometimes providing information that acts as a benchmark for measuring project success or failure. The study must produce information that will be used to direct and guide the implementation of the project and to measure the present

condition of the project indicators, participants' knowledge attitude and practice. The task of the individual consultants is not limited to the following areas-

- Prepare a value chain existing map and make a profile of the poultry value chain in the respective district.
- Conduct an end-to-end assessment of input, service, value chain products, and different buyers (formal and informal) and provide a detailed analysis of the value chain and provide recommendations on how the selected target group can be engaged in the value chain in different roles (Supplier of input, producer, processor, transporter, traders and so on).
- Assess the selected market system supporting environment (services, policies and rules regulations, infrastructure) & supporting functions and point out the market constraints.
- Assess the ongoing business of the different market actors, their present situation, role, and finally figure out the areas of intervention in the value chain for the actors including youth, persons with disability, older men & women.
- Describe skills training needs related to potential roles in the value chain.

WORKING METHODOLOGY

Before going to baseline study, the necessary documents (project profile, project interventions, working areas, project participant stakeholders etc.) were reviewed for acquiring necessary information about the sub-project , which helped us for the development of details methodology, work planning and questionnaire formation.There were two approaches of methodology to perform this study; quantitative and qualitative which are discussed below:

A) Quantitative approach

The quantitative approach of survey tool was household survey (HHS) which was performed with the following procedure:

Questionnaire for HHS

In the HHS, questionnaire was prepared in accordance with the set indicators of the project log-frame as per the objective of the project. The questions were mostly formed by close ended (answer either 'yes' or 'no') and multiple choice questions which can be described in statistical way. The questionnaire of HHS was reviewed from concern person of development partner (PKSF).

Determination of sample size for HHS

The standard statistical procedure to determine sample size followed by the consultant was as follows which was adopted by (Robb, 1963).

$$n = \frac{z^2 \text{ X } pq \text{ X } N}{e^2 (N-1) + z^2 pq}$$

Where, N = Total number of beneficiary households under RMTP sub-project (9504); P (probability of success) = 0.50; q (probability of failure) = (1-p) = 0.50; z = 1. 645: z is the area under standard normal curve under certain confidence limit (at 90% confidence interval); e = 0.05 within *90% confidence level* i.e., desired level of precision.After taking a value of 0.5 for either p or q (because such value of p and q maximize the sample size), and a confidence limit of 90% (of which value of z is 1.645) with a 5% error level, required sample size for HHS was estimated as 264. The random sampling procedure was followed under project areas. The sample distributions of HHS among different types of poultry keeper farmers under the project areas are

illustrated in Table 1. Besides, the sample distributions of HHS according to different types of poultry keepers in different upazilas are illustrated in Table 2.

Table 1. Sample distribution for HHS

Tool	Interview	Naogaon Sadar	Manda	Mohadebpur	Patnitala	Bodolgachhi	Total
HHS	Chicken & Duck Keeper farmers	43	54	60	46	61	264

Table 2. Sample distribution of HHS according to different types of poultry keepers in different upazilas

Upazila	Chicken				Duck		Total
	Native	Layer	Broiler	Color meat	Native	Layer	
Naogaon Sadar	13	5	5	5	11	4	43
Manda	17	5	5	5	16	6	54
Mohadebpur	21	5	5	5	18	6	60
Patnitala	16	4	4	4	14	4	46
Bodolgachhi	25	4	4	4	20	4	61
Total	92	23	23	23	79	24	264

Training to the enumerators

Before going to the HHS, the consultant deliberated a debriefing session to the enumerators to make them clear understanding about the questions to be asked to the interviewers and the techniques how to extract information more accurately.

Conducting HHS

In this technique, enumerators randomly visited (simple random sampling technique) the respondents' house from door to door under the project areas for direct interviewing with the structured questionnaires.During survey, the purpose of the study was clearly explained to all respondents before taking interview from them. Verbal consent of each of the respondents was taken before taking interview. The study team was highly committed to the respondents to keep the privacy of their information and source of data as well as put heartiest attempt to be unbiased in collecting data.

B) Qualitative approach

To perform this assignment, the approach of qualitative survey tools were key informant interview (KII), Focus group discussion (FGD) and SWOT analysis which are described below:

Questionnaires forqualitativesurvey

In case of KII and FGD, both close and open ended questions were included. However, open ended questions are effective for acquiring qualitative information and are particularly good for determining people's estimation and feelings.Besides, as per the project intervention, all questions were made relevant to the poultry production and marketing. The questionnaires were reviewed from concern person of development partner (PKSF).After review and pre-testing, it was finalized for implementation.

Sample distribution for qualitative survey

The sample distributions of different qualitative survey tools are illustrated in Table 3.

Table 3. Sample distribution for qualitative survey tools

Tools	Interview	Naogaon Sadar	Manda	Mohadebpur	Patnitala	Bodolgachhi	Total
KII	1. ULO/VS/LEO	01	01	01	01	01	05
	2. LSP	02	02	02	02	02	10
	3. Chick Dealer	-	-	-	-	02	02
	4. Feed Seller	01	01	01	01	01	05
	5. Medicine Seller	01	01	01	01	01	05
	6. Poultry Trader (retailer)	01	01	01	01	01	05
	7. Poultry Whole-seller	01	-	02	-	-	03
	8. Poultry Collector	02	-	-	-	-	02
	9. Poultry Transporter	01	-	-	01	01	03
	10. Hatchery Operator	-	-	01	02	-	03
	11. Egg Collector	01	01	-	-	-	02
	12. Egg Whole-seller	-	01	-	01	01	03
	13. Egg Seller (retailer)	01	-	-	01	01	03
	14. Egg Transporter	-	-	-	02	-	02
	15. Poultry Meat Seller	-	01	01	-	01	03
	16. Poultry Equipment Seller	02	01	01	01	-	05
FGD		01	01	01	01	01	05
Total =		15	11	12	15	13	66
SWOT Analysis		01					

Focus group discussion (FGD)

In this technique, information was collected from a group of 12-15 respondents, mixed with different stakeholders, age, sex and religion.

Key informant interview (KII)

In this technique, information was collected by direct interviewing with loosely structured questions from different stakeholders related to backyard and frontward poultry farming. The interviewers included in the KII were ULO/VS/LEO, Poultry Service Provider (PSP), Chick Dealer/Seller, Feed Seller, Medicine Seller, Poultry Equipment Seller, Hatchery Owner, Chicken/duck Trader, Egg Trader, Poultry Transporter, Egg Transporter and Poultry Processor.

SWOT Analysis

A SWOT analysis is a way of optimizing sustainability and viability of any business operation, research or social interventions by identifying strengths, weaknesses, opportunities and threats using an objective approach. The consultant performed this tool by taking interviews with potential stakeholders, visual and insight observations on the study areas.

Data checking, screening and punching

All the questionnaires filled by the enumerators were checked and crosschecked by the consultant himself before data punching in the MS excel spreadsheet.

Data compilation, analyses and tabulation

After compilation, checking, screening and editing all data imputed in MS excel worksheet was analyzed by pivot table for frequency analysis. Further statistical analysis was performed by SPSS software. Results were tabulated and presented precisely in accordance with the objectives of the project.

Drafting report

After analyzing data and tabulation of the output, a comprehensive report was formulated that reflect the existing scenario of poultry farming and safe poultry products marketing in the survey areas, identifies shortfalls and made recommendations thereof, that would be the guidelines for implementing the project activities and interventions fruitfully.

Results and Discussion

A. Household Study (HHS)

Family Profile and Socioeconomic Status

The family profile and economic status of the project participant poultry farmers, their education level, occupation, age, family size and income are investigated as described in Table 1 (Annex I), which shows that direct interviews were taken from 98% female respondents and 2% male respondents. About 97% were male headed families. Among interviewed families, 72% of them were Muslim, 19% were Hindus and 9% were Christian/tribal. The average age of the project participant farmers (PPFs) was 36.24 years, and the highest about 65% of them were in active age group i.e. aging from 31 to 50 years old. Fig. 1depicts that most of the farmers (about 35%) had primary level of education followed by illiterate (but can sign to about 30%), Junior School Certificate (JSC) and very few of them had higher than JSC. The average family size of the respondent farmers was 4.28 members, whilst highest about 39% belonged to standard family size having 4 members. Among the interviewers, about 22% were ultra-poor, 42% transitional-poor and 36% enterprising-poor based on the land ownership. All of the project PPFs had their own homestead land with an average size of 6.28 decimal, while 53% of them had their own cultivable lands with an average size of 77.8 decimal. The main occupation of the PPFs was agriculture which belonged to about 31% farmers, followed by rickshaw and motor driving (about 23%), daily laborer (about 16%), technical workers like mason, carpenter, electrician etc (about 8%) and rest of them were occupied with service, shopkeeper, small business, livestock and poultry. About 38% farmers were occupied for secondary income source. Highest about 19% PPFs were

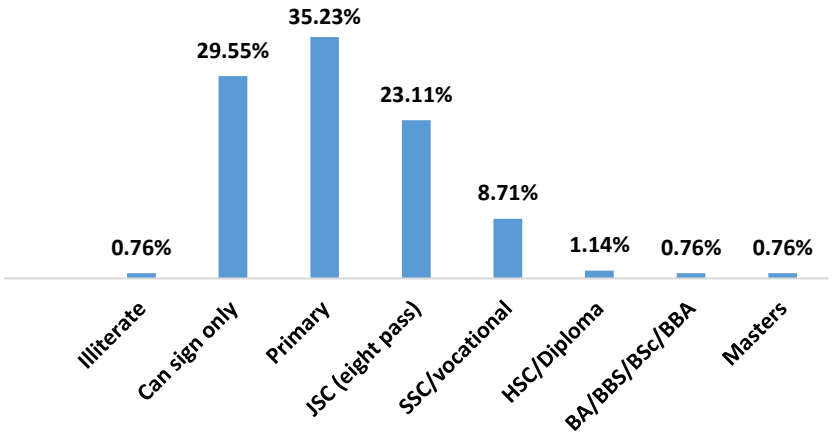

Fig. 1: Education level

occupied in agriculture besides their main occupation other than agriculture. About 16% PPFs had multiple earning members in their family which averaged to 1.22 per HH who earned a monthly income of BDT 14000.0 including secondary and tertiary income source as well as income from traditional backyard poultry farming. The backyard rearing poultry farmers earned a monthly income of BDT. 2660.0 from selling live birds and eggs.

Nutrition Status of the Farmer

To lead a healthy life for all human beings, balanced nutritious foods must be included in the regular diets. To ensure intake of all nutrients required for the human body, it is essential to add 10 categories of foods in their 24-hours diet, as given in Table 4.The trend of food habit in five upazilas under project areas are given in Table 4 which indeed shows multiple responses of the respondents. In this study it was investigated to find how many PPFs usually consume those categories of foods. For this instance, farmers were asked to know what types of foods they had taken in their last 24-hours meals. The study revealed that all peoples usually intake first item of food (rice, flour and potato) which are very common, available and comparatively cheaper, thus enable all categories (poor, rich) of peoples to consume.

Table 4: Daily intake of different food items in study upazilas of Naogaon district

Food items	% intake by the farmers					
	N'Sadar	P'tala	M'devpur	B'gachi	Manda	Overall
1. Crop, root, tuber etc.	100	100	100	100	100	100.0
2. Cowpea, peas, lentil etc.	53.49	34.78	21.67	39.34	29.63	34.85
3. Peanut, seed etc.	0.00	0.00	5.00	0.00	0.00	01.14
4. Milk and milk products	39.53	43.48	16.67	16.39	31.48	28.03
5. Meat (any type) and fish	88.37	84.78	98.33	91.80	88.89	90.91
6. Egg	53.49	43.48	28.33	24.59	40.74	36.74
7. Deep green vegetables	25.58	34.78	25.00	29.51	14.81	25.76
8. Vit-A enriched vegetables	13.95	19.57	5.00	1.64	0.00	07.20
9. Other vegetables	25.58	39.13	51.67	60.66	53.70	47.73
10. Fruits	81.40	91.30	83.33	78.69	68.52	80.30

After first item of food, about 35% HHs used to include pulse in their every day's meal. About 90% HHs consumed either meat or fish. As it was mango season when survey was conducted, about 80% farmers included fruits (especially mango) in their 24-hours diet. Milk or milk products were consumed by only 28% HHs. Due to price hiking; all HHs did not able to consume different categories of vegetables. The total items of food (among 10) as consumed by the project participant farmers in their 24-hours

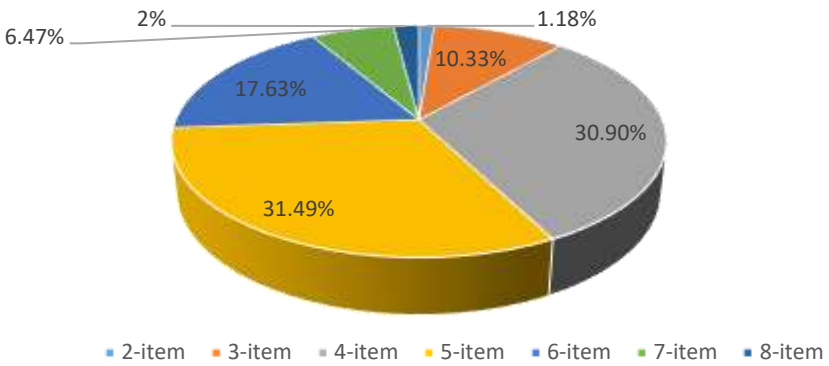

Fig. 2: Number of food items consumed in 24-hr diet

diet in five upazilas under project areas are depicted in Table 1a (Annex I). The investigation entails that none of the farmers used to intake all of 10 food items at a time in their regular diets in a day. However, highest total of 4 and 5 food items were consumed by most of the farmers (around 31%), irrespective of study areas(Fig. 2). The study also revealed that only around 2% farmers consumed a total of 8 food items in their regular diets in a day(Fig. 2).

Poultry population and rearing system

As a purposive survey, interviews were taken from the project participant farmers (PPFs) who had either chicken or duck or both types. However, the types of poultry along with livestock species kept by the PPFs under the study areas were investigated as depicted in Table 3 (Annex I). Most of the PPFs had both chicken and ducks. Among PPFs, about 93% of them kept native chicken and 68% kept native duck. Irrespective of study areas, about 31% interviewed PPFs had cattle, 34% had goat and few of them had other poultry species like Geese, Muscovy and pigeon as can be seen in Table 3 (Annex I). However, the population statistics of different poultry species of different ages as investigated in this study is given in Table 5. The average population size of different poultry species as estimated in this study were 10.4, 12, 7.2, 4.5, 1150, 450 and 1100 nos per HH, irrespective of ages for native backyard rearing chicken and duck, Muscovy, Geese, commercial layer duck, broiler and sonali chicken, respectively.

Table 5: Number of different categories of chicken and duck reared by HHs

Sl No	Type of birds	Number of bird per household at different ages			Total
		Chicks/duckling	Growing	Adult bird	
1	Native chicken	9.32	5.22	3.75	10.36
2	Native duck	8.67	6.72	8.73	11.98
3	Muscovy duck	6.00	6.67	4.00	7.20
4	Geeze	1.00	1.00	3.50	4.50
5	Layer duck	-	1100	100	1150
6	Broiler	450	-	-	450
7	Sonali	1050	-	1200	1100

Table 6 shows the production system of different types of poultry species as practiced by the PPFs, although, it reflects the tradition of our country.In case of traditional backyard poultry farming, native chicken and duck are reared by scavenging system. Chicken scavenge in the premises of the homestead, while ducks in the nearby pond, river, haor and beel. The rearing system of commercial chicken was full confinement and free range for commercial ducks. All farmers were used to rear their geese by semi-scavenging production system, while Muscovy were reared by both scavenging and semi-scavenging production system.

Table 6: Production system of different categories of chicken and ducks

Sl No	Type of bird	Production system (% farmers practiced)			
		Scavenging	Semi-scavenging	Free range	Confinement
1	Native chicken	100.0	-	-	-
2	Sonali/multi-color	70.00	-	-	30.00
3	Commercial layer	-	-	-	100.0
4	Broiler	-	-	-	100.0
5	Native duck	100.0	-	-	-
6	Commercial duck	-	-	100.0	-
7	Geese	-	100.0	-	-
8	Muscovy	16.67	83.33	-	-

Housing, bedding and cleaning

Housing, litter management, cleaning and disinfection are inseparable but very important part of modern poultry industry, because birds are very sensitive to environment, climates and diseases. In case of backyard poultry farming, providing proper housing facility, regular cleaning and disinfection are not emphasized due to small number of birds kept by the traditional farmers. The common practice of housing, bedding and cleaning by backyard and commercial poultry farmers as investigated in this study is illustrated in Table 4 (Annex I). In backyard poultry rearing, native chicken and duck kept in the houses are very ordinary having very low space and without ventilation. About 68% farmers kept their native birds in the nest made with wood and tin, while 30% kept in soil made nest without any ventilation system. While in case of commercial birds, all farmers made their poultry shed made with wood or bamboo and wire net having sufficient ventilation. The roof is made with tin and floor is concrete. Among PPFs, 30% of them used rice husk as bedding material on the floor. Almost all farmers did not use disinfecting foot bath in front of their poultry house, which is very essential for maintaining bio-security. About 53% farmers cleaned their poultry house regularly, while only 2% farmers disinfected regularly. Actually, it is mandatory for all poultry keeper farmers to clean and disinfect their poultry houses regularly to prevent against diseases..

Feeding of chicken and duck

Feeding to commercial layer chicken and ducks are restricted, while it is not for bird reared for meat purpose. Commercial poultry farmers usually provide balanced ration (crumble and pellet manufactured by different companies) which is supplied with the amount as per requirements of the birds based on age, type and purpose. While in other hand, native chicken and duck in backyard farming system, type of feeds and amount of allocated varied from farmer to farmer and place to place. However, the type of feed ingredients and amount of daily allocation per bird

in the study areas were investigated as given in Table 5 (Annex I). In backyard poultry farming, all PPFs used to provide feed supplement with an average daily allowance of 50 g per chicken and 95 g per duck. About 99% farmers used rice broken as the feed supplement for native chicken. Rice broken is a source of carbohydrate which provide energy to birds. But, none of them did not provide any feed ingredient contain protein, which is essential for optimum growth and egg production. Consequently, growth and egg production of native chicken is very low. In case of backyard rearing duck, most of the farmers (about 93%) supplied them a wet mixture of boiled rice or broken rice, wheat bran and rice polish having lack of any protein source ingredients. It was observed that only 2% farmers used to provide vitamin-mineral supplement to their birds to fortify vitamin mineral deficiency.

Mating, fertility and hatchability

It is essential to keep male birds maintaining with appropriate sex ratio for producing fertile eggs of chicken and duck. In this study, the mating behaviour of backyard rearing poultry birds, methods of hatching, hatchability, mortality and livability of birds were investigated among the PPFs which is illustrated in Table 6 (Annex I). For chick and duckling hatching, most of the poultry farmers (90% chicken keepers and 86% duck keepers) used to keep male birds for mating purpose without maintaining sex ratio. About 95% chicken keepers and all duck keepers had their home-bred cock and drake for mating. All chicken keeper farmers used to hatch by broody hen, while some of the duck keeper farmers need not, as they availed to purchase day-old duckling mostly from the duckling selling hawkers. About 81% duck keepers used to hatch duckling by broody hen and rest of them by broody duck. The average numbers of hatching eggs set by the broody hen were 12.21 for chicken eggs and 10.64 for duck eggs. When ducklings are hatched by broody duck, an average 13.88 eggs are usually set for hatching. The average hatchability of chicken eggs was found as 86.73%, while it was 85.74% for duck eggs when hatched by broody hen and 85.76% when hatched by broody duck. The chick and duckling mortality were about 33% for both. The study also revealed that about 16% chicks and 13% ducklings were destroyed by predators. During egg incubation, none of the farmers used to candle eggs to test fertility of eggs. About 39% farmers did not use to take any measures to remove broodiness of chicken to shorten the duration of broodiness, while none of the duck keepers practiced it for broody duck. The rate of livability of chicken and duck were 52 and 54%, respectively including chicks and ducklings destroyed by predators.

Management, bio-security, disease prevention and mortality

In backyard poultry farming, chicken and ducks were taken care by mostly housewife (about 96%). No farmers had knowledge on bio-security maintained for rearing poultry. Even very few farmers (about 2.29%) regularly vaccinate their birds as a preventive measure against most prevalent diseases(Fig. 3). In backyard poultry rearing, no farmers de-wormed their birds at regular intervals. However, commercial poultry farmers regularly vaccinate and de-wormed

(layer chicken and duck) their birds. About 82% chicken keeper farmers and 75% duck keeper farmers reported that their adult birds had been died in previous six months. The cumulative mortality of layer chicken and ducks up to start to lay were 4.42 and 6.5%, respectively, and during laying it were 1.23 and 0.50%, respectively. On the other hand, the cumulative mortality of broiler and color meat chicken (sonali, MCTC) were 5.00 and 3.25%, respectively. The most fatal diseases caused death to native chicken and ducks were ND and DP, while in case of commercial layer and it was CRD. Bird flu (AI) and IBD were the most fatal diseases caused death to broiler. IBD caused death to about 65% sonali chciken.

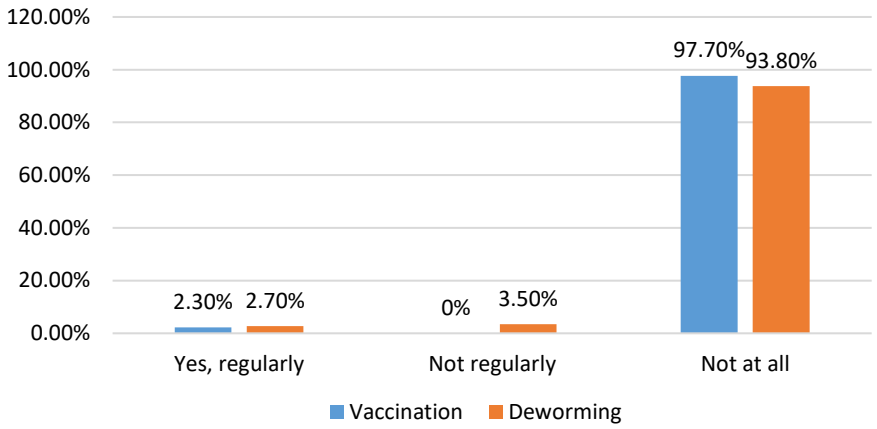

Fig. 3: Status of following preventive measures of birds

Production performance of chicken and duck

The age at first lay as investigated in this study for backyard rearing chicken and duck and commercial layer chicken and duck were 5.87, 6.00, 4.50 and 5.50 months, respectively. The persistence of a laying clutch of native chicken and ducks were averaged to 16 and 30 days, respectively and in that clutch 13.5 and 20 numbers of eggs were produced. The annual egg production of native chicken, native duck, layer duck (backyard rearing) and commercial layer ducks were estimated as 190, 160, 261 and 280 nos, respectively. The persistence of broodiness of native chicken and ducks were 14 and 10 days, respectively. According to farmers' perception, native chicken and duck and commercial layer ducks attained live weight to 1.0 kilogram at the ages of 6.6, 5.5 and 4.5 months, respectively(Table7).

Table 7: Production performance of chicken and duck for some economic important traits

Sl No	Economic traits	Type of birds			
		Native chicken	Native duck	Layer duck (backyard)	Layer duck (commercial)
1	Age to start lay (month)	5.87	6.00	6.00	5.50
2	Persistency of clutch (day)	16.42	30	90	Unlimited
3	Number of egg per clutch	13.48	20	41.33	-
4	Annual egg production (nos)	190	160	261	280
5	Peak egg production (%)	-	-	-	95

6	Persistency of broodiness	13.86	10	16.10	None
7	Time to reach weight at 1 kg	6.60	5.50	4.50	4.50

Production cost and profit

From this study, the cost-profit analysis revealed that a farmer earned a gross profit of BDT. 2180.0 and 2200.0 per year by selling eggs from a native chicken and a duck if they don't hatch by broody hen and duck. On the other hand, by selling a live chicken and a duck, a farmer earned a gross profit of BDT. 365.0 and 360.0 per 6 months, respectively. In case of commercial broiler farm, a producer earned a gross profit of BDT. 30.0 per bird at 40 days after marketing. The commercial layer duck producer earned a gross profit of BDT. 2170.0 per duck per year. The sonali chicken producers did not get any profit(Table8).

Table 8: Cost and profit analysis for different categories of chicken and duck

Type of bird	Purpose	Duration (days)	Production cost (BDT/bird)	Income (BDT/bird)	Gross profit (BDT/bird)
Native	Egg	365	480/-	2660/-	2180/-
Chicken	Meat	180	135/-	500/-	365/-
Native Duck	Egg	365	800/-	3000/-	2200/-
	Meat	180	240/-	600/-	360/-
Sonali chicken	Meat	60	128/-	124/-	-
Broiler	Meat	40	265/-	295/-	30/-
Layer duck	Egg	365	2250/-	4400/-	2170/-

Marketing of chicken and duck

About 30% backyard chicken keeper farmers and 16% duck keeper farmers reported that they used to sell their birds and among rest farmers who did not sell birds used for self consumption. About 66% chicken keepers and 70% duck keepers of them reported that their birds died before sell those. Usually the live weight of cock and hen attained to about 820 g and 670 g, respectively with market prices of BDT. 400.0 and 300.0 when they sold them. On the other hand, the live weight of drake and duck attained to about 1200 g and 1000 g, respectively with market prices of BDT. 500.0 and 400.0 when they sold them. Only 15% chicken keeper farmers and 22% duck keeper farmers used to sell eggs and among rest of them about 80% chicken keepers and about 75% duck keepers used eggs for both hatching and self consumption. Among color meat chicken (sonali) producers, 50% of them reported that they did not get profit from the last batch due to low market price and less growth. On the other hand, all broiler keeper farmers reported that they did not get profit from last batch due to low market price.

Input supply, services and market linkage

Among project participant poultry farmers, about 36% of them reported that they used to collect poultry feeds and medicines from local market and 15% collected poultry equipment from local market. About 77% farmers collected poultry medicine from away market. About 74% poultry farmers claimed that they did not get any treatment facility by anyone. Most of the backyard rearing chicken and duck keeper farmers used to sell their birds from their house to the traders (bepari) as shown in Fig.4. About 68% native chicken and duck keeper farmers used to sell eggs to the neighbour and 32% to the bepari. About 50% commercial chicken (broiler, sonali) producers used to sell their birds to the wholesaler and 50% to the retailers. 50% commercial layer producers sold their eggs to the wholesaler from their farm-gate and 50% to the retailers in the local market.

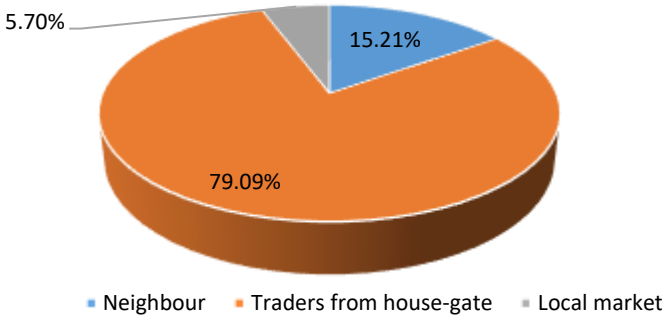

Fig. 4: Marketing of native birds

Training and access of farm mechanization and technology

The experience of poultry keeper farmers varied on type of farms. The backyard poultry rearing farmers keep chicken and duck as a family tradition. Under the project participant members, commercial layer, duck, broiler and color meat chicken (sonali) farmers had 8 to 12, 5 to 10, 6 to 10 and 1 to 2 years of experiences. Among project participant poultry farmers, only 2% of them (mainly commercial farmers) had training on poultry taken from government organizations. No farmers used modern poultry equipment, mobile apps or online sources for IT related to poultry farming and online platforms to sell their products. Similarly, none of them had any idea on gGAP for poultry farming.

Waste management and risk factors

About 67% poultry farmers used to keep poultry droppings and farm wastes outside the farm with not proper disposal method (Fig.5). About 67% poultry

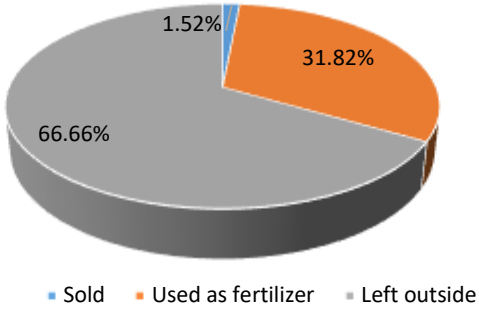

Fig. 5: Disposal of poultry farm waste

farmers confessed that their poultry birds were affected with natural calamities mostly dead of birds. About 36% farmers reported that birds were died due to extreme weather and climates. Most of the backyard poultry farmers (about 66%) did not use antibiotics as a preventive measures against diseases, but about 31% used it when disease occurred. Most of the backyard poultry farmers had no knowledge on the withdrawal period after administering antibiotics in poultry birds. However, though commercial poultry farmers know about it but most of them do not follow it. No backyard poultry keepers used growth promoter and egg enhancer in meat and laying birds, while commercial farmers used it when growth and egg production difficulties aroused.

Employment generation and financial support

Under the project participant farmers, about 22% of the commercial poultry entrepreneurs had wage based labor, while in case of backyard poultry, it is not necessary and need to spend themselves about 1.13 hours in a day for taking care of native poultry birds. Some commercial poultry farmers (about 33%) had taken loan mostly (about 67%) from NGOs and there was no insurance facility for poultry.

B. Focus Group Discussion (FGD)

In focus group discussion, all participants were poultry keeper project participant farmers represented from different locations, age groups and sexes. A structured questionnaire was prepared to view the overall scenario of native chicken and duck, commercial layer and broiler entrepreneurs under the study areas. The salient findings as found from the FGD is discussed here below:

From discussion with all participants, it was observed that depending on the areas, about 90-95% farmers were rearing native chicken and 60-80% were rearing duck in backyard system under the project areas. The availability and quality of necessary inputs and services required for poultry farming were investigated during conducting FGD. The degree of availability and quality of necessary inputs and services were analyzed based on the information taken during baseline study which are summarized in Table 9 and Table 10.

Table 9: Availability of input supply and services

SL No	Name of input and service	Degree of Availability (% response)		
		Available	Less available	Not available
1	Layer chicks (DOC)	-	100%	-
2	Broiler chicks (DOC)	100%	-	-
3	Color birds (DOC)	20%	80%	-
4	Duckling	100%	-	-
5	Incubation facility	40%	-	60%
6	Poultry feed	80%	-	20%
7	Poultry vaccine	-	-	100%
8	Poultry anthelmintic	-	-	100%
9	Poultry medicine	90%	10%	-
10	Poultry treatment service	-	-	100%
11	De-beaking and vaccine service	-	-	100%
12	Bank loan service	-	-	100%
13	Poultry equipment	-	-	100%

It is very usual that the farmers' perceptions on the availability and quality of inputs and services could be varied from man to man or place to place. Moreover, it is not usual that the availability of inputs and services will be equal in everywhere. Thus, the analytical values as given in Table 9 and Table 10 are though apparent, but as a whole, it may be considered as the overall scenario prevailing in the study areas. Table 9 clearly indicates that the emphasis should be given to ensure the availability of incubation facility (for backyard native chicken and duck), poultry vaccine, anthelmantic, poultry equipment, treatment, vaccination, de-beaking (for commercial layer) and bank loan services. Besides, the availability of day-old-chicks of layer and color meat birds should be increased more.

Table 10 shows the degree of quality of necessary inputs and services required for backyard and commercial poultry farm operation. However, it is true that the degree of quality of none of the inputs and services (as given in Table 10) are very good in context of Bangladesh. Besides, the level of satisfaction of the following inputs and services may be varied from man to man depending on the knowledge, experience and perception of the peoples as well as performance of the inputs and services. Table 10 reveals that the quality of day-old-chicks (layer, broiler and color meat bird) in the study areas must be improved. Further, though poultry treatment and vaccination services for backyard chicken and duck were not available, quality assessment of those services were not possible to know.

Table 10: Quality of input supply and services

SL No	Name of input and service	Degree of Quality (%response)			
		Very good	Good	Roughly	Poor
1	Breed of native chicken	-	40	40	20
2	Breed of native duck	-	40	40	20
3	Breed of layer	-	20	80	-
4	Breed of broiler	-	20	80	-
5	Breed of color meat bird	-	20	80	-
6	Quality of poultry feed	-	90	10	-
7	Quality of vaccine	-	-	80	20
8	Quality of anthelmantic	-	-	80	20
9	Quality of medicine	-	20	80	-
10	Quality of treatment service	-	-	-	-
11	Quality of de-beaking and vaccine service	-	-	-	-

In this investigation, the problems related to supply of day-old-chicks (DOC) were asked to the FGD respondents. About 60% respondents said that the supply of DOC was not available, while 40% of them confessed that there were scarcity for DOC in their areas. About 60% participants stated that the quality of DOC was roughly, while 40% of them could not tell about the quality of DOC. Regarding problem of poultry feeds, all of them agreed that though poultry feeds were available, but price was very high and was also increasing more frequently. Regarding poultry health and treatment service, all of the respondents claimed that necessary poultry vaccine, anthelmintic and treatment service were not available and disease prevalence and mortality were very high. All respondents confessed that native chicken, duck and eggs marketing was not a matter of difficulty for them, as those products had more market demand and poultry traders (locally called as ‘Bepari’) bought them from the farmers’ house. On the other hand, marketing of broiler and color meat birds from commercial poultry farm was very difficult due to frequent price fluctuation and fraudulence of the intermediary buyers. The other problems as identified in this investigation were management difficulty of poultry farm in rainy season, improper poultry waste management causing environment odour and pollution, great loss of native birds by attacking predators. Most of the respondents could not answer the effect of climate change on the

physiological change of poultry birds. Very few of them realized that higher load of pathogens and increasing disease prevalence could result due to climate change.

C. Key Informant Interviews (KII)

In this method interviews were taken from the key persons directly and indirectly involved in chicken and duck production, processing, marketing, transporter, input supply and services. Interviews were taken from poultry service providers (treatment, vaccination etc.) both in government agencies and private professionals, input suppliers, traders, poultry processors etc. The focus was given for obtaining factual information from the interviewers. The replies as obtained from the interviewers are discussed here below:

Poultry Service Provider (PSP)

Upazila Livestock officer (ULO), Veterinary Surgeon (VS) and Livestock Extension Officer (LEO) are the key persons who are providing livestock and poultry health and veterinary services in upazila level. The services provided by upazila livestock offices are treatment for all domestic and pet animals including poultry, artificial insemination, vaccination, de-worming and training. Although, all types of livestock species are given treatment there, but most of the clients are cattle and goat keeper farmers, while around 10 to 15 poultry farmers come to take treatment and advice for poultry per working day. According to their statement, most of the commercial poultry farmers registered in their list keep broiler birds. According to their registered commercial poultry farms, there were about 125 broiler farms, 23 layer farms, 55 sonali farms, 25 duck farms and 15 pigeon farms in an upazila. According to their observation and perception of the farmers, all types farms are profitable, while some of them said none. As per observation and experience of the ULO/VS/LEO, chicken are more susceptible to ND and IBD diseases and duck to DP, DC and Duck Hepatitis (DH) in the project areas. Among native chicken and duck keeper farmers, very few of them vaccinate their birds, although not maintaining schedule. However, commercial poultry farmers vaccinate their birds regularly. From upazila livestock office, all types vaccines are provided for the poultry farmers, though those are not sufficient according to requirement. No training on poultry farming in accordance with national and international guidelines on good agricultural practices (GAP) is given from upazila livestock offices. Further, no training on international standard rules and regulations of HACCP to conform production, processing, preservation and marketing of hygienic and safe poultry and poultry products were taken from their office.

The degree of availability and quality of different poultry input supply and services as experienced by the ULO/VS/LEO in the project areas are as follows:

a. Availability of day-old chicks: Available, but somewhere less available
b. Quality of day-old chicks: Roughly
c. Price of day-old chicks: Extremely high and more frequently ups and down
d. Availability of poultry feeds: Available

e. Quality of poultry feeds: Roughly

f. Price of poultry feeds: Extremely high and increasing more frequently.

g. Availability of poultry vaccine (private source): Available, but somewhere less available

h. Quality of poultry vaccine (private source): Roughly to good

i. Availability of poultry medicine (private source): Available

j. Price of poultry medicine (private source): somewhat high

k. Marketing of live poultry and eggs: Syndicated market and more frequently ups and down

l. Bio-security and management of poultry farm: Bad, due to lack of awareness

m. Waste management of poultry farms: Bad, due to lack of awareness

n. Environment and climate change: Unrest of birds, low productivity and increasing disease prevalence

According to their opinion, the possible constraints to improve poultry industry are as follows:

- High price of feed, chick and medicine those are increasing day by day
- Market syndicate by broker/big traders
- Insufficiency of registered veterinarians

As per their suggestions and recommendations, the following action should be taken to overcome those problems for developing poultry sector in Bangladesh:

- Need to reduce feed price and keep stable price throughout the year
- Need to break market syndicate
- All farms should be registered by Govt. Authority
- Need to abide appropriate system to establish farm and management

In livestock and poultry sector, government livestock and poultry service providers cannot simply meet-up the full demand of all livestock and poultry keeper farmers, as their services are not expanded at village levels. There are no specialized local poultry service provider (PSP) who provide their services privately. Local livestock services provider (LSP) normally provide poultry services besides their livestock services. Thus, the private and NGO poultry service providers (PSPs) are playing an important role in poultry development by providing primary treatment services, vaccination, de-worming and de-beaking services together with government agencies. Interviews were taken from PSPs as to know overall scenario of poultry sector under the project areas. The brief profiles of these service providers are shown in Table 13. The PSPs working in the project areas were basically provided treatment and vaccination support for backyard poultry keeper farmers. However, commercial poultry farmers are self dependent for treatment, vaccination and de-worming, but if needed they seek help from upazila livestock office, pharmacist and pharmaceutical company representatives. The private PSPs provide their poultry treatment services to 30 to 100 poultry farmers and 200 to 500 vaccinations per month and they claim their service charge as BDT. 100 to 200.0 per treatment and BDT. 2.0 per bird for vaccination. They claimed that farmers never complain on their services. According to their

observation and experience the degree of availability and quality of essential poultry input supply and services and problems faced by the farmers are as follows:

- ✓ Availability of day-old chicks: Available, but somewhere less available
- ✓ Quality of day-old chicks: Roughly to good
- ✓ Price of day-old chicks: Very high and fluctuate more frequently
- ✓ Availability of poultry feeds: Available
- ✓ Quality of poultry feeds: Roughly
- ✓ Price of poultry feeds: Very high
- ✓ Availability of poultry vaccine: Available, but somewhere less available
- ✓ Quality of poultry vaccine: Roughly
- ✓ Marketing of live poultry and eggs: Syndicated market
- ✓ Bio-security and management of poultry farm: Bad due to ignorance and financial inability of farmers.
- ✓ Waste management of poultry farms: -do-
- ✓ Environment and climate change: Unrest of birds, low productivity and increasing disease prevalence

No PSPs had any idea or training on international good agricultural practices (gGAP) and standard rules and regulations of HACCP to conform hygienic and safe food from poultry and poultry products. According to their knowledge and perception the possible constraints to improve poultry industry are frequent price fluctuation and price hiking of necessary poultry input materials and market syndicate created by middlemen who interfere market price and are getting more profit margin from live birds and eggs. The PSPs suggested to monitor market more frequently, especially price of feeds and chicks by increasing supply of feeds and chicks as to overcome the said problems.

Poultry bird and egg transporters are also playing important role in poultry enterprises. They have lot of problems in their professional services. For the sake of overall improvement of poultry industry emphasis should be given to minimize and support for their problems. It was investigated that poultry birds and eggs are usually transported in local areas by traditional rickshaw van. However, the big poultry traders use pick-up van in case of high volume of birds and eggs when transported to the long distance. In case of carrying birds, rickshaw and pick-up vans are specially made of cages. The poultry transporters carry all types of chicken and ducks in supply chain market of poultry. Based on the number of birds, they use both rickshaw-van and pick-up having loading capacity of 100 and 700 to 1000 birds per vehicle, respectively to carry live birds for transportation everyday. They usually transport live birds from poultry farm and wholesale poultry traders to retailers in different markets. They claimed that during transportation 1 to 2 birds die due to heat stress resulting high density and keeping birds long time in the vehicle. Some poultry transporter earn money on monthly basis (BDT. 15000.0) and some per trip basis (BDT. 400.0 per trip of rickshaw-van and BDT. 1500.0 per trip of pick-up-van). The poultry transporters do their duty independently without any of their helper. As per

their statement, the main problems they had to face were bad communication (uneven road), traffic jam in the road and extreme heat.

On the other hand, egg transporter carry eggs of chicken and duck by rickshaw-van and pick-up-van having capacity of 5000 and 15000 eggs, respectively everyday. They usually transport eggs from wholesaler (arotdar) to retailer shops. They stated that during transportation, about 5 to 10 eggs are damaged by breaking eggs (mainly crack form) due to faulty egg cage and uneven road. The wage of the egg transporters is based on per trip basis (BDT. 200.0 per trip) and in some cases per month basis. They do their duty independently without taking any helper. They don't feel any problem in their profession. The brief profile of poultry and egg transporters is illustrated in Table 11.

Poultry processors are providing their invaluable services to dress chicken and ducks and manufacturing different poultry products. Lots of value added products are prepared from poultry meat and egg. In this study, interviews were taken from poultry processors and brief profiles of those processors are presented in Table 11. In the country, there are two categories of poultry processors; chicken and duck retailers who dress live birds in front of the consumers and another who manufacture different food items from chicken meat and egg in fast food shops and restaurants. Other than poultry processing plant, retail chicken and duck seller dress birds for their clients free of cost. Most of the poultry processors claimed that most of the people dressed their birds after purchasing. In every retail chicken shop, conventional slaughtering and dressing equipment like sharp knife, gas burner, blood circulation chamber, dressing table and dressing machine are used for dressing bird. Birds are killed by hand slaughtering in halal method. The process of dressing is conducted by two conventional methods. Some customer choice dressing by scalding followed by removal of feather and viscera, while some other like removal of skin by hand. Depending on the size of the shop, poultry retailer dress about 25 to 350 birds in a day. They reported that very few customers seldom complain on poultry dressing for taking more time to dress by hand. They reported that no authority visit their shop to monitor dressing house and its peripheral atmosphere. They also stated that after the end of dressing, they disposed poultry viscera by leaving to the nearer pond or water bodies for fish and other wastes are left in the roadside or pit. The dressing surface and equipment are cleaned by fresh water with detergent. Someone use only water for cleaning. Cleaning is done once or twice in a day. None of the poultry dressers had knowledge on HACCP for safe and hygienic poultry dressing.

Table 11: Brief Profiles of Poultry Service Providers

SL No	Indicators	Quack/PSP	Poultry transporter	Egg transporter	Poultry processor
1	Age (yrs)	21-35	26-30	26-35	32-35
2	Education	HSC to Hons	V to HSC	V	Sign to HSC
3	Professional experience (yrs)	4-24	3-16	1-2	7-24
4	Prof. certificate course (month)	None to 3	-	-	-
5	Short training (total days)	-	-	-	-

6	Monthly income (,000)	20	15-30	13-15	-

Input Suppliers (chick, feed, medicine, equipment)

Day-old-chicks (DOC), poultry feed, medicine, vaccine, anthalmintic, poultry equipment are inseparable inputs necessary for poultry farming. Thus, input suppliers play a vital role in poultry farm operation. This business opens the avenue for employment generation. Interviews were taken from feed and medicine sellers, hatchery owners and poultry equipment supplier. The brief profile of input suppliers are depicted in Table 12.

Table 12: Brief Profiles of Input Supplier

SL No	Indicators	Hatchery owner	Feed seller/dealer	Medicine seller	Poultry equipment seller
1	Age (Yrs)	27-35	30-35	21-35	32-34
2	Education	SSC-HSC	SSC-Degree	HSC-Masters	VIII-SSC
3	Business experience (Yrs)	5-12	5-10	4-7	5-10
4	Monthly income (Thousand)	100-250	20-35	25-40	5-6

In hatchery business, lots of investment is required. Although, it is a very profitable business, but in Bangladesh it is a risky business, because price of chicks most frequently fall down when supply increases and also in winter season. There are very few hatcheries in Bangladesh who are surviving and continuing their operations. Due to negligence of the government for strict monitoring on number of day-old-chick production according to the demand of the country for different seasons, many hatcheries had been stopped their operation for great monetary losses. In this study, a hatchery owner stated that they were in great losses in their business, although they are running their activities. The duck hatchery owners usually collect fertile eggs from their contract duck keeper farmers, while chicken hatchery owners keep parent-stock for fertile eggs. From outsourcing, the prices of fertile eggs of native chicken, sonali and ducks are BDT. 17.0, 14.0 and 17.5 per egg, respectively. But, when fertile eggs are sourced from their own breeding stock, then the production cost per fertile egg is about BDT. 16.0 to 22.0. The maximum capacity of day-old-chick production per month in the hatcheries under the study areas were 20,000 to 210,000 nos. Sonali and duck hatchery owners usually hatch DOC and duckling once in a month, while other chicken hatcheries hatch DOC from 2 to 14 times in a month depending on market demand. The local hatchery owners usually sell their DOC and duckling by taking order or directly to the farmers or through dealers. If any DOC are unsold they have to reduce price. During survey, the prices of native DOC, sonali DOC and duckling were BDT. 25.0, 14.0 to 32.0 and 30.0 to 32.0 per chick/duckling, respectively. But, when demand peaked the prices rose to BDT. 35.0, 40.0 to 42.0 and 33.0 to 35.0, per chick/duckling, respectively. Though, the price of native DOC remain unchanged throughout the year, but, when demand fall down, then the prices of sonali DOC and duckling become BDT. 7.0 to 12.0 and 23.0 to 27.0. According to the statement of the hatchery owners, the demand of DOC and duckling increases in late winter and summer and decreases in winter and rainy season. In winter, the brooding of DOC is difficult due

to low temperature. Consequently, chick mortality becomes higher than other season. In rainy season chick management is difficult. The hatchery owners claimed that the production cost of DOC was ranged from BDT. 15.0 to 25.0 per DOC. Thus, to become profitable of this business, the selling price should be more than BDT. 30.0 per DOC throughout the year. A small hatchery owners had 2 wage based employees, while it was 5 for medium and 15 for large to run their hatchery operation. Most of the hatchery owners reported that the demand of DOC/duckling had been increased than earlier. No hatchery owners had training or idea on national and international standard rules and regulations of HACCP to conform hygienic and safe operation in chick production. The problems related to hatchery business operation as explained by the hatchery owners were;

- lack of fertile eggs (who depend on outsourcing),
- high production cost,
- frequent price fluctuation,
- closing commercial poultry farms due to price hiking of feeds,
- seasonal variation of demand

Feed sellers are important stakeholders in poultry production system. They mainly provide balanced ready feed (pellet and crumble) for broiler, layer and color meat bird (sonali). In the surveyed areas most of the feed sellers stacked feed in sacs on wooden frame and some of them keep on the concrete floor. None of the feed sellers had knowledge how to preserve feed safely in accordance with HACCP point of view. To protect feeds from rodents, most of them use trap-nest. No action is taken by some feed sellers. All feed sellers claimed that they did not sell date expired feeds. However, if feed expired its' shelf life, they use those for fish feed. Sometimes feed sellers get complaints from their clients for higher price of feed. Depending on the number of poultry farms and size of the feed shop, the sell volume of poultry feeds sold by the feed seller is about 15 to 300 metric tones per day other than cattle and fish feed and different raw ingredients. Most of the feed sellers claimed that the quantity of poultry feed selling had been increasing than the quantity of sold earlier. Price hiking of feed, credit sell, decreasing sell volume and bad market practice are the main constraints in poultry feed business.

Medicine sellers are also important stakeholders in livestock sub-sector who play important roles in animal and poultry health and disease management. The veterinary pharmacist normally keep medicines and vaccines for both livestock and poultry. In this study, the veterinary medicine sellers collected medicines from pharmaceutical company and whole-sellers. For the treatment of poultry diseases in the study areas, Colistin, Ciprofloxacin, Gentamycin, Doxycycline, Enrofloxacin etc. Antibiotics were using more. As per their report, for enhancing growth and egg production, most of the poultry keeper farmers used multi vitamin-mineral premix, Ca, P and amino acids preparations. The medicine sellers returned their date expired medicines to the pharmaceutical companies, otherwise left outside. In the project areas, all veterinary medicine sellers kept their medicine at the open rack in non-air conditioned room. They do not have traning or knowledge on HACCP to maintain quality and safe storage of medicines. The

medicine sellers claimed that sometimes their customers complain on the quality and higher price of medicine. Most of the veterinary medicine sellers noticed that the sell volume of their medicines had been increased than what sold in the earlier, while some other noticed to be decreased. The major problems faced by the medicine sellers were; credit selling, price hiking, collapse of farms due to price hiking of poultry feeds etc.

The availability of poultry equipment for commercial poultry operation is less than poultry feed and medicines. Farmers have to collect poultry equipment from large city market. Now-a-days, the business of poultry equipment is expanding in upazila level. However, the quality of equipment and modern poultry equipment (nipple drinker, chain feeder, cooling system, egg tray, egg crates etc. are still scarce. Some small-scale entrepreneurs of poultry equipment were established in the project areas, and interviews were taken from them. The poultry equipment seller under the program areas mostly keep conventional feeder, drinker and net for commercial poultry farmers, as higher demand of those products. No modern equipment were kept by those entrepreneurs, as demand had not been created till then. Some equipment seller reported that the poultry equipment selling had been increased than earlier, which is due to increasing entrepreneurs and customers, while some other opposed. The main cause to decrease selling poultry equipment in some areas was shutting down farms. The problems of poultry equipment enterprise as reported by them were increasing price and decreasing quality of products.

Market Traders

Poultry and poultry product traders are playing key roles for marketing of chicken, duck and egg. Most of the backyard chicken and duck keeper farmers rear birds to meet-up their home consumption. Few of them sell surplus birds and eggs to the buyers. It was investigated that the backyard chicken and duck keeper farmers do not take their birds for selling in the market to avoid aggravation and waste of time. Hence, they are interested to sell their birds to the local chicken and duck collector from their house gate, despite getting lower price. Though, most of the farmers used to hatch eggs by their broody hen, very few of them sold eggs to the egg collector or neighbour. Under the investigation of this study, interviews were taken from different market actors like chick dealer, chicken and duck trader and retailer and egg trader and retailer and the brief profiles of those market traders are given in Table 13.

Table 13: Brief Profiles of Traders

SL No	Indicators	Chick dealer	Chicken and duck trader	Chicken and duck retailer	Egg trader
1	Age (yrs)	28-35	20-35	28-35	21-35
2	Education	SSC- Hons	IX-SSC	V-HSC	V-HSC
3	Business experience (yrs)	3-12	8-21	10-20	10-19
4	Monthly income (,000)	15-30	12-25	20-30	15-75

The chick dealer under the project areas mainly sell DOC of broiler and sonali directly collected from local and outside poultry hatcheries. However, sub-dealer collected chicks from dealer. The

dealers and sub-dealers normally sell DOC 3 to days in a week. They claimed that they supply only one grade (A-grade) of chicks. The demand of both broiler and sonali DOC is higher. Depending on the demand and market size, the chick dealers normally sell 3000 to 8000 of DOC in a week. They claimed that the demand and price of DOC most often grown-up (during immediately after winter before hot summer) and fall-down (during extreme winter and summer). In late winter, the growth of broiler is satisfactory due to favorable environment and market price of broiler is grown-up. Consequently, the demand and price of DOC become higher in that season. On the other hand, the disease prevalence and chick mortality occurred higher in extreme winter. However, in hot summer birds often die in heat stress. Consequently, the demand and price of DOC become lower in winter and hot summer. According to their experience, the quality of DOC was satisfactory, while none of them were satisfied with price. Most of the chick dealer confessed that poultry farmers seldom complain on uniformity (uneven weight) and price of chicks. As a dealer, they get BDT. 1.0 to 2.5 commission per chick by selling chicks. The chick dealers normally get chicks 10 to 18 hours after pullout from hatchery and after receiving chciks they distribute those to their clients within 1 to 4 hours. The dealers confessed that dead chick is found in the chick box at seldom. Most of the dealers claimed that the sell volume of chicks had been decreasing over time. According to the dealers' statement, the prices of DOC of broiler, sonali, MCTC, cock and layer were normally BDT. 30.0 to 35.0, 15.0 to 25.0, 20.0, 16.0 and 35.0, respectively, while the prevailing market price of those DOC during the survey period were BDT. 44.0 to 46.0, 16.0 to 32.0, 22.0 to 37.0, 16.0 and 45.0, respectively. During the periods when the demand of DOC peaked, the prices of those DOC raise to BDT. 62.0 to 65.0, 25.0 to 40.0, 58.0, 26.0 and 65.0, respectively. On the other hand, during the periods when demand of DOC become fall down, the prices of those DOC reduce to BDT. 5.0 to 14.0, 5.0 to 10.0, 10.0, 12.0 and 25.0, respectively. The problems in chick selling under the study areas as opined by the dealers were as follows:

- The demand of chicks had been decreasing due to price hiking of poultry feeds,
- Sudden drop of chick price,
- Frequent price fluctuation of chicks
- No compensation is paid if chicks died

However, the main problem as faced by the farmers is that most of the farmers are not well experienced enough to assess when and how many chicks should be kept in their market.

The poultry traders (both wholesaler and retailer) mainly deal their business with broiler, sonali and spent hen and few of them with native chicken and duck. The poultry traders usually collect birds directly from different farms (including own farm) and from market (other big poultry poultry traders). All traders reported that they usually able to collect birds according to their requirements. This means that the supply of live birds are sufficient. The poultry traders claimed that the price is fixed according to the prevailing market price when they purchase it from farmers and also sell it to the small traders and retailers. However, it is true that the wholesale market price is totally controlled through a syndicate by a few big poultry producing companies and big traders. The poultry traders confessed that birds sometimes die during trading due to long

transportation, pilling, heat stress and illness. In a month about 3 to 4 birds are died in retailer shop and about 20 to 30 birds in big traders. In the study areas, the wholesale poultry traders normally sell 200 to 300 birds per day and retailers sell 70 to 80 birds. Depending on the market demand and supply, the poultry traders get profit to a sum of BDT. 10.0 to 50.0 per bird. The big traders had 2 to 3 wage base employees for operating their business. All poultry traders reported that the price of live birds always fluctuate and during periods of market day (in hat-bazar), first week of the month, rice harvest season, Ramadan and Eid festival, the demand and price of birds increases due to necessity and availability of money in hand. Other than those periods, the demand and price of live birds decreases. The poultry sellers reported that the demand and selling of birds had been increased as compare to previous years. That could be due to price hiking of fish, red meat and vegetables. The prevailing problems in poultry business as experienced by the poultry traders were as follows:

- Unbalanced market
- Supply and price of chicken suddenly fluctuate
- Weight loss of the bird
- Sell volume fluctuate over season and time
- Death of chicken during transport and handling
- Crisis of workers

The egg traders mostly deal their business with chicken and duck eggs. The big egg traders collect eggs directly from commercial layer farms, and small egg traders collect it from wholesale markets (arot). The collected eggs were mostly sold in local grocery shops, restaurants, hotels and retailers. They are able to collect as numbers of eggs as they need. The egg traders noticed that the price (during buying and selling) of egg depend on prevailing market price which is always flexible on supply and demand. Like chicken, market price of egg is also controlled through syndicate by a few big egg producer companies and big traders. The egg traders confessed that broken eggs (mostly crack) are always found due to transportation and handling. In a day, normally 1 to 3% eggs are found broken. Depending on the demand and size of the egg selling shop, about 1000 to 12000 eggs are sold in a day. The egg wholesalers usually earn profit at the rate of BDT. 20.0 to 30.0 per 100 eggs, whie a retailer's profit is about BDT. 40.0 to 80.0 per 100 eggs. The wholesales keep wage based employees in their business operation. The egg sellers reported that the demand of egg goes ups and down and in winter, the demand is higher than other seasons, because of higher consumption. They noticed that the sell volume of eggs had been increasing over time, which is due to incurring more expenses for living and foods. The egg sellers claimed that they had to face the following problems in their business operation:

- Credit selling, and credit is not recovered timely
- Price fluctuate more frequently
- Financial crisis

D. SWOT Analysis

"Market System Development of Safe Poultry and Poultry Products"

To conduct a business venture or implementation of a project interventions successfully, it is very much essential to identify strength, weakness, opportunity and threats abbreviated as 'SWOT' analysis. During conducting survey the SWOT analysis of the said program is given here below:

Strengths

- Project intervention
- Skilled manpower
- Financial and logistic supports
- Linkage and collaboration of different stakeholders

Weaknesses

- Lack of technical know-how and awareness of the related stakeholders
- Lack of training and motivation of the related stakeholders
- Lack of financial ability of the poultry farmers to develop infra-structure
- Lack of rules and regulations on safe poultry production and marketing
- Lack of strong linkage and collaboration among stakeholders
- Reluctant of the farmers and stakeholders to follow GAP and HACCP
- Dis-continuation and short-term project intervention

Opportunities

- Awareness of the peoples to consume safe poultry products for the sake of health concern
- Market demand of poultry meat and eggs
- Increasing demand of safe poultry meat, egg and their products (used for fast foods)

Threats

- Market syndicate (doc, live birds and eggs)
- Over dominance of the traders for controlling market price of chicks, live birds and eggs
- Dis-honesty of the market traders (tendency to deprive farmers for profit sharing)
- Huge gaps of market price from producers to consumers levels
- Live birds and eggs are reached to the consumers through several channels
- Indiscriminate use of unethical veterinary drugs to enhance growth and egg production
- Indiscriminate use of antibiotics, probiotics, enzymeetc. for treatment of poultry diseases
- Lack of bio-security and preventive measures in the poultry farms

- Favourable environment and climate to outbreak and spread poultry diseases
- Favourable environment for propagation of harmful pathogens and contaminants

E. Poultry Value Chain Mapping

The poultry (live birds), chicks, duckling and egg marketing channels in Bangladesh differ among different regions. However these also depend on various factors like type of farm, population of birds etc. Due to backyard rearing system, subsistence farmers usually sell their native chicken and duck to the traders (locally called as 'Bepari') from their house-gate. Sometimes, they also take their selling birds into the local market place or directly to the local consumers. On the other hand, most of the commercial chicken and egg producers (broiler, sonali, layer, duck etc) usually sell their products (live birds and eggs) to the big trader/whole-sellers who take birds and eggs from their house-gate, while very few of them sell their products to the local retailers. Day-old-chicks (DOC) and ducklings are normally marketed from hatchery through dealers and retailers. In this study, DOC, chicken, duck and egg value chain and marketing channels under the project areas were investigated and described here below:

Native Chicken and Duck Value Chain & Marketing

The existing native chicken and duck value chain and marketing channel as investigated in this study is presented in a flow diagram (Fig. 6) which entails how chicken and duck produced from farm-house is dispersed to the end consumers through different pathways. Firstly, native chicken and duck produced from farm-house is delivered to three clients; 90% producers sell their saleable live birds to the traders, 3% to the local consumers/neighbors and 2% take into the local market. Secondly, the chicken/duck traders sell their collected birds to the retailers in different markets (local and distance markets in the urban areas). The retailers sell birds directly to the consumers.

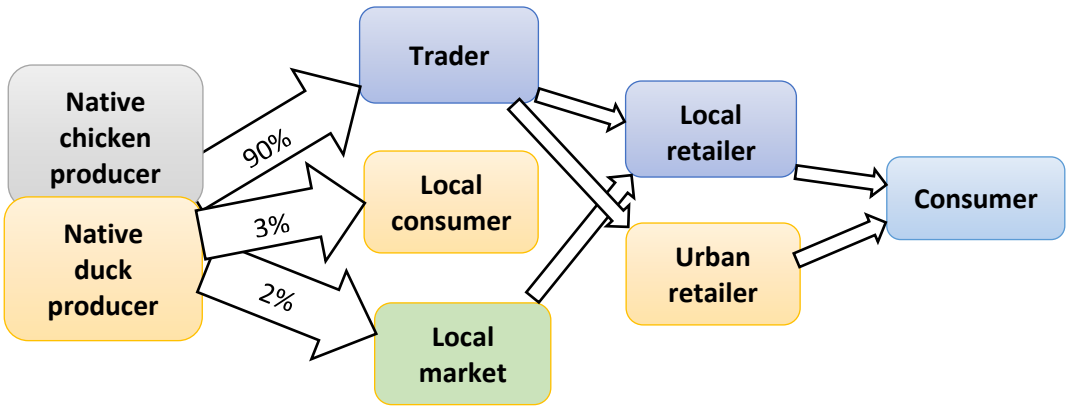

Fig. 6: Native chicken and duck value chain & marketing

Commercial Chicken Value Chain & Marketing

The existing commercial chicken (broiler, sonali, spent hen etc.) value chain and marketing channel as found in this study is presented in a flow diagram (Fig. 7) which tells how those birds produced from commercial farms is marketed through different channels. The live birds are marketed in to three pathways; 75% producers sell their birds to the local bird collectors, 20% to the wholesale traders and 5% to the [illegible] local wholesale traders marketed their birds (collected from produc[illegible] collect[illegible]tailers in local and outside markets.

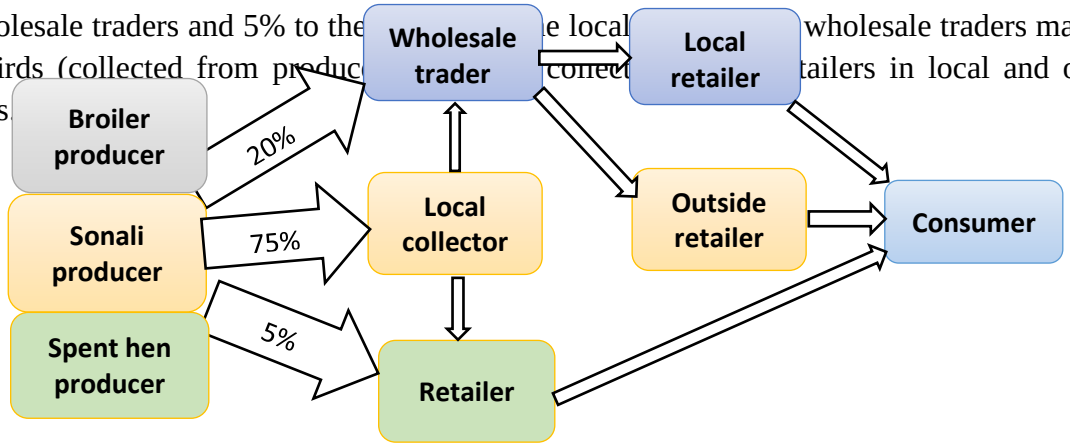

Fig. 7: Commercial chicken value chain & marketing

DOC Value Chain & Marketing

The day-old-chicks (broiler, sonali, layer) and duckling value chain and marketing channel as existed in the study areas are given in a flow diagram (Fig. 8) which shows how chicks and ducklings produced from local and outside hatcheries is marketed to the commercial chicken and duck producers via different marketing channels.The DOC and ducklings hatched from commercial hatcheries is marketed into three channels; about 95% chicks and duckling sare sold to the chick dealer/agents (country wide), 3% to the retailers (who sold chicks and ducklings as ferrying from door to door of the farmers) and 2% to the local commercial bird producers. The chick dealers supplied their DOC and ducklings mostly to the local commercial bird producers and very few to the retailers.The study also reveals that chick dealers are dominant market actors who are playing uncompetitive roles in chick trading and controlling market price.

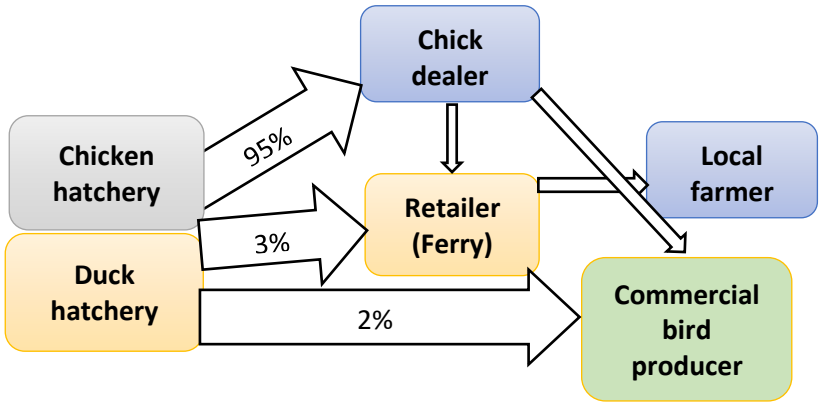

Fig. 8: Day-old-chick and duckling value chain &marketing

Egg Value Chain & Marketing

The prevailing value chain and marketing of eggs (chicken and duck) in the study areas is very simple as has been shown in the flow diagram (Fig. 9). In the study areas, the egg producers (commercial layer farms) usually sell their eggs directly to the local egg collectors (locally called as 'arotdar') and a few of them sell to the wholesale egg traders. However, the eggs produced by native chicken and duck by backyard production system are normally used for self consumption and hatching by broody hen. Very few farmers sold their surplus eggs to the neighbors and local egg collectors.

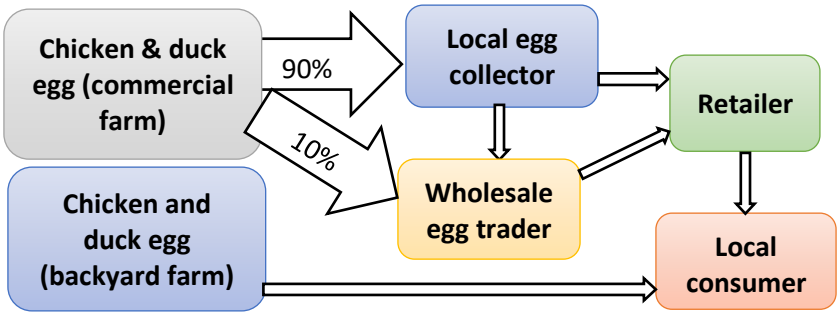

Fig. 9: Egg value chain and marketing

F. Current Status of Project Performance Indicator and Target of Achievement

Sl No	Performance Indicator	Measurement unit	Baseline status	Target for achievement
1	The income of 70% entrepreneurs will be increased to minimum 50%	BDT/month	14000/-	21000/- (70% members)
2	30% project participant farmers will add nutritious foods in their daily diet	% intake 10 food items	0.00	30%
3	The sell volume of safe chicken/meat and eggs of 80% entrepreneurs under the project will be increased to 30%			
	Chicken (native/backyard)	Number/6m	8.81	11.45 (80% entp.)
	Chicken (meat type color bird)	Number/6m	1250	1625 (80% entp.)
	Chicken (meat type/broiler)	Number/6m	575	750 (80% entp.)
	Duck (native/backyard)	Number/6m	4.65	6.00 (80% entp.)
	Eggs (backyard rearing chicken)	Number/6m	149	194 (80% entp.)
	Eggs (backyard rearing duck)	Number/6m	235	305 (80% entp.)
	Eggs (commercial layer)	Number/m	30000	39000 (80% entp.)
4	The profit margin of 80% entrepreneurs under the project will be increased to 20%			
	Poultry feed dealer	BDT/month	30,000/-	36,000/- (80% entp.)
	Poultry feed sub-dealer	BDT/month	20,000/-	24,000/- (80% entp.)
	DOC dealer	BDT/month	20,000/-	24,000/-(80% entp.)
	Poultry medicine seller	BDT/month	30,000/-	36,000/-(80% entp.)
	Poultry equipment seller	BDT/month	5,000/-	6,000/- (80% entp.)
	Poultry service provider (vaccinator/de-beaker)	BDT/month	20,000/-	24,000/-(80% entp.)
	Local hatchery owner	BDT/ month	100,000/-	120,000/-(80% entp.)
	Chicken trader	BDT/ month	20,000/-	24,000/-(80% entp.)
	Egg trader	BDT/year	45,000/-	54,000/- (80% entp.)
	Chicken/duck transporter	BDT/month	20,000/-	24,000/-(80% entp.)
	Egg transporter	BDT/year	14,000/-	16,800/-(80% entp.)
5	All entrepreneurs under the project will be engaged in production of safe products (white meat & egg) by using quality/new inputs, improved technology or GAP	%	0.00	100
6	13% producer group (PG) will operate their business through linking with formal and informal buyers as contract basis	%	0.00	13
7a	60% members under the project will gain knowledge as well as will practice on GAP	%	0.00	60
7b	58% members under the project will adopt environment friendly smart technology	%	0.00	58

Sl No	Performance Indicator	Measurement unit	Baseline status	Target for achievement
8a	By adopting farm mechanization, increasing usage of ICT and modern farm management practices, the overall mortality of chicken will be decreased to 10%			
	Native chicken	%	48.26	43.43
	Commercial layer	%	6.65	5.09
	Broiler	%	5.00	4.50
	Sonali/multi-color chicken	%	3.25	2.93
	Native duck	%	45.60	41.04
	Commercial layer duck	%	7.00	6.30
8b	The growth of chicken is obtaining according to growth chart	Yes/No	50% yes 50% no	Yes
8c	Production cost will be reduced to 10%			
	DOC	BDT/chick	20.0	18.0
	Native chicken	BDT/bird	135.0	122.0
	Commercial layer	BDT/egg	1.0	0.90
	Broiler	BDT/bird	265.0	239.0
	Sonali/multi-color chicken	BDT/bird	128.0	115.0
	Native duck	BDT/kg	240.0	216.0
	Commercial layer duck	BDT/egg	0.90	0.81
9a	By developing linkage with formal and informal buyers, the sell volume of chicken will be increased to 25% (i.e. overall gross production will be increased to 25%)			
	DOC	Number/month	20000	25000
	Live chicken (retailer)	Number/day	70	87
9b	The selling price will be increased to 10%			
	DOC (broiler)	BDT/chick	25.0	27.50
	DOC (sonali)	BDT/chick	26.0	28.50
	Duckling	BDT/duckling	30.0	33.00
	Native chicken	BDT/kg	400.0	440.00
	Meat type color bird	BDT/kg	180.0	200.00
	Broiler	BDT/kg	116.0	128.00
	Chicken egg (native)	BDT/egg	15.0	16.50
	Duck egg (native)	BDT/egg	16.0	17.60
10	By strengthening poultry product processing and recycling of poultry droppings, employment of 1000 units will be created locally	Number	0	1000
11	As a result of increasing communication of backward and forward market services in the cluster, the number of farmers and related entrepreneurs will be increased to 10% and additional 15% wage based employment will			

Sl No	Performance Indicator	Measurement unit	Baseline status	Target for achievement
	be created Number of farmers Number of entrepreneurs Wage based employment	Nos/farm	2.0	2.03

Problems and prospects of poultry industry

The problems for poultry farming as investigated in this study from the project participant farmers and other related stakeholders are given below:

Outbreak of fatal diseases and lack of control mechanism

Outbreak of different fatal poultry diseases is one of the vital problems for developing poultry industry in Bangladesh. When diseases prevail, the mortality rate reached to about 40-60%. Predators are another threat for native chicken and duck. Due to avian influenza (AI), the poultry sectors have been suffering a lot with a massive annual loss of around BDT. 7000 million. This is a huge loss for the producers and they do not get any compensation or any sort of financial help to mitigate their disaster. Bangladesh and five other countries; India, China, Egypt, Indonesia and Vietnam have been suffering from the H5N1 virus. Avian flu is still endemic due to poor management and veterinary services. Due to bird flu, presently we can not export chicken. The IBD is a dangerous disease for broiler which causes mortality to about 30-40%. Newcastle is another dangerous disease for poultry birds of all ages which causes higher rate of mortality. However, the disease control and veterinary treatment facilities are very poor at district and upazila level livestock offices. Although, the government gives some necessary vaccines at low cost to help farmers, they nearly always urgently need to buy vaccines at high prices on the open market. Further, vaccines are not regularly available throughout the country, especially in remote rural areas. Inefficacy of vaccination is common because of improper transportation and storage, handling and application. Most poultry farmers use vaccines without knowing the maternal antibody status of their flocks.

Lack of fair price and market syndicate

In the traditional poultry marketing system of Bangladesh, the number of intermediaries (middlemen/traders) is higher. Since there is no organized marketing system, poultry producers are most often forced to sell at lower prices because of processed and storage facilities, transport facilities, perishability (egg), increasing mortality of birds, higher number of producers etc. Consequently, the producers can not bargain in fixing price of poultry and poultry products. The market price is totally controlled by middlemen who have no loss in their business. Sometimes they do not have any invest for their business. They just buy products from producers and immediately supply those products to the retailers and pay producers after taking money from the retailers. Though, most of the times chicken, ducks and eggs are being marketed through those middlemen, the farmers do not get actual price from their products. The unscrupulous middleman is taking the full advantages. As a result, the farmers have been counting huge losses, as the production cost is higher and selling price is lower. The actual producers don’t get the

benefit of the high price as they are oppressed by the middlemen who suck the maximum profit. Due to market interference, the ultimate consumers have to pay higher retail price of chicken, duck, egg and their products. Most of the consumers are interested to purchase live birds instead of processed birds due to lack of trust, whether the birds were slaughtered as halal method, dead or diseased birds. This is one of the reasons why poultry producers are forced to market their products when those are ready to sell.

Price hiking of input supply and services

Feed is a major cost for poultry production which accounts to 60-70% of the total production costs in Bangladesh. Moreover, one of the major constraints in poultry sub-sector is higher price of poultry input supply and services. Most feed ingredients such as maize, meat bone meal, soybean meal and protein concentrate are imported and hence there is no control of feed price in the hand of manufacturer or government authority. Besides, the price of feed from feed millers to farmers differs a big amount (about BDT. 2.0 per kilo). Generally, feed manufacturers fix price of feed for dealers/agents, who sell feed in both cash and credit to the farmers. The farmers who purchase feed from dealers cannot bargain price due to credit payment. As a result farmers have to pay more price than the price fixed by the feed millers. The price of other input supply and services like medicine, poultry equipment, electricity, gas, vaccine and treatment service has been increasing more frequently.

Frequent price variation of day-old-chick (DOC)

The price of DOC is very flexible and unstable in poultry sector of Bangladesh which is most often depend on supply and demand in the market. However, the demand of DOC vary more frequently from time to time, season to season and for different occasions. When the supply of DOC is increased, the price become fall. In winter season, the price of DOC become lower due to demand decreased in that season. As a result hatchery owners have to pay huge monetary losses in that time. Again in summer and special festivals, the demand of DOC peaked and simultaneously price become reach at highest level. Hatchery owners usually sell DOC to their agents with a fixed commission basis. Although, agents sell DOC with higher commission when demand seemed to be higher. Poultry farmers are obliged to purchase DOC with higher price as most of them take credit basis. There is no bargaining between buyers and sellers of DOC at any point in the supply chain, since the market is basically supply driven.

Lack of knowledge and technology transfer

Most of the people in the study areas were not capable to operate their poultry farm providing all facilities required for GAP. The lack of technical know-how forces farmers to maintain their small-scale farm with poor housing, management and insufficient amount of balanced ration. They even provide improper care of their poultry birds only because of their limited knowledge to maintain the farm. The ultimate impact for this limitation is the result of low productivity and higher incidence of diseases and mortality.Technology related to poultry farming minimizes farm operational hassle and cost of production. However, the project participant farmers under the study areas do not know how to utilize technology in poultry farming. Although, very few technologies have so far been developed for poultry farm operation, but due to absence of proper

dissemination, their implementation is not being done by the farmers. Further, most of the training given to the farmers are not relevant to the technologies developed so far. Need based and sustainable modern technological training is necessary for farmers.

Reluctant to keep farm records

Farm record is an inseparable part of profitable poultry farming. The records of growth, egg production performance, vaccination, de-worming, disease & medication, feeding, income & expenditure etc. should be maintained. This enables farmers to operate farm successfully as well as to estimate profitability of the farm. Very few farmers in the study areas maintained it, though all records were not maintained by them.

Lack of research, training and cooperation

Livestock, in spite of its importance, has been a neglected area of agricultural research in Bangladesh. No visible improvements can be made because of the absence of a sense of urgency and low investment in research. Scientific research studies relating to economic aspects of poultry industry are not adequately available. Moreover, due to lack of effectiveness in its research and extension services, it has not yet been demonstrated that livestock farming, particularly poultry farming, can be transformed into an attractive and profitable business. In Bangladesh, very limited cooperation exists between government, universities, private companies and NGOs. There is no visible linkage and collaboration among those organizations, which is very much essential for ultimate development of poultry sector in Bangladesh. The government doesn't follow carefully the activities of private sector's and NGOs.

Complexity of bank loan and financial rescue

As a risky industry in poultry sector, the bank and leasing companies do not show interest to give loan to the small and medium-scale poultry entrepreneurs. Although, some large poultry entrepreneurs get loans, but the bank interest rate is very high. Moreover, lots of unseen charges and costs are applied in this sector to avail the loan from the banking sector. However, some NGOs give loan to the small-scale poultry farmers, but their interest rate is very high that does not afford farmers to minimize cost of production. Another big challenges in poultry sector are that of high risk of diseases, sudden accident and death, and if it happens may create miserable losses for small and medium-scale poultry farmers. No insurance and compensation policy have been developed to rescue financial losses for the affected farmers.

Prospects

Despite lots of limitations as investigated in the study areas, the following prospects have been identified from this study:

Suitable environment for poultry industry

The climate and environment of Bangladesh is ideal for rearing chickens and ducks. Despite many of the challenges, poultry can be successfully raised in our rural areas without additional facilities and infrastructure. The low cost backyard poultry rearing not only can be a source of additional income, but also support the protein needs for the rural people of Bangladesh, if high rate of chicks mortality and losses of birds from predators can be checked.

National and international gaps between supply and demand

Over the next twenty years, significant expansion of most livestock industries, especially poultry eggs and meat is likely to occur mainly in developing countries (Farrell,). Bangladesh is one of the potential countries to take this opportunity. The poultry industry in low income countries will be expanded in future. Like elsewhere in the world, the poultry industry of Bangladesh is mostly demand driven. The elasticity of demand depends on population growth, increasing income and urbanization. The steady population, urbanization and increasing income reveal that there is an increasing demand of animal origin food like meat and egg. The deficit percentage as reported by different sources clearly indicates the potential prospect of the poultry industry in Bangladesh. Although the annual white meat production almost triple and egg production is double during past decade but the per capita egg and meat consumption is still low.

Affordable price of poultry and products

In Bangladesh although, the price of essential commodities has been increasing, but still now the price of white meat and egg are comparatively lower than red meat and also other sources of protein such as fish, vegetable etc. White meat and egg are the cheapest sources of protein and large number of people could afford it.

Increasing demand of processed and branded meat

The international fast food chain shop like KFC, McDonald etc. have been operating their business in Bangladesh since last few years. Besides, local fast food shops are also increasing every year. Due to expansion of their business the demand of safe meat in these shops are increasing. Therefore, the demand of processed poultry meat is increasing day by day and it has created opportunities to establish more poultry meat processing plants. Chickens of various brands are graded and sold in supermarkets in Europe and America. Although there is no defined brand for poultry goods in Bangladesh yet, ‘Bengal Meat’ has concentrated on branding chicken meat and meat products in recent years. Some other such as ‘Protein Market’, ‘Royal Meat’ offer branded chicken products, meat and fish online.

Future opportunity to export

Bangladesh started export of day old chicks and feed to other countries during 2002-2007 and it has stopped due to Avian Influenza (AI) havoc. However, if we can eradicate or at least control AI and able to maintain international quality, there is a huge opportunity to export not only the chicks and feeds but also white meat. Government has also liberalized its policies to encourage

the growth of commercial poultry sector in Bangladesh by introducing tax holiday, subsidy in electricity and also incentives for export.

Opportunity to export halal and organic meat

The worldwide halal food business is predicted to increase at an annual rate of 10.83% between 2020 and 2027. Saudi Arabia has the world's largest halal food market. Malaysia, the United Arab Emirates (UAE), Indonesia, and Egypt are also potential countries for halal meat. The worldwide halal food sector is now worth $1.17 trillion. According to the Ministry of Commerce, Bangladesh has the potential to export around $10 billion in halal food. Furthermore, the worldwide organic meat industry was anticipated to with a 5.6% annual growth rate. If BSTI establishes world class standards for halal and organic food, the international chain restaurant and five-star hotels in the country would be able to acquire local raw materials instead of relying on imports and exports will expand.

Scope of foreign investment and employment generation

In Bangladesh, the government has created favorable environment to attract foreign investors in poultry sector. Till now, there are few foreign companies like CP, New Hope, Godrej etc. who are working in Bangladesh. Still there is a scope for other foreign investors to invest poultry sector in Bangladesh that can create huge job opportunities. It offers full or part time employment of large number of peoples particularly women, children or elderly person on the farm operations. According to an estimate, the 40% minimization of deficit in meat and egg production in Bangladesh, it will need investment of about BDT. 60,000 million and will create new employment opportunities for 14 million people.

Availability of input supplies and services

Poultry feed, medicine, equipment and day-old-chicks are necessary input materials which are readily available in all upazila levels in Bangladesh. There are lots of companies and entrepreneurs involved in manufacturing or import those materials for all categories farmers. The government, animal health company and other private and NGO sectors are providing technical services to the poultry farmers for promoting and supporting the growth of poultry industry. It will help for future expansion of this promising sector. The domestic production of maize and soybean is increasing in different parts of the country which enables minimizing the dependency on import.

Educated people in poultry sector

The number of educated entrepreneurs in poultry business increases with time. Many educated and unemployed young people are now coming to start poultry enterprises for self-dependency after completion their graduation. Educated farmers can manage their farms in a contemporary

manner, adequate supply of balanced diet and administer required medications. As a result, they are reaping big profits, and the sector is expanding rapidly.

Adoption of new poultry breeds and technology

The researchers from Bangladesh Agricultural University (BAU) have designed two new types of chicken, which have stronger immunity than conventional chickens. As a result, no vaccines or antibiotics are necessary for the upbringing of this kind of chicken. Furthermore, Bangladesh Livestock Research Institute (BLRI) has begun trial production of a novel breed of chicken that tastes like domestic chicken and may be produced commercially since 2018. More such novel breeds generated form research and supplied to poultry farmers would greatly add positive impacts in poultry sector. The application of innovative technology in commercial poultry operation and processing plant has resulted certain advances in poultry sector. Most of the big poultry farms, hatching machines, broilers, cleaning and egg collecting robots, temperature control technology, drip watering systems, and recycling devices are increasing.

CONCLUSION

Most of the the project participant poultry farmers under the program areas mainly maintain their livelihood on agriculture. However, agriculture alone cannot meet up the full expenses needed for a family having 5 to 6 members in rural people, as land has been segregating among family members. Consequently, they have to seek another source of income. It is likely to be a family tradition that most of the rural people keep domestic animals and poultry as an additional income source for their family that help them to bear some extra family expenditure required for children education, maintenance or construction of house, land purchase or mortgage etc. Those expenses are met-up to some extent by selling milk, calve, goat, sheep, chicken, duck, egg etc. In addition, family nutrition is met-up by native chicken, duck and egg from backyard poultry rearing for rural people. Besides, a rural family can entertain their guests by slaughtering chicken or duck and egg instantly. However, rural people can use their domestic animals and poultry in special festivals. Poultry industry is one of the prospective livestock sub-sectors in Bangladesh. Backyard poultry rearing is especially suitable for landless, ultra-poor and poor farmers for low investment and ease management. The study areas are very resourceful for rearing chicken and duck as the input materials required for poultry rearing are available in their hand. The marketing of native birds and eggs are very easy for them due to high demand in market and local traders always collect those birds from the farmers' house. But, unfortunately the project participant farmers have to face problems for higher chick mortality and losses of birds for predators. They also deprived of proper veterinary services. However, chicken and duck keeper farmers, market actors and service providers under the program areas were not well concerned on environment friendly poultry production and management following global GAP. Besides, poultry product processors do not follow HACCP rules during product processing and manufacturing, as they were not accustomed with this protocol. Through RMTP project, Ghashful can access to their participant farmers, micro-entrepreneurs, product processors, input and service providers for developing their professional skills, increasing income level, developing women empowerment and building awareness for safe poultry and poultry products and market development. Although, the poultry sub-sector in Bangladesh has been progressed considerably, but still this sub-sector is under the threat of existence due to disease havoc, high price of feed, frequent price fluctuation of day-old chicks and live birds, interference of broker, lack of poultry processing and preservation facilities and son on. These problems must be removed for the sake of sustainability of this sub-sector. However, implementation of the project under a comprehensive approach, it may be expected that the ongoing value chain program will contribute to reduce poverty of the ultra-poor farmers as well as increasing income levels of the transitional-poor and enterprising-

poor farmers associated with this program. Besides, it is anticipated that the nutritional status of project participant farmers will also be improved after successful completion of this sub-project.Finally, it is recommended that the ongoing project should be continued for a longer period and the participant farmers should be as minimum as the project personnel can do support and monitor every farmers. The program among numerous participants giving peanut support cannot harvest project output and goals fruitfully.

Recommendations

To mitigate the prevailing problems and challenges, the poultry sector needs special attention. However, based on the findings from this baseline study, the following recommendations should be considered for future implication:

Abide breeds, management & technology

- *Selection of best adapted poultry breeds*
- *Stress mitigation for birds*
- *All in all out system of rearing*
- *Access to modern technology of poultry farming*

Abide human health safety concern

- *Safe use of medicines and chemicals in poultry and farm*
- *Avoid unethical drug usage for enhancing growth and egg production*

Abide bio-security, prevention and proper waste management

- *Regular vaccination and de-worming of birds*
- *Vermin control and bio-security in the farm*
- *Proper disposal of farm wastes and dead birds*

Linkage and collaboration

- *Developing public and private collaboration*
- *Seeking foreign investment*
- *Building association of industrial and educational community*
- *Collaboration of national and international research organization*

Role & policy support of the government

- *Active role of government to support poultry sector*
- *Price fixation of poultry products and supplies*
- *Ban of live bird selling*

Development of market and infra-structure

- *Establishing cooperative market*

- *Establishing poultry processing and chilling centre*
- *Establishing quality testing facilities (feed, meat, egg)*
- *Expanding vaccine manufacturing unit*

Access to financial and rescue services

- *Assuring ease access to loan and credit facilities*
- *Establishing poultry insurance policy*
- *Exemption of tax and tariff*
- *Special privilege for disease affected farms*

Human resource development

- *Taking initiative for capacity and awareness building*
- *Arranging field visit, demonstration and campaign*
- *Taking initiative for human resource development (HRD)*

Animal welfare and product certification

- *Abide animal welfare (As per guidelines of FAO and IDF, 2011)*
- *Ensuring product certification*

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Annexure

Annex I: Result Tables in Details

Table 1: Family status under the project participant poultry farmer

Sl No	Indicator	Unit	Value
1	Gender of the respondent		
	Male(n=4)	%	01.52
	Female(n=260)	%	98.48
2	Family type		
	Male headed	%	97.35
	Widow	%	02.65
	Divorce	%	00.00
3	Religion group of the project participant poultry farmers		
	Muslim(n=191)	%	72.35
	Hindu(n=49)	%	18.56
	Christian/tribal(n=24)	%	09.09
4	Age group of the project participant poultry farmers		
	Young (up to 30 years)(n=84)	%	31.82
	Active (31 to 50 years)(n=172)	%	65.15
	Less active /old (above 50 years)(n=8)	%	03.03
	Average	years	36.24
5	Education level of the project participant poultry farmers		
	Illiterate(n=2)	%	00.76
	Can sign only(n=78)	%	29.55
	Primary(n=93)	%	35.23
	JSC (eight pass)(n=61)	%	23.11
	SSC/vocational (n=23)	%	08.71
	HSC/Diploma (n=3)	%	01.14
	BA/BBS/BSc/BBA(n=2)	%	00.76
	Masters(n=2)	%	00.76
6	Number of family members according to gender		
	Male	nos	2.30
	Female	nos	1.98
	Total	nos	4.28
	Sex ratio (male:female)	-	53.7:46.3
7	Family size		
	Small family (up to 3 members)	%	24.62
	Standard family (4 members)	%	39.39

	Large family (5 and above members)	%	35.98

Table 1a: Number of food item intake in a day in study upazilas of Naogaon district

Number of food items	% intake by the farmers					
	N'Sadar	P'tala	M'devpur	B'gachi	Manda	Overall
2-items	0.97	00.00	03.11	00.74	0.87	01.18
3-items	14.49	11.95	03.50	07.78	15.58	10.33
4-items	13.53	08.85	51.36	38.52	36.36	30.90
5-items	28.99	37.61	29.18	37.04	23.81	31.49
6-items	20.29	29.20	04.67	13.33	23.38	17.63
7-items	10.14	12.39	08.17	02.59	00.00	06.47
8-items	11.59	00.00	00.00	00.00	00.00	02.02

Table 2: Economic status of the household family under project participant farmers

Sl No	Indicator	Unit	Value
1	Economic status of the project participant households according to land		
	Ultra-poor (landless up to 4 decimal)	%	22.35
	Transitional-poor (5 to 49 decimal)	%	42.29
	Enterprising-poor (50 to 150 decimal)	%	36.36
2	Project participant farmers who had their own land		
	Homestead land	%	100
	Agricultural land (cultivable)	%	53.01
	Land size owned by the participant farmers		
	Homestead land	decimal	06.28
	Agricultural land (cultivable)	decimal	77.80
	Total	decimal	47.84
3	Main occupation of the head of the project participant family		
	Disable	%	00.38
	Agriculture (crop)	%	31.82
	Livestock	%	01.14
	Poultry (commercial)	%	00.38
	Daily basis laborer	%	16.29
	Technician (mason, carpenter, electrician etc)	%	07.95
	Driving (Rickshaw, Van (auto/puller), bus, pick-up etc)	%	22.73
	Service (govt, private, NGO, garments)	%	06.82
	Shopkeeper	%	06.44
	Small business	%	05.68
	Others	%	00.38

4	Secondary income source of the project participant family		
	None	%	61.74
	Agriculture (crop)	%	19.32
	Livestock	%	01.14
	Poultry (commercial)	%	04.92
	Daily basis laborer	%	01.52
	Technician (mason, carpenter, electrician etc)	%	03.03
	Shopkeeper	%	01.14
	Small business	%	06.44
	Others	%	00.38
5	Number of earning members of the respondent family		
	Average	nos	1.22
	Single	%	83.71
	Double	%	12.12
	Triple and more	%	04.17
6	Average family income of the respondent households		
	From main occupation	BDT/m	12000
	From secondary source	BDT/m	5000
	Native chicken/duck (backyard)	BDT/m	2600
	Gross income	BDT/m	14000

Table 3: Different livestock and poultry species kept by the farmers

Sl No	Species	% project participant farmers kept different species					
		N' Sadar	P'tola	M'devpur	B'gachi	Manda	Overall
1	Chicken	93.02	97.83	90.00	91.80	94.44	93.18
2	Duck	60.47	58.70	80.00	75.41	59.26	67.80
3	Geeze	09.30	10.87	05.00	08.20	09.26	08.33
4	Muscovy	09.30	08.70	06.67	11.48	05.56	08.33
5	Pigeon	02.33	08.70	05.00	04.92	05.56	05.30
6	Cattle	32.56	41.30	30.00	13.11	42.59	31.06
7	Goat	34.88	39.13	31.67	13.11	57.41	34.47

Table 4: Housing, bedding and cleaning

Sl No	Indicator	Unit	Value
1	Type of house for native chicken		
	Soil made (Katcha)	%	30.23
	Bamboo, wood and tin	%	68.22
	Concrete	%	01.55
2	Type of floor in the house for native chicken		
	Soil (Katcha)	%	36.28
	Brick	%	03.54
	Slat	%	60.18

3	Whether there are sufficient ventilation and lighting in house		
	Yes	%	00.81
	No	%	99.19
4	Type of commercial poultry house		
	Semi-concrete	%	-
	Bamboo, wood, net and tin	%	100.0
5	Floor of the commercial poultry house		
	Concrete	%	100.0
	Others	%	-
6	Whether there are proper ventilation and lighting in commercial poultry house		
	Yes	%	100.0
	No	%	-
7	Type of litter (bedding materials) used in poultry house		
	None	%	50.00
	Rice husk	%	30.00
	Leaf, straw	%	10.00
	No need for slat	%	10.00
8	Whether there is disinfecting foot-bath in front of poultry house		
	Yes	%	00.38
	No	%	99.62
9	Whether poultry house is cleaned		
	Yes, regularly	%	53.41
	Yes, but irregular	%	46.59
10	Whether poultry house is disinfected		
	Yes, regularly	%	02.27
	Yes, but irregular	%	-
	Nor at all	%	97.73

Table 5: Feeding of chicken and duck

Sl No	Indicator	Unit	Result
1	Whether additional feeds are given to scavenging native chicken		
	Yes	%	99.58
	No	%	00.42
2	If additional feeds are given, then type of feed given to chicken		
	Ready poultry feed	%	00.83
	Broken rice/boiled rice	%	98.76
	Crushed maize	%	00.41
3	The amount of additional feeds given per chicken	g	49.23
4	Whether additional feeds are given to scavenging native duck		
	Yes	%	99.44
	No	%	00.56
5	If additional feeds are given, then type of feed given to duck		
	Ready poultry feed	%	09.74

	Home made mix (rice, polish, wheat bran mixed with water)	%	93.26
6	The amount of additional feeds given per chicken	g	93.65
7	Whether vitamin-mineral is supplemented to native chicken and duck		
	Yes	%	01.93
	No	%	98.07

Table 6: Mating of bird, fertility and hatchability of egg

Sl No	Indicator	Unit	Result
1	Whether farmers keep cock for mating purpose in backyard poultry farming		
	Yes	%	89.58
	No	%	10.42
2	The source of cock		
	Home produced	%	95.48
	Purchased	%	04.52
3	The sex ratio (female: male) maintained by the farmers	-	6.31
	Ratio not maintained	%	17.50
4	Whether farmers hatch chicks		
	Yes	%	100
	No	%	-
5	If they hatch chicks, then methods of hatching		
	Broody hen	%	100
	Incubator	%	-
6	If chicks are hatched by broody hen, then numbers of eggs are kept in broody hen	nos	12.21
7	Numbers of chicks hatched out of total eggs set for hatching	nos	10.59
8	Hatchability of chicken eggs	%	86.73
9	After chick mortality, number of birds survived per hatch	nos	5.47
10	Chick mortality	%	32.94
11	Chicks destroyed by predators per hatch	nos	1.62
		%	15.63
12	Survivability of chicken	%	51.74
13	Whether fertile eggs are candled during incubation		
	Yes	%	0.00
	No	%	100
14	From where farmers collect duck		
	Self-hatching	%	35.03
	Purchased duckling	%	46.33
	Both	%	18.64
15	If self-hatched, then methods of hatching		
	Broody hen	%	81.36
	Broody duck	%	18.64
16	If ducklings are purchased, then source		

	Duck selling hawker	%	65.81
	Market	%	12.82
	Hatchery	%	06.84
	Dealer	%	12.82
17	If self-hatched, whether farmers keep drake (male duck)		
	Yes	%	86.17
	No	%	13.83
18	If farmers keep drake, from where it is collected		
	Home produced	%	100
	Others	%	-
19	The sex ratio (female: male) maintained by the farmers		4.56
	Ratio not maintained	%	68.54
20	If ducklings are hatched by broody hen, then numbers of duck eggs are kept in broody hen	nos	10.64
21	Numbers of ducklings hatched out of total duck eggs set for hatching	nos	9.10
22	Hatchability of duck eggs hatched by broody hen	%	85.74
23	If ducklings are hatched by broody duck, then numbers of duck eggs are kept in broody duck	nos	13.88
24	Numbers of ducklings hatched out of total duck eggs set for hatching	nos	11.91
25	Hatchability of duck eggs hatched by broody hen	%	85.76
26	After duckling mortality, number of birds survived per hatch	nos	6.47
27	Duckling mortality	%	32.90
28	Ducklings destroyed by predators per hatch	nos	1.50
		%	12.70
29	Survivability of duck	%	54.40
30	Whether fertile duck eggs are candled during incubation		
	Yes	%	0.00
	No	%	100
31	Ways how duration of broodiness in chicken is shortened		
	No measures are taken	%	38.65
	Not to allow broody hen to sit her place	%	05.98
	Dipping in the water	%	11.55
	Entering feather in the nose	%	13.55
	Trapping by the rope or basket	%	30.28
32	Ways how duration of broodiness in duck is shortened		
	No measures are taken	%	100
	Others as mentioned in chicken	%	0.00

Table 7: Management, bio-security, disease prevention and mortality

Sl No	Indicator	Unit	Result
1	Who take care native chicken and duck in the household family		
	Wife	%	95.80

	Altogether	%	04.20
2	Frequency of additional feeds given to native chicken in a day		
	Twice	%	05.83
	Several times	%	91.25
	Not at all	%	02.92
3	Frequency of additional feeds given in a day to backyard rearing duck		
	Twice	%	11.17
	Several times	%	82.12
	Not at all	%	06.70
4	Whether farmers have knowledge on bio-security measures taken in the poultry farm management		
	Yes	%	0.00
	No	%	100
5	As a preventive measures, whether farmers vaccinate their birds		
	Yes, regularly	%	02.29
	Never at all	%	97.71
6	Type of vaccines administered to native chicken		
	ND	%	100
	IBD	%	0.00
	FC	%	0.00
7	Type of vaccines administered to commercial layer birds		
	ND	%	100.0
	IBD	%	100.0
8	Type of vaccines administered to broiler birds		
	ND	%	100.0
	IBD	%	100.0
9	Type of vaccines administered to sonali/multi-color birds		
	ND	%	100.0
	IBD	%	100.0
10	Type of vaccines administered to duck		
	DP	%	50.00
	Both DP and DC	%	50.00
11	Whether farmers de-wormed their chicken and duck		
	Not at all	%	93.87
	Yes, regularly	%	02.68
	Yes, but not regularly	%	03.45
12	Whether beak trimming is done by the layer farmers		
	Yes	%	-
	No	%	100.0
13	Whether adult chicken had been died within last six month		
	Yes	%	81.74
	No	%	18.26
14	If died, then how many chicken died	nos	5.04
15	Whether adult duck had been died within last six month		
	Yes	%	74.59

	No	%	25.41
16	If died, then how many duck died	nos	4.56
17	In case of commercial layer, cumulative mortality of birds up to start to lay	%	4.42
18	Cumulative mortality of laying chicken	%	1.23
19	Cumulative mortality of broiler birds	%	5.0
20	Cumulative mortality of sonali/multi-color chicken	%	3.25
21	In case of commercial layer duck, cumulative mortality of up to start to lay	%	6.50
22	Cumulative mortality of laying duck	%	0.50
23	Fatal disease caused death to native chicken		
	ND	%	100
	Others	%	0.00
24	Fatal disease caused death to commercial layer chicken		
	CRD	%	100.0
	Others	%	-
25	Fatal disease caused death to broiler birds		
	Bird flu	%	45.0
	IBD	%	55.0
26	Fatal disease caused death to sonali/multi-color birds		
	IBD	%	65.0
	ND	%	35.0
27	Fatal disease caused death to duck		
	DP	%	89.83
	DC	%	06.78
	Both	%	03.39

Table 8: Marketing of poultry and poultry product

Sl No	Indicator	Unit	Result
1	Whether farmers sold native chicken in last six month		
	Yes	%	29.55
	No	%	70.45
2	If they did not sell any chicken, then what did they do		
	Self-consumption	%	31.82
	Increasing numbers of chicken	%	01.82
	Died	%	66.36
3	If they sold, how many chicken in last six months		
	Male chicken	nos	4.68
	Female chicken	nos	4.13
4	The average live weight of chicken what they sold in last six month		
	Male chicken	g	820
	Female chicken	g	670
5	The average price per chicken what they earned in last six month		

	Male chicken	BDT	400.0
	Female chicken	BDT	310.0
6	Whether farmers sold eggs of native chicken in last six month		
	Yes	%	15.15
	No	%	84.85
7	If they did not sell any egg, then what did they do		
	Self-consumption	%	10.00
	Kept for hatching	%	11.30
	Both	%	78.70
8	If they sold, how many eggs of native chicken in last six months	nos	148.7
9	Average price per egg what they sold in last six month		
	Max	BDT	15.0
	Min	BDT	12.0
10	How many batches of multi-color meat chicken (sonali) sold in last one year	nos	4-5
11	How many multi-color chicken were sold in last batch	nos	1250
12	What was the selling price of multi-color chicken per kilo live weight	BDT	160-220
13	Whether they got profit from multi-color chicken in last batch		
	Yes	%	-
	No	%	100.0
14	If they got profit from multi-color chicken, then how much	BDT	N/A
15	If they didn't get profit from multi-color chicken, then why		
	Fall-down price	%	50.00
	Growth not achieved	%	50.00
16	How many batches of broiler birds sold in last one year	nos	3
17	How many broiler birds were sold in last batch	nos	575
18	What was the selling price of broiler per kilo live weight	BDT	118
19	Whether they got profit from broiler in last batch		
	Yes	%	-
	No	%	100.0
20	If they got profit from broiler birds, then how much	BDT	N/A
21	If they didn't get profit from broiler birds, then why		
	Fall-down price	%	100.0
	Others	%	-
22	Whether farmers sold native duck in last six month		
	Yes	%	16.22
	No	%	83.78
23	If they did not sell any duck, then what did they do		
	Self-consumption	%	27.30
	Increasing numbers of ducks	%	02.70
	Died	%	70.0
24	If they sold, how many ducks in last six months		
	Male duck	nos	3.45
	Female duck	nos	1.20
25	The average live weight of duck what they sold in last six month		

	Male duck	g	1200
	Female duck	g	1000
26	The average price per duck what they earned in last six month		
	Male duck	BDT	500.0
	Female duck	BDT	400.0
27	Whether farmers sold eggs of native duck in last six month		
	Yes	%	22.33
	No	%	77.67
28	If they did not sell any duck egg, then what did they do		
	Self-consumption	%	12.32
	Kept for hatching	%	13.18
	Both	%	74.50
29	If they sold, how many eggs of native duck in last six months	nos	235
30	Average price per duck egg what they sold in last six month		
	Max	BDT	16.0
	Min	BDT	15.0

Table 9: Input supply, services and market linkage

Sl No	Indicator	Unit	Result
1	The source from where poultry farmers collected feeds		
	Local market	%	35.98
	Outside market	%	64.02
2	The source from where poultry farmers collected poultry medicines		
	Local market		
	Outside market	%	35.98
		%	64.02
3	The source from where poultry farmers collected feeder, drinker and other necessary input supplies		
	Local market	%	15.13
	Outside market	%	84.87
4	The source from where poultry farmers collected vaccines		
	Livestock office	%	07.69
	Local pharmacy	%	15.38
	Outside pharmacy	%	76.92
5	The source from where poultry farmers get treatment facilities		
	Livestock office	%	07.95
	Local quack/LSP	%	04.55
	Veterinary pharmacist	%	11.36
	Representative of veterinary pharmaceutical company	%	02.27
	None of the above	%	73.86
6	Who helped poultry farmers for beak trimming of commercial layer		
	Self	%	-
	Other expert farmers	%	-

	Not done	%	100.0
7	To whom farmers marketed their native chicken and duck		
	Neighbour	%	15.21
	Traders from house-gate	%	79.09
	Local market	%	05.70
8	To whom producers marketed their commercial birds (broiler, sonali etc.)		
	Wholesale traders	%	50.00
	Retailers of the market	%	50.00
	Contract traders/institutions	%	-
9	To whom farmers marketed their eggs of native chicken and duck		
	Neigbour		
	Egg collector (Pikar) from house-gate	%	68.06
		%	31.94
10	To whom egg producers marketed their eggs of commercial birds		
	Wholesaler from farm-gate	%	50.00
	Local wholesale market	%	50.00
11	Whether poultry producers contractually linked with organized formal market organization for selling their products		
	Yes	%	01.89
	No	%	98.11

Table 10: Training, mechanization and use of IT in poultry farming

Sl No	Indicator	Unit	Result
1	How long do you keep native chicken	yrs	-
	Family tradition	%	100.0
2	How long do you keep native duck	yrs	-
	Family tradition	%	100.0
3	How long do you keep commercial layer	yrs	8-12
4	How long do you keep commercial multi-color meat chicken	yrs	1-2
5	How long do you keep broiler	yrs	6-10
6	How long do you keep commercial duck	yrs	5-10
7	Whether farmers got any training related to poultry farming		
	Yes	%	98.11
	No	%	01.89
8	If they got training, in what poultry species		
	Chicken	%	60.00
	Duck	%	40.00
9	Source from where they got training		
	Government	%	100.0
	NGO	%	-
10	Frequency of training they attended	nos	
11	Total numbers of days they attended training	nos	
12	Whether farmers started their poultry farm after getting training		

	Yes	%	
	No	%	
13	If they did not get any training, then how they started poultry farm		
	To observe others	%	
	To work other farms	%	
	Get assistance from other expert farmers	%	
14	Whether farmers used modern poultry equipment		
	Yes	%	-
	No	%	100.0
15	Whether farmers used mobile apps or online sources for IT related to poultry farming		
	Yes	%	-
	No	%	100.0
16	Whether farmers linked online platforms to sell their products		
	Yes	%	-
	No	%	100.0
17	Whether farmers have an idea on gGAP for poultry farming		
	Yes	%	-
	No	%	100.0

Table 11: Waste management, stress and indiscriminate drug use

Sl No	Indicator	Unit	Result
1	How poultry droppings and wastes are disposed		
	Sold	%	01.52
	Use as fertilizer for land	%	31.82
	Kept outside	%	66.66
2	Whether farmers were affected with natural calamities (storm, flood etc.)		
	Yes	%	67.05
	No	%	32.95
3	If they were affected, how		
	Destroyed poultry house	%	05.65
	Disease outbreak	%	19.77
	Death of birds	%	55.37
	Others	%	19.21
4	What problems farmers feel in their birds with extreme weather (drought, heat, heavy rainfall)		
	No problem	%	21.09
	Panting	%	08.00
	Reduced feed intake	%	01.82
	Higher disease prevalence	%	33.45
	Death due to heat stroke	%	35.64
5	Whether farmers use antibiotics for disease prevention		
	Not at all	%	65.53

	Yes, regularly	%	02.65
	Yes, but occasionally	%	00.76
	Yes, in case of disease outbreak	%	31.06
6	If they administer antibiotic course in poultry, after how many days they sell their birds	days	10
	Any time	%	76.79
	According to the direction of medicine manufacturer	%	05.36
7	Whether layer farmers sell their eggs during antibiotic course for layers		
	Yes	%	100.0
	No	%	-
8	Whether farmers administer growth promoters to their birds for enhance growth		
	Not at all	%	91.29
	Yes, regularly	%	01.52
	Yes, but occasionally	%	04.92
	If growth is retarded	%	02.27
9	Whether farmers administer any special medicine (other than vitamin-mineral) to layers for enhance egg production		
	Not at all	%	90.91
	Yes, regularly	%	01.14
	Yes, but occasionally	%	07.95

Table 12: Employment generation and financial support

Sl No	Indicator	Unit	Result
1	In case of backyard system of poultry farming, how many times are spent by the farmers in a day	hrs	1.13
2	Whether farmers had wage based labour for commercial poultry farming		
	Yes	%	22.22
	No	%	77.78
3	If they had labour, then how many	nos	1-3
4	If they had no labour, how many time they usually spent in a day for taking care of their birds	hrs	8-12
5	Whether farmers had taken any loans for commercial poultry farming		
	Yes	%	33.33
	No	%	66.67
6	If they had taken loans, how much money	Lac	0.2-2.5
7	If loan is taken, from where they had taken		
	NGO	%	66.67
	Bank	%	33.33
8	Whether they get loan according to their necessity		
	Yes	%	33.33

		No	%	66.67
9	Whether farmers get any poultry insurance facility			
		Yes	%	-
		No	%	100.0

Annex II: FGD (All Narrative)

FGD # 1

Address where FGD was conducted: Upazila: Naogaon Sadar, District: Naogaon

Identity of the participants

SL No	Name	Gender	Father/Spouse	Village	Union	Mobile No
1	Mst. Ripa Begum	F	Md. Chanchal Hossain	Zikra	Borshail	01727637274
2	Liza banu	F	Md. Anajul Islam	Gobindapur	Kirtipur	01733845987
3	Mst. Sumi Akter	F	Md. Mofasser Ali	Lokhaijani	Hapania	01737889090
4	Mst. Kamrun Nahar	F	Md. Shahidul Islam	Magura	Kirtipur	01723418079
5	Shoma Rani Ghosh	F	Sr. Rabi Kumer Ghosh	Choarpur	Borshail	01734644883
6	Mst. Ismatara Begum	F	Md. Hamidur Rahman	Lokhaijani	Hapania	01754096538
7	Mst. Akter Banu	F	Md. Abdul Kuddus	Banomalipur	Kirtipur	01748428874
8	Bilkis Begum	F	Akkas Ali	Zikra	Borshail	01720834617
9	Mst. Nazma Begum	F	Masud Rana	Lokhaijani	Hapania	01739521119
10	Mst. Zakia Sultana	F	Md. Ashraful	Magura	Kirtipur	01729152332
11	Mst. Jinnatun Begum	F	Md. Enamul Haque	Zikra	Borshail	01747924000
12	Mst. Kolpona Begum	F	Md. Mukul Hossain	Lokhaijani	Hapania	01752401698
13	Mst. Salma Akter	F	Md. Mithun Mia	Magura	Kirtipur	01709201281
14	Mukta Banu	F	Ripon	Zikra	Borshail	01733847851
15	Mst. Piara Begum	F	Md. Firoz Hossain	Gobindapur	Kirtipur	01764983948

Information related to poultry

1. How many percentages of people keep native chicken in your areas? About 95 %
2. How many percentages of people keep ducks in your areas? About 50 %
3. What is the degree of quality and availability of the following necessary inputs and services related to poultry farming?
    - 3.1 Breed of native chicken: Poor-100%
    - 3.2 Breed of native duck: Poor-100%
    - 3.3 Breed of layer: Good-100%
    - 3.4 Breed of broiler: Good-100%
    - 3.5 Breed of color bird (Sonali): Good-100%
    - 3.6 Availability of layer chicks: Less available-100%
    - 3.7 Availability of broiler chicks: Available-100%
    - 3.8 Availability of color bird chicks: Less available-100%
    - 3.9 Availability of ducklings: Available-100%

3.10 Availability of incubation facilities: Not available-100%
3.11 Availability of poultry feed: Not available-100%
3.12 Quality of poultry feed: Good-100%
3.13 Availability of vaccine: Not available-100%
3.14 Quality of vaccine: Don't know
3.15 Availability of anthelmintic: Not available-100%
3.16 Quality of anthelmintic: Don't know
3.17 Availability of poultry medicine: Available-100%
3.18 Quality of poultry medicine: Roughly-100%
3.19 Availability of poultry treatment services: Not available-100%
3.20 Quality of poultry treatment services: N/A
3.21 Availability of de-beaker and vaccinator: Not available-100%
3.22 Quality of de-beaker and vaccinator: N/A
3.23 Availability of loan service: Not available-100%
3.24 Availability of poultry mechanization equipment: Not available-70%

4. What types of problems are you facing related to poultry farming?

4.1 Supply of day-old chicks: Scarcity
4.2 Quality of day-old chicks: Roughly
4.3 Supply and quality of poultry feed: High cost of feeds
4.4 Vaccine, anthelmintic and poultry disease: Vaccine and anthelmintic are not available and disease prevalence is very high.
4.5 Poultry treatment and other services: Poultry treatment and other services are not available.
4.6 Marketing of chicken, duck and egg: No problem.

5. What types of problems are there regarding farm management, disposal of farm waste and dead birds?

- Could not answer properly

6. What types of problems are there regarding climate change and natural disaster?

- Disease prevalence

FGD # 2

Address where FGD was conducted: Upazila: Manda, District: Naogaon

Identity of the participants

SL No	Name	Gender	Father/Spouse	Village	Union	Mobile No
1	Mst. Rubi Khatun	F	Md. Shafiuddin Shah	Pakuria	Kushumba	01738378128
2	Minoti Rani	F	Ramjibon	Nobogram	Manda	01725993556
3	Mst. Bilkis Banu	F	Md. Azizul Islam	Goneshpur	Goneshpur	01754029154
4	Abeda Bewa	F	Late Basotullah	Chakrampur	Prosadpur	01774109139
5	Rashid	M	Mst. Mukta	Chakkopa	Prosadpur	01787203529

SL No	Name	Gender	Father/Spouse	Village	Union	Mobile No
6	Mst. Asma Khatun	F	Md. Abul Kashem	Pakuria	Kushumba	01758359559
7	Shyamoli	F	Sree Chanchal Kumer	Badolghata	Manda	01784945317
8	Mst. Manjuara	F	Md. Momtaz Mondal	Kanchan	Goneshpur	01780109226
9	Mst. Rima	F	Md. Jillur Rahman	Chakrampur	Prosadpur	01795658341
10	Mst. Kajil Rekha	F	Md. Harun Rashid	Chakkopa	Prosadpur	01704843742
11	Ruma Parvin	F	Md. Mokshed Ali	Durgapur	Mainam	01731398862
12	Mst. Masuma Khatun	F	Md. Manik Hossain	Pakuria	Kushumba	01772237926
13	Mst. Amina Bibi	F	Md. Habibur Rahman	Kanchan	Goneshpur	01795991319
14	Mst. Morzina	F	Md. Ashraful	Nulkori	Mainam	01713778180
15	Mst. Shefali Khatun	F	Abdur Razzak	Kosra	Manda	01725898836

Information related to poultry

1. How many percentages of people keep native chicken in your areas? About 90 %
2. How many percentages of people keep ducks in your areas? About 50-60 %
3. What is the degree of quality and availability of the following necessary inputs and services related to poultry farming?

3.1 Breed of native chicken: Good-100%
3.2 Breed of native duck: Good-100%
3.3 Breed of layer: Roughly-100%
3.4 Breed of broiler: Roughly-100%
3.5 Breed of color bird (Sonali): Roughly-100%
3.6 Availability of layer chicks: Less available-100%
3.7 Availability of broiler chicks: Available-100%
3.8 Availability of color bird chicks: Less available-100%
3.9 Availability of ducklings: Available-100%
3.10 Availability of incubation facilities: Not available-100%
3.11 Availability of poultry feed: Available-100%
3.12 Quality of poultry feed: Good-100%
3.13 Availability of vaccine: Not available-100%
3.14 Quality of vaccine: Don’t know
3.15 Availability of anthelmintic: Not available-100%
3.16 Quality of anthelmintic: Don’t know
3.17 Availability of poultry medicine: Less available-50%, Available-50%
3.18 Quality of poultry medicine: Roughly-100%
3.19 Availability of poultry treatment services: Not available-100%
3.20 Quality of poultry treatment services: No experience
3.21 Availability of de-beaker and vaccinator: Not available-100%
3.22 Quality of de-beaker and vaccinator: Not available-100%
3.23 Availability of loan service: Not available-100%

3.24 Availability of poultry mechanization equipment: Not available-70%

4. What types of problems are you facing related to poultry farming?

4.1 Supply of day-old chicks: Scarcity

4.2 Quality of day-old chicks: Roughly

4.3 Supply and quality of poultry feed: High cost of feeds

4.4 Vaccine, anthelmintic and poultry disease: Vaccine and anthelmintic are not available and disease prevalence is very high.

4.5 Poultry treatment and other services: Poultry treatment and other services are not available.

4.6 Marketing of chicken, duck and egg: No problem.

5. What types of problems are there regarding farm management, disposal of farm waste and dead birds?

- Management is difficult in rainy season
- Predators (fox, dog etc.) destroys chicks
- High load of diseases when chicken population is high

6. What types of problems are there regarding climate change and natural disaster?

- Disease prevalence

FGD # 3

Address where FGD was conducted: Upazila: Patnitola, District: Naogaon

Identity of the participants

SL No	Name	Gender	Father/Spouse	Village	Union	Mobile No
1	Mst. Rahaba Khatun	F	Md. Abdul Khalek	Horirampur	Nozipur	01771528212
2	Mst. Marufa	F	Md. Sultan	Jugibari	Patichara	01762000024
3	Mst. Anjuara	F	Md. Badiul Islam	Adorsogram	Patnitala	01857057540
4	Mst Asma	F	Md. Hafizul	Chakdugram	Patnitala	01749170133
5	Mst Jeba Parvin	F	Md. Jamal Hossain	Horirampur	Nozipur	01721665618
6	Jannat	F	Md. Rafiqul Islam	Bagmar	Gusnagar	01767288841
7	Sumitra Rani	F	Sree Sunil	Anontopur	Nozipur	01758356233
8	Purnima Rani	F	Monoranjan	Modoil	Akbarpur	01791447088
9	Mst Ruli Akter	F	Md. Harun Or Rashid	Kirsin	Gusnagar	01799571914
10	Mst. Salma Begum	F	Md. Abdul Mazid	Buni	Akbarpur	01700877324
11	Mst. Ismat Ara	F	Md. Rafiqul Islam	Vabicha	Nozipur	01755120365
12	Mst. Shahida	F	Md. Abdul Jalil	Jugibari	Patichara	01750004105
13	Bithi	F	Md. Nahid Hossain	Modoil	Akbarpur	01715591600
14	Mst. Sultana	F	Md. Monsur	Horirampur	Nozipur	01718687484
15	Mst. Fatema	F	Md. Shahadat	Chakdugram	Patnitala	01719364140

Information related to poultry

1. How many percentages of people keep native chicken in your areas? About 90-95 %
2. How many percentages of people keep ducks in your areas? About 20-30 %
3. What is the degree of quality and availability of the following necessary inputs and services related to poultry farming?

3.1 Breed of native chicken: Roughly-100%
3.2 Breed of native duck: Roughly-100%
3.3 Breed of layer: Roughly-100%
3.4 Breed of broiler: Roughly-100%
3.5 Breed of color bird (Sonali): Roughly-100%
3.6 Availability of layer chicks: Less available-100%
3.7 Availability of broiler chicks: Available-100%
3.8 Availability of color bird chicks: Less available-100%
3.9 Availability of ducklings: Available-100%
3.10 Availability of incubation facilities: Available-100%
3.11 Availability of poultry feed: Available-100%
3.12 Quality of poultry feed: Good-100%
3.13 Availability of vaccine: Not available-100%
3.14 Quality of vaccine: Don't know
3.15 Availability of anthelmintic: Not available-100%
3.16 Quality of anthelmintic: Don't know
3.17 Availability of poultry medicine: Available-100%
3.18 Quality of poultry medicine: Roughly-100%
3.19 Availability of poultry treatment services: Not available-100%
3.20 Quality of poultry treatment services: No experience
3.21 Availability of de-beaker and vaccinator: Not available-100%
3.22 Quality of de-beaker and vaccinator: No experience
3.23 Availability of loan service: Not available-100%
3.24 Availability of poultry mechanization equipment: Not available-70%

4. What types of problems are you facing related to poultry farming?

4.1 Supply of day-old chicks: Not available
4.2 Quality of day-old chicks: Couldn't answer
4.3 Supply and quality of poultry feed: Available and quality is good
4.4 Vaccine, anthelmintic and poultry disease: Vaccine and anthelmintic are not available and disease prevalence is very high.
4.5 Poultry treatment and other services: Poultry treatment and other services are not available.
4.6 Marketing of chicken, duck and egg: No problem.

5. What types of problems are there regarding farm management, disposal of farm waste and dead birds?

- Predators (fox, dog etc.) destroys chicks

6. What types of problems are there regarding climate change and natural disaster?

- Couldn't answer

FGD # 4

Address where FGD was conducted: Upazila: Bodolgachi, District: Naogaon

Identity of the participants

SL No	Name	Gender	Father/Spouse	Village	Union	Mobile No
1	Mst. Farida	F	Md. Delowar	Tazapara	Badalgachi	01722291142
2	Anita Rani	F	Babul Oraw	Uttar Miirzapur	Baluvara	01750466780
3	Anjona	F	Sree Parimal	Dakra	Baluvara	01305750605
4	Mst. Ruma	F	Md. Karim	Foyzabad	Mathurapur	01784067532
5	Dipali Rani	F	Rabindra Pahan	Hapunia	Badalgachi	01756280079
6	Shammi Akter	F	Md. Sahidul Islam	Sagorpur	Mithapur	01773822146
7	Mst. Rubi Begum	F	Mahbub Alom	Ronahar	Paharpur	01736720809
8	Santona Rani	F	Proshanto Barman	Dakra	Baluvara	01737805498
9	Pyro Rani	F	Shitu Pahan	Hapunia	Badalgachi	01729017053
10	Jhumki	F	Sutka Pahan	Zabaripur	Mathurapur	01755203681
11	Sharmin Begum	F	Md. Shohel	Ronahar	Paharpur	01762266273
12	Tara	F	Md. Siddik	Foyzabad	Mathurapur	01738416455
13	Mst. Mina Bibi	F	Md Jaidul Islam	Tazapara	Badalgachi	01755385914
14	Sonia Rani	F	Dhirendra Nath	Purbo Kosba	Mithapur	01729870075
15	Mst. Sufia Begum	F	Md. Amzad Hosen	Rajpur	Paharpur	01778100139

Information related to poultry

1. How many percentages of people keep native chicken in your areas? About 100 %
2. How many percentages of people keep ducks in your areas? About 80-90 %
3. What is the degree of quality and availability of the following necessary inputs and services related to poultry farming?

3.1 Breed of native chicken: Good-100%
3.2 Breed of native duck: Good-100%
3.3 Breed of layer: Roughly-100%
3.4 Breed of broiler: Roughly-100%
3.5 Breed of color bird (Sonali): Roughly-100%
3.6 Availability of layer chicks: Less available-100%
3.7 Availability of broiler chicks: Available-100%
3.8 Availability of color bird chicks: Available-100%
3.9 Availability of ducklings: Available-100%
3.10 Availability of incubation facilities: Available-100%
3.11 Availability of poultry feed: Available-100%
3.12 Quality of poultry feed: Good-100%
3.13 Availability of vaccine: Not available-100%

3.14 Quality of vaccine: Don't know
3.15 Availability of anthelmintic: Not available-100%
3.16 Quality of anthelmintic: Don't know
3.17 Availability of poultry medicine: Available-100%
3.18 Quality of poultry medicine: Roughly-100%
3.19 Availability of poultry treatment services: Not available-100%
3.20 Quality of poultry treatment services: No experience
3.21 Availability of de-beaker and vaccinator: Not available-100%
3.22 Quality of de-beaker and vaccinator: No experience
3.23 Availability of loan service: Not available-100%
3.24 Availability of poultry mechanization equipment: Not available-70%

4. What types of problems are you facing related to poultry farming?

4.1 Supply of day-old chicks: Not available
4.2 Quality of day-old chicks: Couldn't answer
4.3 Supply and quality of poultry feed: Available and quality is good
4.4 Vaccine, anthelmintic and poultry disease: Vaccine and anthelmintic are not available and High disease prevalence and mortality.
4.5 Poultry treatment and other services: Poultry treatment and other services are not available.
4.6 Marketing of chicken, duck and egg: No problem.

5. What types of problems are there regarding farm management, disposal of farm waste and dead birds? Predators (fox, dog etc.) destroys chicks

6. What types of problems are there regarding climate change and natural disaster? Couldn't answer

FGD # 5

Address where FGD was conducted: Upazila: Mohadevpur, District: Naogaon

Identity of the participants

SL No	Name	Gender	Father/Spouse	Village	Union	Mobile No
1	Mst. Rumi Akter	F	Md. Mamunur Rashid	Kaordakalna	Khajur	01799571703
2	Mst. Shahida	F	Md. Azizul Haque	Ramcoronpur	Chandas	01762497857
3	Provati Rani	F	Biswanath Chandra	Kolonipara	Mohadevpur	01770626584
4	Babita Tarani	F	Mithun Tarani	Shibganj	Uttargram	01794746276
5	Mst. Bulun	F	Ahad Ali	Monohorpur	Cheragpur	01760174087
6	Mst Farzana Akter	F	Md. Harun-Ur-Rashid	Khajur	Khajur	01754007424
7	Mst. Rahima	F	Md. Rubel	Joanpur	Mohadevpur	01754427052
8	Anzuara Khanam	F	Ahsan habib	Dimjaun	Chandas	01735752759
9	Mst. Hur-E-Jannat	F	Asadul	Dewanpur	Cheragpur	01316854260
10	Mst. Bilkis Bibi	F	Md. Delowar Hosain	Dariyapur	Uttargram	01744909180
11	Mst. Kohinur	F	Md. Azizul	Khosalpur	Mohadevpur	01799571667

SL No	Name	Gender	Father/Spouse	Village	Union	Mobile No
12	Mst Rabeya Basri	F	Md. Abul Kalam Azad	Lokkipur	Chandas	01764390486
13	Mst. Mina Parvin	F	Pintu Lal	Swaruppur	Cheragpur	01725853142
14	Sahana Khatun	F	Md. Khaja Mondal	Debipur	Khajur	01740300820
15	Aklima Khatun	F	Md. Moynur Hosen	Kolonipara	Mohadevpur	01736900361

Information related to poultry

1. How many percentages of people keep native chicken in your areas? About 100 %
2. How many percentages of people keep ducks in your areas? About 80 %
3. What is the degree of quality and availability of the following necessary inputs and services related to poultry farming?
    - 3.1 Breed of native chicken: Roughly-100%
    - 3.2 Breed of native duck: Roughly-100%
    - 3.3 Breed of layer: Roughly-100%
    - 3.4 Breed of broiler: Roughly-100%
    - 3.5 Breed of color bird (Sonali): Roughly-100%
    - 3.6 Availability of layer chicks: Less available-100%
    - 3.7 Availability of broiler chicks: Available-100%
    - 3.8 Availability of color bird chicks: Less available-100%
    - 3.9 Availability of ducklings: Available-100%
    - 3.10 Availability of incubation facilities: Not available-100%
    - 3.11 Availability of poultry feed: Available-100%
    - 3.12 Quality of poultry feed: Good-50%, Roughly-50%
    - 3.13 Availability of vaccine: Not available-100%
    - 3.14 Quality of vaccine: Don’t know
    - 3.15 Availability of anthelmintic: Not available-100%
    - 3.16 Quality of anthelmintic: Don’t know
    - 3.17 Availability of poultry medicine: Available-100%
    - 3.18 Quality of poultry medicine: Good-100%
    - 3.19 Availability of poultry treatment services: Less available-100%
    - 3.20 Quality of poultry treatment services: Good-100%
    - 3.21 Availability of de-beaker and vaccinator: Not available-100%
    - 3.22 Quality of de-beaker and vaccinator: No experience
    - 3.23 Availability of loan service: Not available-100%
    - 3.24 Availability of poultry mechanization equipment: Not available-70%
4. What types of problems are you facing related to poultry farming?
    - 4.1 Supply of day-old chicks: Not available
    - 4.2 Quality of day-old chicks: Roughly
    - 4.3 Supply and quality of poultry feed: Available and quality is good

4.4 Vaccine, anthelmintic and poultry disease: Vaccine and anthelmintic are not available and high disease prevalence and mortality.

4.5 Poultry treatment and other services: Poultry treatment and other services are not available.

4.6 Marketing of chicken, duck and egg: No problem.

5. What types of problems are there regarding farm management, disposal of farm waste and dead birds?

- Predators (fox, dog etc.) destroys chicks

6. What types of problems are there regarding climate change and natural disaster?

- Couldn’t answer

Annex III

KII (All Narrative)

Poultry Service Provider

KII # 1: ULO/VS/LEO

A. Identity of ULO/VS/LEO

Name: Dr. M.A. Awal, Official designation: Livestock Extension Officer (ULO)

Mobile Number: 01712-398100, Upazila: Sadar, Naogaon, District: Naogaon

B. Technical Information

1. What types of poultry services are provided from your office? Treatment, Vaccine, De-worming and Training
2. In a day, how much poultry farmers get services from your office? 15 nos
3. Which type of bird are taken more to your office for treatment? Broiler
4. Which type of farms are seen more? Broiler farm
5. Do you have registered poultry farmers' list under this Upazila? Yes
6. If you have, how much are those?
7. According to farmers' experience and your perception, which type of poultry farm is more profitable? None
8. Which disease is more prevalent in layer birds? New castle Disease (ND)
9. Which disease is more prevalent in broiler birds? New castle Disease (ND)
10. Which disease is more prevalent in sonali birds? IBD and New Castle Disease (ND)
11. Which disease is more prevalent in duck? Duck plague (DP) and Duck Cholera
12. Do farmers in these areas vaccinate and de-wormed their native chicken-duck? Yes, but irregular
13. Do farmers in these areas vaccinate and de-wormed their commercial poultry birds? Yes, regularly
14. In your office, which type of vaccines are supplied from your office? ND and IBD
15. Is quantity of vaccines supplied to the farmers sufficient? No
16. Whether training on poultry farming in accordance with national and international guidelines on good agricultural practices (GAP) is given from your office? No
17. Whether training on international standard rules and regulations of HACCP to conform production, processing, preservation and marketing of hygienic and safe poultry and poultry products? No
18. Please give your keen observation on the following aspects related to poultry industry:
    a. Availability of day-old chicks: Less available

b. Quality of day-old chicks: Roughly
c. Price of day-old chicks: Frequently ups and down
d. Availability of poultry feeds: Available
e. Quality of poultry feeds: Roughly
f. Price of poultry feeds: Frequently ups and down
g. Availability of poultry vaccine (private source): Less available
h. Quality of poultry vaccine (private source): Roughly
i. Availability of poultry medicine (private source): Available
j. Price of poultry medicine (private source): No complain on price
k. Marketing of live poultry and eggs: Syndicated market
l. Bio-security and management of poultry farm: Bad
m. Waste management of poultry farms: Bad
n. Environment and climate change: Unrest of birds, low productivity and increasing disease prevalence

19. What do you mean on the possible constraints to improve poultry industry?
- High price of feeds
- Insufficiency of registered veterinarians

20. What is your suggestions on how those constraints may be overcome and overall improvement of this sector?
- Need to reduce feed price
- Need to break market syndicate

KII # 2: ULO/VS/LEO

A. Identity of ULO/VS/LEO

Name: Dr. Md. Abdul Malek, Official designation: Upazila Livestock Officer (ULO)

Mobile Number: 01712-398100, Upazila: Mohadevpur, District: Naogaon

B. Technical Information

1. What types of poultry services are provided from your office? Treatment, Vaccine, De-worming and Training
2. In a day, how much poultry farmers get services from your office? 10 nos
3. Which type of bird are taken more to your office for treatment? Native chicken
4. Which type of farms are seen more? Broiler farm
5. Do you have registered poultry farmers' list under this Upazila? Yes
6. If you have, how much are those?
   Layer farm-23 nos
   Broiler farm-125 nos
   Sonali chicken-55 nos
   Duck farm-25 nos

Pigeon farm-15 nos

7. According to farmers' experience and your perception, which type of poultry farm is more profitable? Broiler and Duck farms

8. Which disease is more prevalent in layer birds? New castle Disease (ND)and IBD

9. Which disease is more prevalent in broiler birds? New castle Disease (ND) and IBD

10. Which disease is more prevalent in sonali birds? IBD and New Castle Disease (ND)

11. Which disease is more prevalent in duck? Duck plague (DP) and Duck Cholera, Duck Hepatitis

12. Do farmers in these areas vaccinate and de-wormed their native chicken-duck? Yes, but irregular

13. Do farmers in these areas vaccinate and de-wormed their commercial poultry birds? Yes, but irregular

14. In your office, which type of vaccines are supplied from your office? All types

15. Is quantity of vaccines supplied to the farmers sufficient? No

16. Whether training on poultry farming in accordance with national and international guidelines on good agricultural practices (GAP) is given from your office? No

17. Whether training on international standard rules and regulations of HACCP to conform production, processing, preservation and marketing of hygienic and safe poultry and poultry products? No

18. Please give your keen observation on the following aspects related to poultry industry:

a. Availability of day-old chicks: Available
b. Quality of day-old chicks: Roughly
c. Price of day-old chicks: Extremely high
d. Availability of poultry feeds: Available
e. Quality of poultry feeds: Roughly
f. Price of poultry feeds: Extremely high
g. Availability of poultry vaccine (private source): Available
h. Quality of poultry vaccine (private source): Good
i. Availability of poultry medicine (private source): Available
j. Price of poultry medicine (private source): Extremely high
k. Marketing of live poultry and eggs: Frequently ups and down, Syndicated market
l. Biosecurity and management of poultry farm: Lack of awareness
m. Waste management of poultry farms: Lack of awareness
n. Environment and climate change: Unrest of birds, low productivity and increasing disease prevalence

19. What do you mean on the possible constraints to improve poultry industry?

- Price of feed, chick and medicine is increasing day by day
- Syndicated market

20. What is your suggestions on how those constraints may be overcome and overall improvement of this sector?

- All farms should be registered by Govt. authority
- Need to abide appropriate system to establish farm and management

KII # 3: ULO/VS/LEO

A. Identity of ULO/VS/LEO

Name: Dr. Md. Moniruzzaman, Official designation: Upazila Livestock Officer (ULO)

Mobile Number: 01718-590258, Upazila: Patnitola, District: Naogaon

B. Technical Information

1. What types of poultry services are provided from your office? Treatment, Vaccine, De-worming and Training
2. In a day, how much poultry farmers get services from your office? nos
3. Which type of bird are taken more to your office for treatment? All types
4. Which type of farms are seen more? Broiler farm
5. Do you have registered poultry farmers' list under this Upazila? Yes
6. If you have, how much are those? 25 nos
7. According to farmers' experience and your perception, which type of poultry farm is more profitable? All except layer
8. Which disease is more prevalent in layer birds? New castle Disease (ND)and IBD
9. Which disease is more prevalent in broiler birds? New castle Disease (ND)
10. Which disease is more prevalent in sonali birds? None
11. Which disease is more prevalent in duck? Duck plague (DP) and Duck Cholera
12. Do farmers in these areas vaccinate and de-wormed their native chicken-duck? Yes, but irregular
13. Do farmers in these areas vaccinate and de-wormed their commercial poultry birds? Yes, regularly
14. In your office, which type of vaccines are supplied from your office? All types
15. Is quantity of vaccines supplied to the farmers sufficient? Yes
16. Whether training on poultry farming in accordance with national and international guidelines on good agricultural practices (GAP) is given from your office? No
17. Whether training on international standard rules and regulations of HACCP to conform production, processing, preservation and marketing of hygienic and safe poultry and poultry products? No
18. Please give your keen observation on the following aspects related to poultry industry:
    a. Availability of day-old chicks: Available
    b. Quality of day-old chicks: Roughly
    c. Price of day-old chicks: Extremely high
    d. Availability of poultry feeds: Available

e. Quality of poultry feeds: Roughly
f. Price of poultry feeds: Extremely high
g. Availability of poultry vaccine (private source): Available
h. Quality of poultry vaccine (private source): Good
i. Availability of poultry medicine (private source): Available
j. Price of poultry medicine (private source): Extremely high
k. Marketing of live poultry and eggs: Frequently ups and down, Syndicated market
l. Biosecurity and management of poultry farm: Lack of awareness
m. Waste management of poultry farms: Lack of awareness
n. Environment and climate change: Unrest of birds, low productivity and increasing disease prevalence

19. What do you mean on the possible constraints to improve poultry industry?
- Price of feed, chick and medicine is increasing day by day
- Syndicated market

20. What is your suggestions on how those constraints may be overcome and overall improvement of this sector?
- All farms should be registered by Govt. authority
- Need to abide appropriate system to establish farm and management

KII # 4: ULO/VS/LEO

A. Identity of ULO/VS/LEO

Name: Dr. Md. Nuruzzaman, Official designation: Upazila Livestock Officer (ULO)

Mobile Number: 01743-669945, Upazila: Manda, District: Naogaon

B. Technical Information

1. What types of poultry services are provided from your office? Treatment, Vaccine, De-worming and Training
2. In a day, how much poultry farmers get services from your office? 5/7 nos
3. Which type of bird are taken more to your office for treatment? All types except layer
4. Which type of farms are seen more? Broiler farm
5. Do you have registered poultry farmers' list under this Upazila? Yes
6. If you have, how much are those? Layer-22 nos, Broiler-91 nos, Sonali-01, Duck-05 nos
7. According to farmers' experience and your perception, which type of poultry farm is more profitable? All except layer
8. Which disease is more prevalent in layer birds? Salmonellosis, CRD
9. Which disease is more prevalent in broiler birds? New castle Disease (ND), Necrotic enteritis
10. Which disease is more prevalent in sonali birds? ND, IBD, Necrotic enteritis
11. Which disease is more prevalent in duck? Salmonellosis, E. Coli

12. Do farmers in these areas vaccinate and de-wormed their native chicken-duck? Yes, but irregular
13. Do farmers in these areas vaccinate and de-wormed their commercial poultry birds? Yes, regularly
14. In your office, which type of vaccines are supplied from your office? All types
15. Is quantity of vaccines supplied to the farmers sufficient? No
16. Whether training on poultry farming in accordance with national and international guidelines on good agricultural practices (GAP) is given from your office? No
17. Whether training on international standard rules and regulations of HACCP to conform production, processing, preservation and marketing of hygienic and safe poultry and poultry products? No
18. Please give your keen observation on the following aspects related to poultry industry:
    a. Availability of day-old chicks: Available
    b. Quality of day-old chicks: Good
    c. Price of day-old chicks: Frequent price fluctuation
    d. Availability of poultry feeds: Available
    e. Quality of poultry feeds: Good
    f. Price of poultry feeds: Extremely high
    g. Availability of poultry vaccine (private source): Available
    h. Quality of poultry vaccine (private source): Good
    i. Availability of poultry medicine (private source): Available
    j. Price of poultry medicine (private source): Extremely high
    k. Marketing of live poultry and eggs: Frequently ups and down
    l. Bio-security and management of poultry farm: Moderate
    m. Waste management of poultry farms: Moderate
    n. Environment and climate change: Unrest of birdsand increasing disease prevalence
19. What do you mean on the possible constraints to improve poultry industry?
    - High price of feed
    - Syndicated market
20. What is your suggestions on how those constraints may be overcome and overall improvement of this sector?
    - Feed price should be controlled
    - Smooth marketing environment for producer

KII # 1: Local Service Provider (LSP)/Quack

Name: Nitai Debnath, Father/Husband: Niren Debnath, Mobile: 01791-439066

Village: Monohorpur, Union: Cheragpur, Upazila: Mohadevpur, District: Naogaon

Age of service Provider: 26 yrs, Education: HSC, Main Occupation: Treatment, Other Occupation: Agriculture

B. Information related to technical service

1. What types of poultry services do you provide? Treatment and vaccination
2. How long are you in this profession? 4 yrs
3. Do you have formal education in this occupation? Yes
4. If it is not, then how have you learnt? N/A
5. If you have formal education, then please provide the following information:

Name of institution	Name of degree/course	Course tenure
Youth Training Centre (YTC)	Diploma	3 months

6. Have you participated any training on your profession? No
7. If you have, then please provide the following information: N/A

	1st	2nd	3rd	4th	5th
From where					
Duration					
Topics					

8. How much effective the training for your profession? Moderately effective
9. How much service charge do you claim on the following services?
    a. Treatment of chicken-duck (excluding medicine): per treatment service BDT. 100.0 to 200.0
    b. Vaccination of chicken-duck (excluding price of vaccine): Per head BDT. 2.00
    c. De-beaking: Per head BDT.
10. How much services do you provide per month:
    a. Treatment of chicken-duck: 100 nos
    b. Vaccination of chicken-duck: 500 nos
    c. De-beaking: None
11. Do you get any complaint from your clients regarding your services? Never
12. If you get complaints then what are those? N/A
13. What types of problems farmers are facing with the following issues?
    a. Availability of day-old chicks: Available
    b. Quality of day-old chicks: Good
    c. Price of day-old chicks: Very high
    d. Availability of poultry feeds: Available
    e. Quality of poultry feeds: Roughly
    f. Price of poultry feeds: Very high
    g. Availability of poultry vaccine: Available
    h. Quality of poultry vaccine: Roughly
    i. Marketing of live poultry and eggs: Syndicated market

j. Biosecurity and management of poultry farm: Bad due to ignorance and financial inability of farmers.

k. Waste management of poultry farms: -do-

l. Environment and climate change: Unrest of birds, low productivity and increasing disease prevalence

m. Others, if there have any: None

14. Do you have any idea or training on international good agricultural practices (gGAP) and standard rules and regulations of HACCP to conform hygienic and safe food from poultry and poultry products? No

15. If it is yes, from where you have known? N/A

16. What do you mean on the possible constraints to improve poultry industry?

- Price hiking
- Market syndicate (fraudulence)

17. What is your suggestions on how those constraints may be overcome?

- Very necessary to monitor market, especially price of feed and chicks

C. Income of the service provider

18. What is the main income source to lead your family? Current profession

19. What is your average monthly income (excluding medicine, vaccine, anthelmintic, conveyance etc.)? BDT. 20,000.00

KII # 2: Local Service Provider (LSP)/Quack

Name: Md. Golam Kibria, Father/Husband: Md. Ashraful Islam, Mobile: 01773-759855

Village: Rohimapur, Union: Akbarpur, Upazila: Patnitala, District: Naogaon

Age of service Provider: 29 yrs, Education: Hons, Main Occupation: Treatment, Other Occupation: None

B. Information related to technical service

1. What types of poultry services do you provide? Treatment and vaccination
2. How long are you in this profession? 4 yrs
3. Do you have formal education in this occupation? Yes
4. If it is not, then how have you learnt? N/A
5. If you have formal education, then please provide the following information:

Name of institution	Name of degree/course	Course tenure
Youth Training Centre (YTC)	Diploma	3 months

6. Have you participated any training on your profession? No
7. If you have, then please provide the following information: N/A

	1st	2nd	3rd	4th	5th
From where					
Duration					
Topics					

8. How much effective the training for your profession? Moderately effective
9. How much service charge do you claim on the following services?
    a. Treatment of chicken-duck (excluding medicine): per treatment service BDT. 100.0 to 200.0
    b. Vaccination of chicken-duck (excluding price of vaccine): Per head BDT. 2.00
    c. De-beaking: Per head BDT.
10. How much services do you provide per month:
    a. Treatment of chicken-duck: 100 nos
    b. Vaccination of chicken-duck: 500 nos
    c. De-beaking: None
11. Do you get any complaint from your clients regarding your services? Never
12. If you get complaints then what are those? N/A
13. What types of problems farmers are facing with the following issues?
    a. Availability of day-old chicks: Available
    b. Quality of day-old chicks: Good
    c. Price of day-old chicks: Very high
    d. Availability of poultry feeds: Available
    e. Quality of poultry feeds: Roughly
    f. Price of poultry feeds: Very high
    g. Availability of poultry vaccine: Available
    h. Quality of poultry vaccine: Roughly
    i. Marketing of live poultry and eggs: Syndicated market
    j. Biosecurity and management of poultry farm: Bad due to ignorance and financial inability of farmers.
    k. Waste management of poultry farms: -do-
    l. Environment and climate change: Unrest of birds, low productivity and increasing disease prevalence
    m. Others, if there have any: None
14. Do you have any idea or training on international good agricultural practices (gGAP) and standard rules and regulations of HACCP to conform hygienic and safe food from poultry and poultry products? No
15. If it is yes, from where you have known? N/A
16. What do you mean on the possible constraints to improve poultry industry?
    - Price hiking
    - Market syndicate (fraudulence)
17. What is your suggestions on how those constraints may be overcome?

- Very necessary to monitor market, especially price of feed and chicks

C. Income of the service provider

18. What is the main income source to lead your family? Current profession
19. What is your average monthly income (excluding medicine, vaccine, anthelmintic, conveyance etc.)? BDT. 20,000.00

KII # 3: Local Service Provider (LSP)/Quack

Name: Md. Anowar Hossain, Father/Husband: Md. Ashraf Ali, Mobile: 01718-580071

Village: Mallikpur, Union: Borshail, Upazila: Sadar, Naogaon, District: Naogaon

Age of service Provider: 32 yrs, Education: HSC, Main Occupation: Treatment, Other Occupation: Fisheries

B. Information related to technical service

1. What types of poultry services do you provide? Treatment and vaccination
2. How long are you in this profession? 24 yrs
3. Do you have formal education in this occupation? No
4. If it is not, then how have you learnt? Associated with other
5. If you have formal education, then please provide the following information: N/A

Name of institution	Name of degree/course	Course tenure

6. Have you participated any training on your profession? No
7. If you have, then please provide the following information: N/A

	1st	2nd	3rd	4th	5th
From where					
Duration					
Topics					

8. How much effective the training for your profession? Moderately effective
9. How much service charge do you claim on the following services?
    a. Treatment of chicken-duck (excluding medicine): per treatment service BDT. 150.00
    b. Vaccination of chicken-duck (excluding price of vaccine): Per head BDT. 2.00
    c. De-beaking: Per head BDT.
10. How much services do you provide per month:
    a. Treatment of chicken-duck: 30 nos
    b. Vaccination of chicken-duck: 200 nos
    c. De-beaking: None

11. Do you get any complaint from your clients regarding your services? Never
12. If you get complaints then what are those? N/A
13. What types of problems farmers are facing with the following issues?
    a. Availability of day-old chicks: Less available
    b. Quality of day-old chicks: Roughly
    c. Price of day-old chicks: Frequently ups and down
    d. Availability of poultry feeds: Available
    e. Quality of poultry feeds: Roughly
    f. Price of poultry feeds: Very high
    g. Availability of poultry vaccine: Less available
    h. Quality of poultry vaccine: Roughly
    i. Marketing of live poultry and eggs: Syndicated market
    j. Biosecurity and management of poultry farm: Bad due to ignorance and financial inability of farmers.
    k. Waste management of poultry farms: -do-
    l. Environment and climate change: Low productivity
    m. Others, if there have any: None
14. Do you have any idea or training on international good agricultural practices (gGAP) and standard rules and regulations of HACCP to conform hygienic and safe food from poultry and poultry products? No
15. If it is yes, from where you have known? N/A
16. What do you mean on the possible constraints to improve poultry industry?
    - Price hiking and frequent fluctuation
17. What is your suggestions on how those constraints may be overcome?
    - Very necessary to monitor market, supply of feeds should be increased and price of feed should be reduced

C. Income of the service provider

18. What is the main income source to lead your family? Current profession
19. What is your average monthly income (excluding medicine, vaccine, anthelmintic, conveyance etc.)? BDT. 20,000.00

KII # 4: Local Service Provider (LSP)/Quack

Name: Md. Zahid Hassan, Father/Husband: Late AshrafulIslam, Mobile: 01715-233463

Village: Hazigobindapur, Union: Kusumba, Upazila: Manda, District: Naogaon

Age of service Provider: 26 yrs, Education: BBS, Main Occupation: Treatment, Other Occupation: Agriculture

B. Information related to technical service

1. What types of poultry services do you provide? Treatment and vaccination
2. How long are you in this profession? 3 yrs
3. Do you have formal education in this occupation? Yes
4. If it is not, then how have you learnt? N/A
5. If you have formal education, then please provide the following information: N/A

Name of institution	Name of degree/course	Course tenure
YTV	Diploma	3 months
DLS		

6. Have you participated any training on your profession? No
7. If you have, then please provide the following information: N/A

	1st	2nd	3rd	4th	5th
From where					
Duration					
Topics					

8. How much effective the training for your profession?
9. How much service charge do you claim on the following services?
    a. Treatment of chicken-duck (excluding medicine): per treatment service BDT. 50.00
    b. Vaccination of chicken-duck (excluding price of vaccine): Per head BDT. 2.00
    c. De-beaking: Per head BDT. Not done
10. How much services do you provide per month:
    a. Treatment of chicken-duck: 60 nos
    b. Vaccination of chicken-duck: 200 nos
    c. De-beaking: None
11. Do you get any complaint from your clients regarding your services? Never
12. If you get complaints then what are those? N/A
13. What types of problems farmers are facing with the following issues?
    a. Availability of day-old chicks: Available
    b. Quality of day-old chicks: Roughly
    c. Price of day-old chicks: Frequently ups and down
    d. Availability of poultry feeds: Available
    e. Quality of poultry feeds:
    f. Price of poultry feeds: Very high
    g. Availability of poultry vaccine: Less available
    h. Quality of poultry vaccine: Roughly
    i. Marketing of live poultry and eggs: Syndicated market
    j. Bio security and management of poultry farm: Bad due to ignorance
    k. Waste management of poultry farms: -do-
    l. Environment and climate change: Increasing of disease prevalence
    m. Others, if there have any: None

14. Do you have any idea or training on international good agricultural practices (gGAP) and standard rules and regulations of HACCP to conform hygienic and safe food from poultry and poultry products? No
15. If it is yes, from where you have known? N/A
16. What do you mean on the possible constraints to improve poultry industry?
    - Lack of proper management and taking care of
    - Price hiking and
    - Market syndicate
17. What is your suggestions on how those constraints may be overcome?
    - Control market management
    - To ensure fair price of poultry feeds

C. Income of the service provider

18. What is the main income source to lead your family? Current profession
19. What is your average monthly income (excluding medicine, vaccine, anthelmintic, conveyance etc.)? BDT. 20,000.00

KII # 5: Local Service Provider (LSP)/Quack

Name: Md. Rifat Hossain, Father/Husband: Md. Moslem Uddin, Mobile: 01727-162514

Village: Mothurapur, Union: Mothurapur, Upazila: Bodolgachi, District: Naogaon

Age of service Provider: 21 yrs, Education: HSC, Main Occupation: Treatment, Other Occupation: Farmer

B. Information related to technical service

1. What types of poultry services do you provide? Treatment
2. How long are you in this profession? 2 yrs
3. Do you have formal education in this occupation? Yes
4. If it is not, then how have you learnt? N/A
5. If you have formal education, then please provide the following information: N/A

Name of institution	Name of degree/course	Course tenure
YTV	Diploma	6 months
DLS		

6. Have you participated any training on your profession? No
7. If you have, then please provide the following information: N/A

	1st	2nd	3rd	4th	5th
From where					
Duration					

Topics

8. How much effective the training for your profession?
9. How much service charge do you claim on the following services?
    a. Treatment of chicken-duck (excluding medicine): per treatment service BDT. 20-30.0
    b. Vaccination of chicken-duck (excluding price of vaccine): Per head BDT. 2.00
    c. De-beaking: Per head BDT. Not done
10. How much services do you provide per month:
    a. Treatment of chicken-duck: 60-70 nos
    b. Vaccination of chicken-duck: 200-300 nos
    c. De-beaking: None
11. Do you get any complaint from your clients regarding your services? Never
12. If you get complaints then what are those? N/A
13. What types of problems farmers are facing with the following issues?
    a. Availability of day-old chicks: Less available
    b. Quality of day-old chicks: Roughly
    c. Price of day-old chicks: Frequently ups and down
    d. Availability of poultry feeds: Available
    e. Quality of poultry feeds: Roughly
    f. Price of poultry feeds: Very high
    g. Availability of poultry vaccine: Less available
    h. Quality of poultry vaccine: Good
    i. Marketing of live poultry and eggs: Syndicated market
    j. Bio security and management of poultry farm: Bad due to financial insolvency
    k. Waste management of poultry farms: Bad
    l. Environment and climate change: Low productivity and increasing of disease prevalence
    m. Others, if there have any: None
14. Do you have any idea or training on international good agricultural practices (gGAP) and standard rules and regulations of HACCP to conform hygienic and safe food from poultry and poultry products? No
15. If it is yes, from where you have known? N/A
16. What do you mean on the possible constraints to improve poultry industry?
    - Price hiking and
    - Market syndicate
17. What is your suggestions on how those constraints may be overcome?
    - To ensure loan without interest
    - To ensure fair price of poultry feeds

C. Income of the service provider

18. What is the main income source to lead your family? Current profession

19. What is your average monthly income (excluding medicine, vaccine, anthelmintic, conveyance etc.)? BDT. 15-20,000.00

KII # 1: Poultry Transporter

A. Identity of chicken/duck seller

Name: Md. Shamim, Father: Md. Saiful
Village: Dosh Paika, Union: Hapania, Upazila: Sadar, Naogaon, District: Naogaon
Age: 26 yrs, Education: V, Main occupation: Poultry Transport, Other income source: Chicken selling

B. Information related to occupation

1. How long are you in this occupation? 5 yrs
2. Which types of poultry birds do you transport? Broiler, Layer and Sonali
3. What type of vehicle do you use for this? Rickshaw-Van
4. Maximum how much chicken can you carry with this? 100
5. How many days in a week do you transport birds? Every day
6. In an average how much birds do you transport in a day? 250 birds
7. From where do you collect birds? From farm
8. From farm where do you take those birds? Retailer poultry shops
9. Whether birds die during transportation? Yes
10. If birds died during transportation, then what are the causes? Heat stress and long drive
11. How many birds are died in a day? 1 to 2 birds
12. In what payment system do you transport bird? Per trip basis
13. In that system what payment is paid to you? BDT. 400 per trip
14. In your poultry transportation how many wage based employees do you have? None
15. What problems are you facing in your profession? Lack of big vehicle

C. Income of the poultry transporter

16. What is the main income source to lead your family? Bird transport
17. In this occupation what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 15000.0
18. What is your net monthly income? BDT. 15000.0

KII # 2: Poultry Transporter

A. Identity of chicken/duck seller

Name: Md. Rubel Hossain, Father: Md. Fazel Hossain
Village: Rupnagarpur, Union: Horitokidanga, Upazila: Patnitala, District: Naogaon
Age: 30 yrs, Education: VII, Main occupation: Poultry Transport, Other income source: None

B. Information related to occupation

1. How long are you in this occupation? 16 yrs
2. Which types of poultry birds do you transport? Broiler, Native chicken and Layer
3. What type of vehicle do you use for this? Pick-up-Van
4. Maximum how much chicken can you carry with this? Broiler-700, Sonali-1000, Layer-800
5. How many days in a week do you transport birds? Every day
6. In an average how much birds do you transport in a day? 800 birds
7. From where do you collect birds? From whole-seller
8. From whole-seller where do you take those birds? Retailer poultry shops
9. Whether birds die during transportation? Yes
10. If birds died during transportation, then what are the causes? High density and long drive
11. How many birds are died in a day? 1 to 2 birds
12. In what payment system do you transport bird? Per trip basis
13. In that system what payment is paid to you? BDT. 1500 per trip
14. In your poultry transportation how many wage based employees do you have? None
15. What problems are you facing in your profession? Road jam and broken road

C. Income of the poultry transporter

16. What is the main income source to lead your family? Bird transport
17. In this occupation what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT.
18. What is your net monthly income? BDT. 30000.0

KII # 3: Poultry Transporter

A. Identity of chicken/duck seller

Name: Md. Tohid, Father: Md. Saiful
Village: Sorta, Union: Mohadevpur, Upazila: Mohadevpur, District: Naogaon
Age: 30 yrs, Education: HSC, Main occupation: Poultry Transport, Other income source: None

B. Information related to occupation

1. How long are you in this occupation? 3 yrs
2. Which types of poultry birds do you transport? All types of birds
3. What type of vehicle do you use for this? Pick-up-Van
4. Maximum how much chicken can you carry with this? 840
5. How many days in a week do you transport birds? Every day
6. In an average how much birds do you transport in a day? 840 birds
7. From where do you collect birds? From farm and whole-seller
8. From farm/whole-seller where do you take those birds? Store of bepari and retailer poultry shops
9. Whether birds die during transportation? Yes

10. If birds died during transportation, then what are the causes? Heat stress and much gathering
11. How many birds are died in a day? 1 to 2 birds
12. In what payment system do you transport bird? Monthly salary
13. In that system what payment is paid to you? BDT. 15000.0 per month
14. In your poultry transportation how many wage based employees do you have? None
15. What problems are you facing in your profession? Heat and bad road

C. Income of the poultry transporter

16. What is the main income source to lead your family? Bird transport
17. In this occupation what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT.
18. What is your net monthly income? BDT. 15000.0

KII # 4: Poultry Transporter

A. Identity of chicken/duck seller

Name: Sree Sonjay Kumer, Father: Sree Horen Das
Village: Hajigobindapur, Union: Kusumba, Upazila: Manda, District: Naogaon
Age: yrs, Education: , Main occupation: Poultry Transport, Other income source: None

B. Information related to occupation

1. How long are you in this occupation? 5 yrs
2. Which types of poultry birds do you transport? Native chicken and duck
3. What type of vehicle do you use for this? Rickshaw-Van
4. Maximum how much chicken can you carry with this? 200
5. How many days in a week do you transport birds? Every day
6. In an average how much birds do you transport in a day? 100 birds
7. From where do you collect birds? From farm and whole-seller
8. From farm/whole-seller where do you take those birds? Store of bepari
9. Whether birds die during transportation? Yes
10. If birds died during transportation, then what are the causes? Heat stress, much gathering and long journey
11. How many birds are died in a day? 2 to 3 birds
12. In what payment system do you transport bird? Daily wage
13. In that system what payment is paid to you? BDT. 400.0 per day
14. In your poultry transportation how many wage based employees do you have? None
15. What problems are you facing in your profession? Able to carry small number of birds due to small vehicle size and birds die due to very low space.

C. Income of the poultry transporter

16. What is the main income source to lead your family? Livestock

17. In this occupation what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 2000.0
18. What is your net monthly income? BDT. 10000.0

KII # 1: Egg Transporter

A. Identity of chicken/duck seller

Name: Md. Shamim, Father: Md. Saiful
Village: Dosh-Paika, Union: Hapania, Upazila: Sadar, Naogaon District: Naogaon
Age: 26 yrs, Education: V, Main occupation: Poultry Transport, Other income source: Egg Transport

B. Information related to occupation

1. How long are you in this occupation? 1 year
2. Which types of poultry eggs do you transport? Commercial layer egg
3. What type of vehicle do you use for this? Rickshaw-Van
4. Maximum how much eggs can you carry with this? 500
5. How many days in a week do you transport eggs? Every day
6. In an average how much eggs do you transport in a day? 1000 eggs
7. From where do you collect eggs? From whole-seller (Egg Arot)
8. From whole-seller where do you take those eggs? Retailer shop
9. Whether eggs are damaged during transportation? Yes
10. If eggs damaged during transportation, then what type? Fully damaged and crack
11. Which type of damage is much occurred? Crack
12. In every day how many eggs are damaged? 5-10 eggs
13. What is the cause for which eggs are damaged? Fault of egg cage
14. In what payment system do you transport egg? Per trip basis
15. In that system what payment is paid to you? BDT. 200.0 per trip
16. In your egg transportation how many wage based employees do you have? None
17. What problems are you facing in your profession? None

C. Income of the egg transporter

16. What is the main income source to lead your family? Bird transport
17. In this occupation what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 10000.0
18. What is your net monthly income? BDT. 15000.0

KII # 2: Egg Transporter

A. Identity of chicken/duck seller

Name: Md. Belal Hossain, Father:

Village: Gahon, Union: Patichara, Upazila: Patnitola, District: Naogaon
Age: 30 yrs, Education: V, Main occupation: Driver, Other income source: Egg Transport

B. Information related to occupation

1. How long are you in this occupation? 2 years
2. Which types of poultry eggs do you transport? All types
3. What type of vehicle do you use for this? Pick-up-Van
4. Maximum how much eggs can you carry with this? 15000
5. How many days in a week do you transport eggs? Every day
6. In an average how much eggs do you transport in a day? 15000 eggs
7. From where do you collect eggs? From whole-seller (Egg Arot)
8. From whole-seller where do you take those eggs? Retailer shop
9. Whether eggs are damaged during transportation? Yes
10. If eggs damaged during transportation, then what type? Fully damaged and crack
11. Which type of damage is much occurred? Crack
12. In every day how many eggs are damaged?
13. What is the cause for which eggs are damaged? Fault of egg cage and uneven road
14. In what payment system do you transport egg? Per month basis
16. In your egg transportation how many wage based employees do you have? None
17. What problems are you facing in your profession? None

C. Income of the egg transporter

16. What is the main income source to lead your family? Bird transport

17. In this occupation what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 18. What is your net monthly income? BDT. 13000.0

KII # 3: Egg Transporter

A. Identity of chicken/duck seller

Name: Md. Nayeb Ali, Father: Late Monai Mondal
Village: Rajnagar, Union: 11 No. Kalikapur, Upazila: Manda, District: Naogaon
Age: 35 yrs, Education: V, Main occupation: Egg Transport, Other income source: None

B. Information related to occupation

1. How long are you in this occupation? 19 years
2. Which types of poultry eggs do you transport? All types
3. What type of vehicle do you use for this? Rickshaw-Van
4. Maximum how much eggs can you carry with this? 4000
5. How many days in a week do you transport eggs? Every day
6. In an average how much eggs do you transport in a day? 3000 eggs

7. From where do you collect eggs? From whole-seller (Egg Arot)
8. From whole-seller where do you take those eggs? Retailer shop
9. Whether eggs are damaged during transportation? Yes
10. If eggs damaged during transportation, then what type? Crack
11. Which type of damage is much occurred? Crack
12. In every day how many eggs are damaged? 20 to 30 eggs
13. What is the cause for which eggs are damaged? Thin shell and uneven road
14. In what payment system do you transport egg? Daily basis, BDT. 700.0 /day
16. In your egg transportation how many wage based employees do you have? 02 nos
17. What problems are you facing in your profession? Uneven road and faulty transportation

C. Income of the egg transporter

16. What is the main income source to lead your family? Egg transportation
17. In this occupation what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 15000.0
18. What is your net monthly income? BDT. 30000.0

KII # 1: Chicken Dresser

A. Identity of Dealer

Name: Md. Dilbar Hossain, Father: Late Jamir Uddin
Village: Abadpur, Union: Hapania, Upazila: Sadar, Naogaon, District: Naogaon
Age: 34 yrs, Education: Can sign, Main occupation: Chicken selling, Other income source:

B. Information related to business

1. How long are you in this business? 7 yrs
2. Do you have any employee in your business? If yes, how many? No
3. What activities do you perform in your business? Chicken selling and dressing
4. Do you use slaughtering and dressing equipment? Yes
5. If it is not, then why?
6. If you use then what are those? Gas burner, Blood circulation chamber, Dressing table
7. In what process do you slaughter chicken? Hand slaughtering in Halal process
8. How do you process/dress chicken? Both scalding followed by de-feathering and skin removing by hand
9. How much chicken do you dress in a day? 25 nos
10. How much money is paid to you per unit of chicken for dressing?
11. Who pay that money to you?
12. Do you have any idea or training on national and international standard rules and regulations of HACCP to conform hygienic and safe food from poultry and poultry products? No
13. Do any authorized entity monitor the location of your dressing house and its peripheral atmosphere? No

14. If monitor, which authority?
15. What they monitor?
16. After dressing how do you dispose the wastage? Left in the nearer pit/water bodies
17. How do you clean your dressing house? Washing by sole water
18. How often do you clean your dressing house in a day? Once
19. Do you ever get any complaint regarding dressing quality from your clients? Seldom
20. If you get, what are those? It requires much time for hand dressing

C. Income of the chicken dresser

21. What is the main income source to lead your family? Chicken selling
22. In this business what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 3700.0
28. What is your net monthly income? BDT.

KII # 2: Chicken Dresser

A. Identity of Dealer

Name: Md. Nuruzzaman, Father: Md. Motaleb
Village: Charnirkhin, Union: Nazipur pourashava, Upazila: Patnitola, District: Naogaon
Age: 32 yrs, Education: SSC, Main occupation: Chicken selling, Other income source: bKash

B. Information related to occupation

1. How long are you in this business? 8 yrs
2. Do you have any employee in your business? If yes, how many? Yes, 3 nos
3. What activities do you perform in your business? Chicken selling and dressing
4. Do you use slaughtering and dressing equipment? Yes
5. If it is not, then why?
6. If you use then what are those? Gas burner, Blood circulation chamber, Dressing machine
7. In what process do you slaughter chicken? Hand slaughtering in Halal process
8. How do you process/dress chicken? Dressing machine
9. How much chicken do you dress in a day? nos
10. How much money is paid to you per unit of chicken for dressing?
11. Who pay that money to you?
12. Do you have any idea or training on national and international standard rules and regulations of HACCP to conform hygienic and safe food from poultry and poultry products? No
13. Do any authorized entity monitor the location of your dressing house and its peripheral atmosphere? No
14. If monitor, which authority?
15. What they monitor?
16. After dressing how do you dispose the wastage? Chicken viscera/digesta is left in the pond for fish and other wastes are left in the roadside

17. How do you clean your dressing house? Washing by water with detergent
18. How often do you clean your dressing house in a day? Twice
19. Do you ever get any complaint regarding dressing quality from your clients? Never
20. If you get, what are those? N/A

C. Income of the chicken dresser

21. What is the main income source to lead your family? Chicken selling
22. In this business what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 15000.0
28. What is your net monthly income? BDT.

KII # 3: Chicken Dresser

A. Identity of Dealer

Name: Md. Ataur Rahman, Father: Late Md. Solaiman
Village: Bofapur, Union: Mohadevpur, Upazila: Mohadevpur, District: Naogaon
Age: 35 yrs, Education: HSC, Main occupation: Chicken selling, Other income source: Crockeries

B. Information related to occupation

1. How long are you in this business? 24 yrs
2. Do you have any employee in your business? If yes, how many? Yes, 3 nos
3. What activities do you perform in your business? Chicken selling and dressing
4. Do you use slaughtering and dressing equipment? Yes
5. If it is not, then why?
6. If you use then what are those? Dressing machine
7. In what process do you slaughter chicken? Hand slaughtering in Halal process
8. How do you process/dress chicken? Both scalding followed by de-feathering and skin removing by hand
9. How much chicken do you dress in a day? 350 nos
10. How much money is paid to you per unit of chicken for dressing?
11. Who pay that money to you?
12. Do you have any idea or training on national and international standard rules and regulations of HACCP to conform hygienic and safe food from poultry and poultry products? No
13. Do any authorized entity monitor the location of your dressing house and its peripheral atmosphere? No
14. If monitor, which authority?
15. What they monitor?
16. After dressing how do you dispose the wastage? Left in the nearer pit/water bodies
17. How do you clean your dressing house? Washing by water with detergent

18. How often do you clean your dressing house in a day? Twice
19. Do you ever get any complaint regarding dressing quality from your clients?
20. If you get, what are those?

C. Income of the chicken dresser

21. What is the main income source to lead your family? Chicken selling
22. In this business what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT.
28. What is your net monthly income? BDT.

KII # 4: Chicken Dresser

A. Identity of Dealer

Name: Md. Mehedi Hasan, Father: Md, Shamsul Haque
Village: Zidhirpur, Union: Bodolgachi, Upazila: Bodolgachi, District: Naogaon
Age: 35 yrs, Education: SSC, Main occupation: Chicken selling, Other income source: None

B. Information related to occupation

1. How long are you in this business? 21 yrs
2. Do you have any employee in your business? If yes, how many? Yes, 3 nos
3. What activities do you perform in your business? Chicken selling and dressing
4. Do you use slaughtering and dressing equipment? Yes
5. If it is not, then why? N/A
6. If you use then what are those? Dressing machine
7. In what process do you slaughter chicken? Hand slaughtering in Halal process
8. How do you process/dress chicken? As per demand of the client
9. How much chicken do you dress in a day? 100 nos
10. How much money is paid to you per unit of chicken for dressing? Free of cost
11. Who pay that money to you? N/A
12. Do you have any idea or training on national and international standard rules and regulations of HACCP to conform hygienic and safe food from poultry and poultry products? No
13. Do any authorized entity monitor the location of your dressing house and its peripheral atmosphere? No
14. If monitor, which authority? N/A
15. What they monitor? N/A
16. After dressing how do you dispose the wastage? Left in the river
17. How do you clean your dressing house? Washing by water with detergent and disinfectant
18. How often do you clean your dressing house in a day? Once
19. Do you ever get any complaint regarding dressing quality from your clients? Never
20. If you get, what are those? N/A

C. Income of the chicken dresser

21. What is the main income source to lead your family? Chicken selling
22. In this business what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. None
28. What is your net monthly income? BDT. None

Poultry Input Supplier

KII # 1: Hatchery Owner

A. Identity of hatchery owner

Name: Md. Sobuj Hossain, Father: Md. Jamal Hossain
Village: Uttar Andharkota, Union: Cheragpur, Upazila: Mohadevpur, District: Naogaon
Name of hatchery: Bismillah poultry hatchery, Address: Naohatar Mor
Age: 27 yrs, Education: SSC, Main occupation: Hatchery business, Other income source: Cattle farm

B. Information related to business

1. How long are you in this business? 8 yrs
2. What types of chicks do you hatch in your hatchery? Sonali, native chicken and duck
3. From where do you collect fertile egg? Contract farmers
4. If you collect egg from contract farmers, what are the prices for different eggs?
    Native chicken egg- BDT. 17.0 per fertile egg
    Sonali chicken egg- BDT. 14.0 per fertile egg
    Duck egg- BDT. 17.5 per fertile egg
5. If fertile eggs are sourced from their own breeding stock, then what is the production cost per fertile egg? N/A
6. In your hatchery what is the maximum capacity of hatching chicks per month? 1,20,000 nos
7. At this moment how frequently do you hatch chicks per month? 8 times
8. If chicks are hatched several times in a month, then how much chicks are hatched per batch? 5500 nos
9. How do you sell/market day-old chicks? Through dealer, order basis and directly to the farmers
10. Can you sell all chicks hatched from your hatchery? Yes
11. If you can't, then what do you do? N/A
12. Please provide the rate of day-old chicks of different birds at different time:

Type of chick	Price (BDT) per unit of chick in different periods			
	At present	Normal	During peak demand	During off-peak demand
Native chicken	25.0	25.0	35.0	25.0
Sonali	32.0	16.0	42.0	12.0
Duckling	32.0	30.0	33.0	27.0

13. When the price of day-old chick become high? Dry summer (January-May)
14. When the price of day-old chick become fall? Winter (November-December)
15. What is the production cost per unit of day-old chick (including fertile egg)? BDT. 21-22.0
16. In your hatchery how many employees do you have? 2 nos
17. What changes have been observed over time regarding demand of chick? Demand increased
18. Do you have any idea or training on national and international standard rules and regulations of HACCP to conform hygienic and safe operation in chick production? No
19. If you know, then how have you known? N/A
20. What problems are you facing in your hatchery operation?
    - Lack of fertile egg

C. Income of the hatchery owner

21. In your current business how much expenses you have to pay per month (worker, electricity, fertile egg, medicine etc.)? BDT. 800,000.0
22. What is your monthly income from selling chicks and by products? BDT. 10,50,000.0
23. What is your net monthly income? BDT. 250,000.0

KII # 2: Hatchery Owner

A. Identity of hatchery owner

Name: Bojendra Kumer Majumder, Father: Norendra Kumer Majumder
Village: , Union: Hapania, Upazila: Sadar, Naogaon District: Naogaon
Name of hatchery: Ananda hatchery, Address: Mosorpur, Bypass, naogaon
Age: 35 yrs, Education: HSC, Main occupation: Hatchery business, Other income source: Rice, Fertilizer selling

B. Information related to business

1. How long are you in this business? 5 yrs
2. What types of chicks do you hatch in your hatchery? Sonali and duck
3. From where do you collect fertile egg? Parent stock (own)
4. If you collect egg from contract farmers, what are the prices for different eggs? N/A
5. If fertile eggs are sourced from their own breeding stock, then what is the production cost per fertile egg? BDT. 20.0
6. In your hatchery what is the maximum capacity of hatching chicks per month? 100,000 nos
7. At this moment how frequently do you hatch chicks per month? 2 times
8. If chicks are hatched several times in a month, then how much chicks are hatched per batch? 50000 nos
9. How do you sell/market day-old chicks? Taking order from customers
10. Can you sell all chicks hatched from your hatchery? Yes
11. If you can't, then what do you do? N/A
12. Please provide the rate of day-old chicks of different birds at different time:

Type of chick	Price (BDT) per unit of chick in different periods			
	At present	Normal	During peak demand	During off-peak demand
Sonali	14.0		17.0	7.0
Duckling	30.0		35.0	23.0

13. When the price of day-old chick become high? Falgun month
14. When the price of day-old chick become fall? Extreme winter
15. What is the production cost per unit of day-old chick (including fertile egg)? BDT.
16. In your hatchery how many employees do you have? 15 nos
17. What changes have been observed over time regarding demand of chick? Demand increased
18. Do you have any idea or training on national and international standard rules and regulations of HACCP to conform hygienic and safe operation in chick production? No
19. If you know, then how have you known? N/A
20. What problems are you facing in your hatchery operation?
    - Difficult to sell
    - As price hiking of feed many farms has been closed

C. Income of the hatchery owner

21. In your current business how much expenses you have to pay per month (worker, electricity, fertile egg, medicine etc.)? BDT.
22. What is your monthly income from selling chicks and by products? BDT.
23. What is your net monthly income? BDT. Loss

KII # 3: Hatchery Owner

A. Identity of hatchery owner

Name: Boshirul Islam, Father: Md. Jamal Hossain
Village: Thuknipara, Union: Nazjipur Pourashava, Upazila: Patnitala, District: Naogaon
Name of hatchery: Najipur poultry hatchery, Address: Thuknipara, Nazjipur Pourashava
Age: 30 yrs, Education: SSC, Main occupation: Hatchery business, Other income source: Medicine and feed seller

B. Information related to business

1. How long are you in this business? 12 yrs
2. What types of chicks do you hatch in your hatchery? Duck
3. From where do you collect fertile egg? Contract farmers
4. If you collect egg from contract farmers, what are the prices for different eggs? BDT. 16-17.0
5. If fertile eggs are sourced from their own breeding stock, then what is the production cost per fertile egg? N/A
6. In your hatchery what is the maximum capacity of hatching chicks per month? 2,10,000 nos
7. At this moment how frequently do you hatch chicks per month? 14 times

8. If chicks are hatched several times in a month, then how much chicks are hatched per batch? 14000 nos
9. How do you sell/market day-old chicks? Through taking order and directly to the farmers
10. Can you sell all chicks hatched from your hatchery? Yes
11. If you can't, then what do you do? N/A
12. Please provide the rate of day-old chicks of different birds at different time:

Type of chick	Price (BDT) per unit of chick in different periods			
	At present	Normal	During peak demand	During off-peak demand
Duckling	30.0	26.0	33.0	25.0

13. When the price of day-old chick become high? Falgun and Choitra months
14. When the price of day-old chick become fall? Rainy season
15. What is the production cost per unit of day-old chick (including fertile egg)? BDT. 23-25.0
16. In your hatchery how many employees do you have? 5 nos
17. What changes have been observed over time regarding demand of chick? Demand increased
18. Do you have any idea or training on national and international standard rules and regulations of HACCP to conform hygienic and safe operation in chick production? No
19. If you know, then how have you known? N/A
20. What problems are you facing in your hatchery operation?
    - Difficult to sell ducklings during rainy season

C. Income of the hatchery owner

21. In your current business how much expenses you have to pay per month (worker, electricity, fertile egg, medicine etc.)? BDT. 4500,000.0
22. What is your monthly income from selling chicks and by products? BDT.
23. What is your net monthly income? BDT. 100,000.0

KII # 4: Hatchery Owner

A. Identity of hatchery owner

Name: Md. Roman Rahman, Father: Late Fazlur Rahman
Village: Paharpur, Union: Parazpur, Upazila: Bodolgachi, District: Naogaon
Name of hatchery: RomanHatchery, Address: Parazpur, Bodolgachi, Naogaon
Age: 30 yrs, Education: HSC, Main occupation: Hatchery business, Other income source: None

B. Information related to business

1. How long are you in this business? 13 yrs
2. What types of chicks do you hatch in your hatchery? Sonali chicken
3. From where do you collect fertile egg? Own parentstock
4. If you collect egg from contract farmers, what are the prices for different eggs? N/A

5. If fertile eggs are sourced from their own breeding stock, then what is the production cost per fertile egg? BDT. 16.0 to 22.0
6. In your hatchery what is the maximum capacity of hatching chicks per month? 20,000 nos
7. At this moment how frequently do you hatch chicks per month? Once
8. If chicks are hatched several times in a month, then how much chicks are hatched per batch?
9. How do you sell/market day-old chicks? By taking order and directly to the farmers
10. Can you sell all chicks hatched from your hatchery? Yes
11. If you can't, then what do you do? By reducing selling price
12. Please provide the rate of day-old chicks of different birds at different time:

Type of chick	Price (BDT) per unit of chick in different periods			
	At present	Normal	During peak demand	During off-peak demand
Sonali DOC	18.0 to 22.0	28.0 to 30.0	30.0 to 40.0	8.0 to 12.0

13. When the price of day-old chick become high? Late winter
14. When the price of day-old chick become fall? During summer
15. What is the production cost per unit of day-old chick (including fertile egg)? BDT. 15.0-20.0
16. In your hatchery how many employees do you have? 5 nos
17. What changes have been observed over time regarding demand of chick? Demand decreased
18. Do you have any idea or training on national and international standard rules and regulations of HACCP to conform hygienic and safe operation in chick production? No
19. If you know, then how have you known? N/A
20. What problems are you facing in your hatchery operation?
    - High production cost
    - Frequent price fluctuation

C. Income of the hatchery owner

21. In your current business how much expenses you have to pay per month (worker, electricity, fertile egg, medicine etc.)? BDT. 75,000.0
22. What is your monthly income from selling chicks and by products? BDT. Not interested to disclose
23. What is your net monthly income? BDT. Not interested to disclose

KII # 1: Poultry Feed Seller

A. Identity of Feed Seller

Name: Md. Nazmul Huda, Father: Abdul Kader
Village: Baghdhana, Union: Cheragpur, Upazila: Mohadevpur, District: Naogaon
Name of shop: Prottasha Traders, Address:
Age: 30 yrs, Education: Degree, Main occupation: Feed selling, Other income source: Chicks & Medicine selling

B. Information related to business

1. How long are you in this business? 10 yrs
2. What types of feeds do you sell? All types (cattle, poultry and fish)
3. What type of poultry feed do you sell? Ready feed (pellet and crumble)
4. How do you store feeds in your shop? Concrete floor
5. Do you have any idea on national and international standard rules and regulations of HACCP to conform hygienic and safe storage of feeds? No
6. If you have, do you follow it? N/A
7. How do you control pests and rodents to prevent destroys of poultry feeds? No action is taken
8. How do you do if shelf life of feed expired or damaged? Use as fish feed
9. Do you get any complaint from your customers regarding feed? Yes, sometimes
10. If you get, what are those? High price of feed
11. How much feeds do you sell per month?
    Cattle feed- 60 MT,
    Poultry feed-300 MT,
    Fish feed-600 MT
12. What changes have been occurred over time for selling poultry feed? Sell decreased
13. What problems are you facing in your business?
    - Sell volume has been decreased
    - Need to sell feed in credit

C. Income of the feed seller

14. What is your main income source to lead your family? Feed selling
15. What is your net monthly income? BDT. 30000.0

KII # 2: Poultry Feed Seller

A. Identity of Feed Seller

Name: Md. Mahbub Rahman, Father: Md. Elahi Box
Village: Doshpaika, Union: Hapania, Upazila: Sadar, Naogaon District: Naogaon
Name of shop: Prottasha Traders, Address:
Age: 35 yrs, Education: BBA, Main occupation: Feed selling, Other income source: Cattle farm

B. Information related to business

1. How long are you in this business? 5 yrs
2. What types of feeds do you sell? Cattle and poultry feeds
3. What type of poultry feed do you sell? Ready feed (pellet and crumble) & ingredients
4. How do you store feeds in your shop? Wooden frame
5. Do you have any idea on national and international standard rules and regulations of HACCP to conform hygienic and safe storage of feeds? No
6. If you have, do you follow it? N/A

7. How do you control pests and rodents to prevent destroys of poultry feeds? Trapping
8. How do you do if shelf life of feed expired or damaged? Use as fish feed
9. Do you get any complaint from your customers regarding feed? Yes, sometimes
10. If you get, what are those? High price of feed
11. How much feeds do you sell per month?
    Broiler-10 MT,
    Sonali-5 MT,
    Cattle feed- 4 MT,
    Wheat bran-2.5 MT
    Wheat-1 MT
    Maize-1 MT
    Rice polish-1.1 MT
    Broken rice-2.5 MT
12. What changes have been occurred over time for selling poultry feed? Sell increased
13. What problems are you facing in your business?
    - Price hiking
    - Mal market management

C. Income of the feed seller

14. What is your main income source to lead your family? Feed selling
15. What is your net monthly income? BDT. 20000.0

KII # 3: Poultry Feed Seller

A. Identity of Feed Seller

Name: Md. Harun-Or-Rashid, Father: Md. Kahor Ali Mondal
Village: Nojipur Notun Hat, Union: Nojipur Pourashava, Upazila: Patnitola, District: Naogaon
Name of shop: Address:
Age: 35 yrs, Education: SSC, Main occupation: Feed selling, Other income source: Chick & medicine selling and vehicle rent

B. Information related to business

1. How long are you in this business? 6 yrs
2. What types of feeds do you sell? All types
3. What type of poultry feed do you sell? Ready feed (pellet and crumble)
4. How do you store feeds in your shop? Wooden frame
5. Do you have any idea on national and international standard rules and regulations of HACCP to conform hygienic and safe storage of feeds? No
6. If you have, do you follow it? N/A
7. How do you control pests and rodents to prevent destroys of poultry feeds? Trapping
8. How do you do if shelf life of feed expired or damaged? Use as fish feed

9. Do you get any complaint from your customers regarding feed? Yes, sometimes
10. If you get, what are those? High price of feed
11. How much feeds do you sell per month?
    Broiler-20 MT,
    Sonali-7 MT,
    Cattle feed- 8 MT,
    Fish feed-600 MT,
    Duck-5 MT
12. What changes have been occurred over time for selling poultry feed? Sell increased
13. What problems are you facing in your business?
    - Credit sell

C. Income of the feed seller

14. What is your main income source to lead your family? Feed selling
15. What is your net monthly income? BDT. 35000.0

KII # 4: Poultry Feed Seller

A. Identity of Feed Seller

Name: Md. Rafiqul Islam, Father: Late Shamsul Alam
Village: Choto Belandah, Union: Kusumba, Upazila: Manda, District: Naogaon
Name of shop: M/S Rafiqul Traders, Address: Prasadpur Bazar, Manda
Age: 35 yrs, Education: 5, Main occupation: Feed selling, Other income source: Agriculture

B. Information related to business

1. How long are you in this business? 8 yrs
2. What types of feeds do you sell? All types
3. What type of poultry feed do you sell? Ready feed (pellet and crumble) and ingredients
4. How do you store feeds in your shop? On the concrete floor
5. Do you have any idea on national and international standard rules and regulations of HACCP to conform hygienic and safe storage of feeds? No
6. If you have, do you follow it? N/A
7. How do you control pests and rodents to prevent destroys of poultry feeds? Trapping
8. How do you do if shelf life of feed expired or damaged? Disposed
9. Do you get any complaint from your customers regarding feed? Yes, sometimes
10. If you get, what are those? Quality, spoiled and bad smell
11. How much feeds do you sell per month? Ready feed- 250-300 kg
12. What changes have been occurred over time for selling poultry feed? Sell increased
13. What problems are you facing in your business?
    - Price incresing

C. Income of the feed seller

14. What is your main income source to lead your family? Feed selling, agriculture, livestock
15. What is your net monthly income? BDT. 25000.0

KII # 5: Poultry Feed Seller

A. Identity of Feed Seller

Name: Md. Sikdar Arab Choudhury, Father: Late Arab Hamid Choudhury
Village: Jabaripur, Union: Mothurapur, Upazila: Bodolgachi, District: Naogaon
Name of shop: Sikder Enterprise, Address: Jabaripur, Mothurapur
Age: 32 yrs, Education: SSC, Main occupation: Feed selling, Other income source: Poultry equipment selling

B. Information related to business

1. How long are you in this business? 12 yrs
2. What types of feeds do you sell? Poultry feed
3. What type of poultry feed do you sell? Ready feed (pellet and crumble)
4. How do you store feeds in your shop? On the wooden/bamboo frame
5. Do you have any idea on national and international standard rules and regulations of HACCP to conform hygienic and safe storage of feeds? No
6. If you have, do you follow it? N/A
7. How do you control pests and rodents to prevent destroys of poultry feeds? Trapping
8. How do you do if shelf life of feed expired or damaged? Used as fish feed
9. Do you get any complaint from your customers regarding feed? Yes, sometimes
10. If you get, what are those? Quality and high price
11. How much feeds do you sell per month?
12. What changes have been occurred over time for selling poultry feed?
13. What problems are you facing in your business?

C. Income of the feed seller

14. What is your main income source to lead your family? Feed selling
15. What is your net monthly income?

KII # 1: Poultry Medicine Seller

A. Identity of medicine seller

Name: Md. Ruhul Amin, Father: Md. Jamal Hossain
Village: Thuknipara, Union: Nazjipur Pourashava, Upazila: Patnitala, District: Naogaon
Name of pharmacy: Nahid Pharmacy, Address: Thuknipara, Nazjipur Pourashava
Age: 32 yrs, Education: HSC, Main occupation: Pharmacy, Other income source: Govt. Service

B. Information related to business

1. How long are you in this business? 6 yrs
2. What types of medicine do you sell? Livestock and Poultry
3. From where do you collect medicine? Pharmaceutical company and whole-seller
4. At this moment medicines of what types diseases of poultry is selling more?
5. What types of antibiotics for treatment of poultry diseases are selling more? Colstin, Cipro, gentamycin etc.
6. For enhancing egg production what types of medicines are selling more? All types
7. For enhancing growth (meat production) what types of medicines are selling more? All types
8. What do you do when medicine expired its' shelf life? Give return to the companies
9. How do you keep medicines in your store? Open rack in Non-AC room
10. Do you have any idea or training on national and international standard rules and regulations of HACCP to conform safe storage of medicines? No
11. Do you get any complaint from your customers regarding medicine? Sometimes
12. If you get complaints, then what are those: High price
13. What changes have you noticed over time regarding selling of medicine? Sell increased
14. What problems are you facing in your business?
    - Credit sell
    - Price hiking

C. Income of the medicine seller

15. In an average how much money do you earn daily by selling medicine? BDT. 12,000.0
16. What is your monthly expenditure (shop rent, wage, electricity etc.)? BDT. 6000.0
17. What is your net monthly income? BDT. 30,000.0

KII # 2: Poultry Medicine Seller

A. Identity of medicine seller

Name: Md. Abdullah Al Arabi, Father: Md. Ali Afzal Hossain
Village: Union: Upazila: Sadar, Naogaon District: Naogaon
Name of pharmacy: Ayesha Traders, Address: Naohata
Age: 35 yrs, Education: Masters, Main occupation: Pharmacy, Other income source: None

B. Information related to business

1. How long are you in this business? 4 yrs
2. What types of medicine do you sell? Livestock and Poultry
3. From where do you collect medicine? Pharmaceutical company
4. At this moment medicines of what types diseases of poultry is selling more?
5. What types of antibiotics for treatment of poultry diseases are selling more? Colstin, Cipro, gentamycin, Doxycycline, enrofloxacin etc.
6. For enhancing egg production what types of medicines are selling more? AD_3E, Multi-vitamin

7. For enhancing growth (meat production) what types of medicines are selling more? AD_3E, Multi-vitamin
8. What do you do when medicine expired its' shelf life? Give return to the companies
9. How do you keep medicines in your store? Open rack in Non-AC room
10. Do you have any idea or training on national and international standard rules and regulations of HACCP to conform safe storage of medicines? No
11. Do you get any complaint from your customers regarding medicine? Sometimes
12. If you get complaints, then what are those: Quality aspects and high price
13. What changes have you noticed over time regarding selling of medicine? Sell increased
14. What problems are you facing in your business?
    - Credit sell
    - Price hiking

C. Income of the medicine seller

15. In an average how much money do you earn daily by selling medicine? BDT. 15,000.0
16. What is your monthly expenditure (shop rent, wage, electricity etc.)? BDT. 5000.0
17. What is your net monthly income? BDT. 40,000.0

KII # 3: Poultry Medicine Seller

A. Identity of medicine seller

Name: Md. Mizanur Rahman, Father: Md. Elahi Box
Village: Doshpaika, Union: Hapania, Upazila: Sadar, Naogaon District: Naogaon
Name of pharmacy: Ma-Baba Pharmacy, Address: Hapania Bazar
Age: 34 yrs, Education: Diploma (Agri), Main occupation: Pharmacy, Other income source: Feed selling

B. Information related to business

1. How long are you in this business? 7 yrs
2. What types of medicine do you sell? Livestock and Poultry
3. From where do you collect medicine? Pharmaceutical company and whole-seller
4. At this moment medicines of what types diseases of poultry is selling more?
5. What types of antibiotics for treatment of poultry diseases are selling more? Ciprofloxacin, Doxycycline
6. For enhancing egg production what types of medicines are selling more? AD_3E, vitamin-min
7. For enhancing growth (meat production) what types of medicines are selling more? Amino acid, Vitamin
8. What do you do when medicine expired its' shelf life? Give return to the companies and left outside
9. How do you keep medicines in your store? Open rack in Non-AC room

10. Do you have any idea or training on national and international standard rules and regulations of HACCP to conform safe storage of medicines? No
11. Do you get any complaint from your customers regarding medicine? Sometimes
12. If you get complaints, then what are those: Quality aspects
13. What changes have you noticed over time regarding selling of medicine? Sell decreased
14. What problems are you facing in your business? Collapse of farms due to price hiking of poultry feeds

C. Income of the medicine seller

15. In an average how much money do you earn daily by selling medicine? BDT. 10,000.0
16. What is your monthly expenditure (shop rent, wage, electricity etc.)? BDT. 15000.0
17. What is your net monthly income? BDT. 25,000.0

KII # 4: Poultry Medicine Seller

A. Identity of medicine seller

Name: Md. Aibur Rahman, Father: Md. Afsar Ali
Village: Boro Belaldah, Union: Kusumba, Upazila: Manda, District: Naogaon
Name of pharmacy: Ayesha Pharmacy, Address: Prasadpur Bazar, Manda
Age: 33 yrs, Education: B.Sc. (Hon), Main occupation: Pharmacy, Other income source: Agriculture

B. Information related to business

1. How long are you in this business? 8 yrs
2. What types of medicine do you sell? Livestock and Poultry
3. From where do you collect medicine? Pharmaceutical company
4. At this moment medicines of what types diseases of poultry is selling more? All types
5. What types of antibiotics for treatment of poultry diseases are selling more? Livofloxacin, Amoxycycline, Gentamycin
6. For enhancing egg production what types of medicines are selling more? AD_3E, Egg Formula
7. For enhancing growth (meat production) what types of medicines are selling more? Multivitamin
8. What do you do when medicine expired its' shelf life? Give return to the companies
9. How do you keep medicines in your store? Open rack in Non-AC room
10. Do you have any idea or training on national and international standard rules and regulations of HACCP to conform safe storage of medicines? Yes
11. Do you get any complaint from your customers regarding medicine? Sometimes
12. If you get complaints, then what are those: Quality aspects
13. What changes have you noticed over time regarding selling of medicine? Sell increased
14. What problems are you facing in your business? None

C. Income of the medicine seller

15. In an average how much money do you earn daily by selling medicine? BDT. 3,500.0
16. What is your monthly expenditure (shop rent, wage, electricity etc.)? BDT. 8000.0
17. What is your net monthly income? BDT. 40,000.0

KII # 5: Poultry Medicine Seller

A. Identity of medicine seller

Name: Md. Rifat Hossain, Father: Md. Moslem Uddin
Village: Zabaripur, Union: Mothurapur, Upazila: Bodolgachi, District: Naogaon
Name of pharmacy: Rifat Pharmacy, Address: Zabaripur Bazar, Mothurapur, Bodolgachi
Age: 21 yrs, Education: HSC, Main occupation: Pharmacy, Other income source: Farmer

B. Information related to business

1. How long are you in this business? 2 yrs
2. What types of medicine do you sell? All types
3. From where do you collect medicine? Pharmaceutical company
4. At this moment medicines of what types diseases of poultry is selling more?
5. What types of antibiotics for treatment of poultry diseases are selling more?
6. For enhancing egg production what types of medicines are selling more?
7. For enhancing growth (meat production) what types of medicines are selling more?
8. What do you do when medicine expired its' shelf life?
9. How do you keep medicines in your store? Open rack in Non-AC room
10. Do you have any idea or training on national and international standard rules and regulations of HACCP to conform safe storage of medicines? No
11. Do you get any complaint from your customers regarding medicine? Never
12. If you get complaints, then what are those: N/A
13. What changes have you noticed over time regarding selling of medicine? Sell decreased
14. What problems are you facing in your business?
    - High price
    - Quality is not good

C. Income of the medicine seller

15. In an average how much money do you earn daily by selling medicine? BDT. 5-7000.0
16. What is your monthly expenditure (shop rent, wage, electricity etc.)? BDT. 3000.0
17. What is your net monthly income? BDT. 20,000.0

KII # 1: Poultry Equipment Seller

A. Identity of poultry equipment seller

Name: Md. Askan Ali, Father: Md. Kayem Ali
Village: Boro Belaldah, Union: Kusumba, Upazila: Manda, District: Naogaon

Name of pharmacy: M/S Kazi Traders, Prosadpur, Manda, Naogaon
Age: 34 yrs, Education: VIII, Main occupation: Poultry equipment selling, Other income source: Agriculture

B. Information related to business

1. How long are you in this business? 5 yrs
2. What types of equipment do you sell? Feeder and drinker
3. What types of poultry equipment have more demand and are sold more? Feeder and drinker
4. Do you sell any modern poultry equipment (automated) ? No
5. If it is yes, then what are those? None
6. If you do not sell modern equipment, then what types of equipment farmers need? No need
7. What problems do farmers complain for using regular item of poultry equipment at this moment? No complain
8. What changes have you noticed over time regarding selling poultry equipment? Sell increased
9. If sell increase, then why? More entrepreneurs are coming in this business
10. If sell decrease, then why? N/A
11. Do you have any recruited employee in your business? If yes, then number? Yes, 01
12. What problems are you facing in this business? None

C. Income of the medicine seller

13. In an average how much money do you earn per month by selling poultry equipment? BDT. 7-9,000.0
14. What is your monthly expenditure (shop rent, wage, electricity etc.)? BDT. 5000.0
15. What is your net monthly income? BDT. 6,000.0

KII # 2: Poultry Equipment Seller

A. Identity of poultry equipment seller

Name: Md. Sikdar Arab Choudhury, Father: Late Arab Hamid Choudhury
Village: Jabaripur, Union: Mothurapur, Upazila: Bodolgachi, District: Naogaon
Name of shop: Sikder Enterprise, Address: Jabaripur, Mothurapur
Age: 32 yrs, Education: SSC, Main occupation: Feed selling, Other income source: Poultry equipment selling

B. Information related to business

1. How long are you in this business? 10 yrs
2. What types of equipment do you sell? Feeder, drinker, net
3. What types of poultry equipment have more demand and are sold more? Feeder and drinker
4. Do you sell any modern poultry equipment (automated) ? No
5. If it is yes, then what are those? N/A
6. If you do not sell modern equipment, then what types of equipment farmers need? No need

7. What problems do farmers complain for using regular item of poultry equipment at this moment? Could not answer
8. What changes have you noticed over time regarding selling poultry equipment? Sell decreased
9. If sell increase, then why? N/A
10. If sell decrease, then why? Many farms are closing
11. Do you have any recruited employee in your business? If yes, then number? No
12. What problems are you facing in this business?
    - Incresing price
    - Low quality

C. Income of the medicine seller

13. In an average how much money do you earn per month by selling poultry equipment? BDT. 30-40,000.0
14. What is your monthly expenditure (shop rent, wage, electricity etc.)? BDT. 6000.0
15. What is your net monthly income? BDT. 5,000.0

Market Actors

KII # 1: Chick Dealer

A. Identity of Dealer

Name: Md. Mizanur Rahman, Father: Md. Elahi Box
Village: Dospaika, Union: Hapania, Upazila: Sadar, Naogaon, District: Naogaon
Name of shop: Ma-Baba Pharmacy, Address: Hapania Bazar
Age: 34 yrs, Education: Agri. Diploma, Main occupation: Business, Other income source: Medicine selling

B. Information related to business

1. How long are you in this business? 3 yrs
2. What types of chicks do you deal with? Broiler and Sonali
3. How do you collect chicks? Directly from Hatchery
4. How many days in a week do you market chicks? 4 days
5. How many grades of chicks do you market? Single (A-grade)
6. In a week how many chicks do you market? Broiler-6000 and Sonali-2000
7. The demand of which type chick is very high? Broiler
8. Whether the demand/price of chicks fluctuate- Yes
9. If it is yes, then when the it becomes high? Immediately after winter before hot summer
10. Why it becomes high? Body weight growth is satisfactory and marketing price is high
11. When the demand of chicks decreases? Hot summer and acute winter
12. Why demand decreases? High chick mortality
13. Are you satisfied with the quality of chicks? Yes

14. Are you satisfied with the market price of chicks? No
15. Do your customers ever complain on the quality of chicks? Seldom
16. If they complain, what are those? Uneven weight of chicks (inappropriate grading)
17. As a dealer of chick supplying company, how much commission do you get? BDT. 1.0/chick
18. Do you know how much time elapse between hatching and supplying chicks to you? Yes
19. If you know, how much time? 12-18 hrs
20. Within how much time do you supply chicks to your clients? 1-2 hrs
21. Do you get any dead chicks in the chick box/cartoon? Seldom
22. In case of chick demand what changes have you observed over time? Decreased
23. Please provide the market price of chicks in different periods

Type of chick	Price per unit of chick in different periods			
	At present	Normal	During peak demand	During off-peak demand
Broiler	44.0	30.0	65.0	14.0
Sonali	16.0	18.0	30.0	8.0
MCTC Layer	45.0	35.0	65.0	25.0
Duckling				

24. Do you have any employee in your business? If yes, how many? No
25. What problems are you facing in your business?
    - Need to pay compensation if chicks died
26. What problems farmers are facing regarding poultry production and management?
    - Farmers are not well experienced enough to

C. Income of the Dealer

27. In your business operation what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 4000.0
28. What is your net monthly income? BDT. 28000.0

KII # 2: Chick Dealer

A. Identity of Dealer

Name: Md. Mehedi Hasan, Father: Md. Abul Kalam Azad
Village: Moddail, Union: Akbarpur, Upazila: Patnitola, District: Naogaon
Name of shop: Anik Dim Ghar, Address: Dhamoir Road, Katcha Bazar
Age: 28 yrs, Education: Hons, Main occupation: Chick selling, Other income source: Feed and Medicine

B. Information related to business

1. How long are you in this business? 5 yrs
2. What types of chicks do you deal with? Broiler and Multi-color (Cock)

3. How do you collect chicks? Directly from Hatchery
4. How many days in a week do you market chicks? 4 days
5. How many grades of chicks do you market? Single (A-grade)
6. In a week how many chicks do you market? 8500 nos
7. The demand of which type chick is very high? Broiler
8. Whether the demand/price of chicks fluctuate- Yes
9. If it is yes, then when the it becomes high? Immediately after winter before hot summer
10. Why it becomes high? Body weight growth is satisfactory and marketing price is high
11. When the demand of chicks decreases? Acute winter
12. Why demand decreases? High chick mortality
13. Are you satisfied with the quality of chicks? Yes
14. Are you satisfied with the market price of chicks? No
15. Do your customers ever complain on the quality of chicks? Seldom
16. If they complain, what are those?
    - Price of chicks suddenly fluctuate
    - Weight of chicks are not uniform
17. As a dealer of chick supplying company, how much commission do you get? BDT. 1.5 to 2.5/chick
18. Do you know how much time elapse between hatching and supplying chicks to you? Yes
19. If you know, how much time? 10-12 hrs
20. Within how much time do you supply chicks to your clients? 1-1.5 hrs
21. Do you get any dead chicks in the chick box/cartoon? Seldom
22. In case of chick demand what changes have you observed over time? Increased
23. Please provide the market price of chicks in different periods

Type of chick	Price per unit of chick in different periods			
	At present	Normal	During peak demand	During off-peak demand
Broiler	47.0	35.0	62.0	12.0
Sonali	25.0-32.0	20.0	28.0	8.0
MCTC	22.0-37.0	20.0	58.0	10.0
Layer	45.0	35.0	65.0	25.0
Duckling				
Cock	16.0	16.0	26.0	12.0

24. Do you have any employee in your business? If yes, how many? No
25. What problems are you facing in your business?
    - Price of chicks suddenly drops
26. What problems farmers are facing regarding poultry production and management?
    - Farmers are not well experienced enough to assess when and how many chicks should be reared

C. Income of the Dealer

27. In your business operation what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 10000.0
28. What is your net monthly income? BDT. 30000.0

KII # 3: Chick Dealer

A. Identity of Dealer

Name: Md. Nazmul Huda, Father: Abdul Kader
Village: Basdhana, Union: Cheragpur, Upazila: Mohadevpur, District: Naogaon
Name of shop: Prottasha Chicks, Address: Choumashia Mor
Age: 30 yrs, Education: Degree, Main occupation: Chick selling, Other income source: Feed and Medicine

B. Information related to business

1. How long are you in this business? 12 yrs
2. What types of chicks do you deal with? Broiler and Sonali
3. How do you collect chicks? Directly from Hatchery
4. How many days in a week do you market chicks? 3 days
5. How many grades of chicks do you market? Single
6. In a week how many chicks do you market? 6000 nos
7. The demand of which type chick is very high? Both broiler and sonali
8. Whether the demand/price of chicks fluctuate- Yes
9. If it is yes, then when the it becomes high? Immediately after winter before hot summer
10. Why it becomes high? Body weight growth is satisfactory and marketing price is high
11. When the demand of chicks decreases? Hot summer and acute winter
12. Why demand decreases? High chick mortality
13. Are you satisfied with the quality of chicks? Yes
14. Are you satisfied with the market price of chicks? No
15. Do your customers ever complain on the quality of chicks? Seldom
16. If they complain, what are those? Weight of chicks are not uniform
17. As a dealer of chick supplying company, how much commission do you get? BDT. 1.0/chick
18. Do you know how much time elapse between hatching and supplying chicks to you? Yes
19. If you know, how much time? 12-15 hrs
20. Within how much time do you supply chicks to your clients? 1 hr
21. Do you get any dead chicks in the chick box/cartoon? Seldom
22. In case of chick demand what changes have you observed over time? Decreased
23. Please provide the market price of chicks in different periods

Type of chick	Price per unit of chick in different periods			
	At present	Normal	During peak demand	During off-peak demand
Broiler	46.0	35.0	65.0	5.0

Sonali	16.0	15.0	25.0	5.0
MCTC				
Layer				
Duckling				
Cock				

24.
25. What problems are you facing in your business?
- The demand of chicks has been decreasing due to price hiking of feeds

26. What problems farmers are facing regarding poultry production and management?
-Could not answer

C. Income of the Dealer

27. In your business operation what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 5000.0
28. What is your net monthly income? BDT. 19000.0

KII # 4: Chick Dealer

A. Identity of Dealer

Name: Md. Sikdar Arab Choudhury, Father: Late Arab Hamid Choudhury
Village: Jabaripur, Union: Mothurapur, Upazila: Bodolgachi, District: Naogaon
Name of shop: Sikder Enterprise, Address: Jabaripur, Mothurapur
Age: 32 yrs, Education: SSC, Main occupation: Chick selling, Other income source:

B. Information related to business

1. How long are you in this business? 12 yrs
2. What types of chicks do you deal with? Sonali
3. How do you collect chicks? Directly from Hatchery and other dealer
4. How many days in a week do you market chicks? Once
5. How many grades of chicks do you market? Single
6. In a week how many chicks do you market? 3000 nos
7. The demand of which type chick is very high? Both broiler and sonali
8. Whether the demand/price of chicks fluctuate- Yes
9. If it is yes, then when the it becomes high? Immediately after winter
10. Why it becomes high? Favorable environment
11. When the demand of chicks decreases? Hot summer
12. Why demand decreases? High chick mortality
13. Are you satisfied with the quality of chicks? Roughly
14. Are you satisfied with the market price of chicks? No
15. Do your customers ever complain on the quality of chicks? Never
16. If they complain, what are those? N/A

17. As a dealer of chick supplying company, how much commission do you get? BDT. 1.0-2.0/chick
18. Do you know how much time elapse between hatching and supplying chicks to you? No
19. If you know, how much time? N/A
20. Within how much time do you supply chicks to your clients? 3-4 hrs
21. Do you get any dead chicks in the chick box/cartoon? Sometimes
22. In case of chick demand what changes have you observed over time? Decreased
23. Please provide the market price of chicks in different periods

Type of chick	Price per unit of chick in different periods			
	At present	Normal	During peak demand	During off-peak demand
Broiler				
Sonali	28.0	25.0	30.0-40.0	8.0-10.0
MCTC				
Layer				
Duckling				
Cock				

24. Do you have any wage based employee in your business? No
25. What problems are you facing in your business?
    - Frequent price fluctuation of chick
26. What problems farmers are facing regarding poultry production and management?
    - High price of feed
    - Adverse environment
    - Poultry producer farmers do not get fair market price

C. Income of the Dealer

27. In your business operation what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 10000.0
28. What is your net monthly income? BDT. 15000.0

KII # 1: Chicken/Duck Seller

A. Identity of chicken/duck seller

Name: Md. Khorshed Alam, Father: Md. Akter Hossain
Village: Buzrup Pathorghata, Union: Hapania, Upazila: Sadar, Naogaon, District: Naogaon
Age: 30 yrs, Education: IX, Main occupation: Chicken selling, Other income source: Nosimon driving

B. Information related to business

1. How long are you in this business? 18 yrs
2. Which types of poultry birds do you sell? All types of birds

3. How do you sell? Both wholesale and retail
4. From where do you collect birds? Own farm, directly from other farm and market
5. Do you collect birds according to your demand? Yes
6. During collecting birds how market price is fixed? Based of prevailing market price
7. During selling birds how market price is fixed? Based of prevailing market price
8. During marketing birds is there any cases that birds died? Seldom
9. If it is yes then what are the causes? Retaining birds in the shop for long time and during transport
10. How many birds are died in a month? 15 to 17 nos
11. How many birds do you sell every day? Broiler-50, Layer-30, Sonali-30, Duck-5
12. How much profit do you get? BDT. 15.0 per bird
13. Do you have any employee in your business? If yes, how many? No
14. Whether the demand of birds fluctuate? Yes
15. If it is yes, then when the demand of birds become high? Market day and first week of the month
16. Why demand becomes increase?
17. When the demand of birds become decrease? After Eid-ul-Azha
18. Why the demand of birds become decrease in that time?
19. Regarding demand of birds what changes have you observed over time? Increased
20. What problems are you facing in this business? None

C. Income of the chicken/duck seller

21. What is the main income source to lead your family? Bird selling
22. In this business what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 4500.0
28. What is your net monthly income? BDT. 25 to 30 thousand

KII # 2: Chicken/Duck Seller

A. Identity of chicken/duck seller

Name: Md. Nuruzzaman, Father: Md. Motaleb
Village: Charnirkhin, Union: Nazipur pourashava, Upazila: Patnitola, District: Naogaon
Age: 32 yrs, Education: SSC, Main occupation: Chicken selling, Other income source: bKash

B. Information related to business

1. How long are you in this business? 8 yrs
2. Which types of poultry birds do you sell? All types of birds
3. How do you sell? Both wholesale and retail
4. From where do you collect birds? Directly from farm and big whole seller
5. Do you collect birds according to your demand? Yes
6. During collecting birds how market price is fixed? Based of prevailing market price

7. During selling birds how market price is fixed? Based of prevailing market price
8. During marketing birds is there any cases that birds died? Seldom
9. If it is yes then what are the causes? Heat stress
10. How many birds are died in a month? 30 nos
11. How many birds do you sell every day? Broiler-50, Layer-15, Sonali-40, Native chicken-10
12. How much profit do you get? BDT. 10.0 to 20.0 per kg
13. Do you have any employee in your business? If yes, how many? Yes, 3 nos
14. Whether the demand of birds fluctuate? Yes
15. If it is yes, then when the demand of birds become high? During harvesting rice and Ramadan
16. Why demand becomes increase?
17. When the demand of birds become decrease? Choitra and Kartik month
18. Why the demand of birds become decrease in that time? Most of the peoples are workless in that time
19. Regarding demand of birds what changes have you observed over time? Increased
20. What problems are you facing in this business?
    - Unbalanced market
    - Supply and price of chicken suddenly fluctuate

C. Income of the chicken/duck seller

21. What is the main income source to lead your family? Bird selling
22. In this business what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 50000.0
28. What is your net monthly income? BDT. 12000.0

KII # 3: Chicken/Duck Seller

A. Identity of chicken/duck seller

Name: Md. Azadul Islam, Father: Md. Tomizuddin
Village: Rodeel, Union: Enayet, Upazila: Mohadevpur, District: Naogaon
Age: 35 yrs, Education: HSC, Main occupation: Chicken selling, Other income source: Gas

B. Information related to business

1. How long are you in this business? 20 yrs
2. Which types of poultry birds do you sell? All types of birds except duck
3. How do you sell? Retail
4. From where do you collect birds? Directly from farm and big whole seller
5. Do you collect birds according to your demand? Yes
6. During collecting birds how market price is fixed? Based of prevailing market price
7. During selling birds how market price is fixed? Based of prevailing market price
8. During marketing birds is there any cases that birds died? Seldom

9. If it is yes then what are the causes? Heat stress, during transportation
10. How many birds are died in a month? 8-10 nos
11. How many birds do you sell every day? Broiler-45, Layer-30, Sonali20, Native chicken-10
12. How much profit do you get? BDT. 10.0 to 12.0 per bird
13. Do you have any employee in your business? If yes, how many? Yes, 2 nos
14. Whether the demand of birds fluctuate? Yes
15. If it is yes, then when the demand of birds become high? During harvesting rice and Eid festival
16. Why demand becomes increase?
17. When the demand of birds become decrease? Vadro-Ashin and Choitra Boishak month
18. Why the demand of birds become decrease in that time? Most of the peoples are workless in that time
19. Regarding demand of birds what changes have you observed over time? Increased
20. What problems are you facing in this business?
    - Unbalanced market
    - Price of chicken suddenly fluctuate

C. Income of the chicken/duck seller

21. What is the main income source to lead your family? Bird selling
22. In this business what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 20000.0
28. What is your net monthly income? BDT. 20000.0

KII # 4: Chicken/Duck Seller

A. Identity of chicken/duck seller

Name: Md. Milon Mollah, Father: Md. Ladu Mollah
Village: Bijoypur, Union: Manda Sadar, Upazila: Manda, District: Naogaon
Age: 28 yrs, Education: V, Main occupation: Chicken selling, Other income source: Transport

B. Information related to business

1. How long are you in this business? 10 yrs
2. Which types of poultry birds do you sell? All types of birds
3. How do you sell? Retail
4. From where do you collect birds? Directly from farm
5. Do you collect birds according to your demand? Yes
6. During collecting birds how market price is fixed? Based of prevailing market price
7. During selling birds how market price is fixed? Based of prevailing market price
8. During marketing birds is there any cases that birds died? Always
9. If it is yes then what are the causes? Pilling, heat stress, illness
10. How many birds are died? 2-3 nos

11. How many birds do you sell every day? 70-80 nos
12. How much profit do you get? BDT. 20.0 to 50.0 per bird
13. Do you have any employee in your business? If yes, how many? Yes, 3 nos
14. Whether the demand of birds fluctuate? Yes
15. If it is yes, then when the demand of birds become high? During harvesting rice and Eid festival
16. Why demand becomes increase? Relatives visit and cash in hand
17. When the demand of birds become decrease? Other than festival and harvesting rice
18. Why the demand of birds become decrease in that time? Crisis of money
19. Regarding demand of birds what changes have you observed over time? Increased
20. What problems are you facing in this business?
    - Price of chicken suddenly fluctuate
    - Weight loss
    - Sell volume fluctuate

C. Income of the chicken/duck seller

21. What is the main income source to lead your family? Bird selling
22. In this business what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 45000.0

28. What is your net monthly income? BDT. 30000.0

KII # 5: Chicken/Duck Seller

A. Identity of chicken/duck seller

Name: Md. Mehedi Hasan, Father: Md. Shamsul Haque
Village: Jidhirpur, Union: Bodolgachi, Upazila: Bodolgachi, District: Naogaon
Age: 35 yrs, Education: SSC, Main occupation: Chicken selling, Other income source:

B. Information related to business

1. How long are you in this business? 21 yrs
2. Which types of poultry birds do you sell? Broiler, Sonali, Native chicken
3. How do you sell? Both retail and wholesale
4. From where do you collect birds? Directly from farm and from big trader
5. Do you collect birds according to your demand? Yes
6. During collecting birds how market price is fixed? Based on market price
7. During selling birds how market price is fixed? Based on market price
8. During marketing birds is there any cases that birds died? Sometimes
9. If it is yes then what are the causes? Heat stress
10. How many birds are died? 3-4 nos
11. How many birds do you sell every day? 200-300 nos
12. How much profit do you get? BDT. 10.0 to 15.0 per bird

13. Do you have any employee in your business? If yes, how many? No
14. Whether the demand of birds fluctuate? Yes
15. If it is yes, then when the demand of birds become high? December to March
16. Why demand becomes increase? Could not answer properly
17. When the demand of birds become decrease? During very hot weather
18. Why the demand of birds become decrease in that time? Could not answer properly
19. Regarding demand of birds what changes have you observed over time? Increased
20. What problems are you facing in this business?
    - Price of chicken suddenly fluctuate
    - Chicken die
    - Crisis of workers

C. Income of the chicken/duck seller

21. What is the main income source to lead your family? Bird selling
22. In this business what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 5000.0
28. What is your net monthly income? BDT. 20000.0

KII # 1: Egg Seller

A. Identity of chicken/duck seller

Name: Omulla Ratan, Father: Bolai Chandra Devnath
Village: Dhamoir mor, Union: Nozipur Pourashava, Upazila: Patnitala, District: Naogaon
Age: 35 yrs, Education: HSC, Main occupation: Egg Selling, Other income source: None

B. Information related to business

1. How long are you in this occupation? 19 yrs
2. Which types of poultry eggs do you sell? Layer, Native chicken and duck
3. How do you sell egg? Both whole-sale and retail
4. From where do you collect egg? Egg market (Arot)
5. Can you collect eggs according to your demand? Yes
6. During collecting eggs how market price is fixed? Based of prevailing market price
7. During selling eggs how market price is fixed? Based of prevailing market price
8. Whether damaged eggs are found? Yes, always
9. If it happened what is the cause? Frequent handling
10. In a day how many eggs are found to be damaged? About 1%
11. In a day how many eggs are sold? 12000 nos
12. How much profit do you get from selling eggs? BDT. 0.4 to 0.8 per egg
13. Do you have any employee in your business? If yes, how many? Yes, 4 nos
14. Whether demand of eggs fluctuate? Yes
15. If demand fluctuate, then when demand become high? Winter and during rice harvest

16. Why demand become increase in that time?
17. When demand of eggs become decrease? Vadro and Choitra month
18. Why demand become decrease in that time? Crisis of money
19. Regarding demand of eggs what changes have you observed over time? Increased
20. What problems are you facing in your profession? Credit selling, credit is not recovered timely

C. Income of the egg seller

21. What is the main income source to lead your family? Egg selling
17. In this occupation what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 40000.0
18. What is your net monthly income? BDT. 75000.0

KII # 2: Egg Seller

A. Identity of chicken/duck seller

Name: Md. Selim Islam, Father: Md. Mostafa Mandol
Village: Choto Belaldah, Union: Prasadpur, Upazila: Manda, District: Naogaon
Age: 21 yrs, Education: HSC, Main occupation: Egg Selling, Other income source: None

B. Information related to business

1. How long are you in this occupation? 10 yrs
2. Which types of poultry eggs do you sell? Layer, Native chicken and duck
3. How do you sell egg? Both whole-sale and retail
4. From where do you collect egg? Directly from farm
5. Can you collect eggs according to your demand? Yes
6. During collecting eggs how market price is fixed? Based of prevailing market price
7. During selling eggs how market price is fixed? Based of prevailing market price
8. Whether damaged eggs are found? Yes, sometimes
9. If it happened what is the cause? Transport and environment
10. In a day how many eggs are found to be damaged? About 1-2%
11. In a day how many eggs are sold? 1000 nos
12. How much profit do you get from selling eggs? BDT. 3.0 per 100 eggs
13. Do you have any employee in your business? If yes, how many? None
14. Whether demand of eggs fluctuate? Yes
15. If demand fluctuate, then when demand become high? Winter
16. Why demand become increase in that time? Consumption increases in winter
17. When demand of eggs become decrease? Summer
18. Why demand become decrease in that time? Consumption decreases in summer
19. Regarding demand of eggs what changes have you observed over time? Increased
20. What problems are you facing in your profession? Price fluctuate more frequently

C. Income of the egg seller

21. What is the main income source to lead your family? Egg selling and livestock
22. In this occupation what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 50000.0
23. What is your net monthly income? BDT. 15000.0

KII # 3: Egg Seller

A. Identity of chicken/duck seller

Name: Md. Enamul, Father: Late Kofiluddin
Village: Jeol, Union: Bodolgachi, Upazila: Bodolgachi, District: Naogaon
Age: 32 yrs, Education: V, Main occupation: Egg Selling, Other income source: None

B. Information related to business

1. How long are you in this occupation? 15 yrs
2. Which types of poultry eggs do you sell? Chicken and duck
3. How do you sell egg? Whole-sale
4. From where do you collect egg? Directly from farm and other trader
5. Can you collect eggs according to your demand? Yes
6. During collecting eggs how market price is fixed? Based of prevailing market price
7. During selling eggs how market price is fixed? Based of prevailing market price
8. Whether damaged eggs are found? Yes, always
9. If it happened what is the cause? Transport
10. In a day how many eggs are found to be damaged? About 3%
11. In a day how many eggs are sold? 5000 nos
12. How much profit do you get from selling eggs? BDT. 0.2 peregg
13. Do you have any employee in your business? If yes, how many? None
14. Whether demand of eggs fluctuate? Yes
15. If demand fluctuate, then when demand become high? Winter
16. Why demand become increase in that time? Consumption increases in winter
17. When demand of eggs become decrease? Summer
18. Why demand become decrease in that time? Consumption decreases in summer
19. Regarding demand of eggs what changes have you observed over time? Increased
20. What problems are you facing in your profession? Financial

C. Income of the egg seller

21. What is the main income source to lead your family? Egg selling
22. In this occupation what is your monthly expenses (shop rent, employee salary, electricity etc.) BDT. 50000.0
23. What is your net monthly income? BDT. 25000.0

Annex IV

Questionnaire for HHS

Questionnaire for household survey (HHS)

Sub-project title "Market System development of safe poultry and poultry products"

ঘাসফুল, সরিষাহাতিমোড়, নওগাঁ

১. খামারিরধরনঃ (টিক·দিন) দেশিমুরগি/ লেয়ার / ব্রয়লার / সোনালী / কালারমিটচিকেন / হাঁস

২. খামারিরব্যক্তিগততথ্যাবলী

নং	নির্দেশক	উত্তরসমূহ (যথাযথস্থানেটিক·দিন)
১	সদস্যেরনাম	
২	পিতা/স্বামীরনাম	
৩	গ্রাম	
৪	ইউনিয়ন	
৫	উপজেলা	নওগাঁসদর / মান্দা / মহাদেবপুর / পত্নীতলা / বদলগাছী
৬	মোবাইলনম্বর	
৭	সদস্যেরজেন্ডার	১. পূরুষ, ২. মহিলা
৮	সদস্যেরধর্ম	১. ইসলাম, ২. হিন্দু, ৩. খ্রীষ্টান, ৪. বৌদ্ধ, ৫. সনাতন, ৬. ক্ষুদ্রনৃ-গোষ্ঠী
৯	সদস্যেরবয়স	..... বৎসর
১০	সদস্যেরশিক্ষা	১. অক্ষর-জ্ঞানহীন, ২. স্বাক্ষর-জ্ঞান, ৩. প্রাইমারী, ৪. অষ্টমশ্রেণী, ৫. মেট্রিক, ৬. ইন্টারমিডিয়েট, ৭. স্নাতক, ৮. স্নাতকোত্তর
১১	খানাপরিবারেরধরন	১. নারীপ্রধান, ২. স্বামীপরিত্যাক্তা, ৩. বিধবা, ৪. পঙ্গু-৪
১২	খানাপরিবারেপুংসদস্য	..... জন
১৩	খানাপরিবারেনারীসদস্য	..... জন
১৪	খানাপরিবারেবসতবাড়ীজমি	.....শতাংশ/কাঠা (১কাঠা = ১.৬৫শতাংশ)
১৫	খানাপরিবারেচাষযোগ্যজমি	..... শতাংশ/কাঠা/বিঘা (১বিঘা = ২০কাঠা = ৩৩শতাংশ)

৩. খামারিরআয়-রোজগারওপুষ্টিগ্রহণসম্পর্কিততথ্য

নং	নির্দেশক	উত্তর(যথাযথস্থানেটিক·দিন)
১	সদস্যেরপ্রধানপেশা	১. বেকার, ২. গৃহীনি, ৩. কৃষি (শস্য), ৪. গবাদিপশু, ৫. পোল্ট্রি, ৬. মৎস্য, ৭. শ্রমজীবি, ৮. মিস্ত্রি/মেকানিক্স, ৯. ড্রাইভার / রিক্সা / অটো, ১০. চাকুরী, ১১. দোকান, ১২. অন্যক্ষুদ্রব্যবসা, ১৩. হস্তশিল্প, ১৪. রেমিটেন্স
২	সদস্যেরঅন্যপেশা	..... (উপরেরকোডলিখুন)
৩	আপনারপরিবারেকতজনআয়-রোজগারকরে?	..... জন
৪	আপনারপ্রধানপেশাথেকেমাসিকআয়কত?	..... টাকা
৫	আপনারঅন্যউৎসথেকেমাসিকআয়কত?	..... টাকা
৬	আপনারহাঁস-মুরগিরখামারথেকেআয়কত?	দৈনিক ..... টাকাঅথবামাসিক ..... টাকা

-ঃআয়বেরকরারজন্যনিম্নলিখিততথ্যজেনেনিনঃ-

১. খামারিকৃষকহলে- কিফসলকরেন? ....., বছরেকয়বারহয়? ..... বার, মোটউৎপাদন.....মন প্রতিমনদ্রব্যকতদরেবিক্রয়করেন ? .....

২. শ্রমজীবি/মিস্ত্রি/মেকানিক্সহলে- মাসেকয়দিনশ্রমখাটেন? ..... দিন, প্রতিদিনকতমজুরিপান? ..... টাকা

৩. খামারিড্রাইভার/রিক্সা/অটোচালকহলে- মাসেকয়দিনগাড়ীচালান? ..... দিন, প্রতিদিনআয়কত? ..... টাকা

৪. খামারিচাকুরীকরলে- মাসেকতটাকাবেতনপান? ..... টাকা

৫. খামারিদোকানদারহলে- প্রত্যহকতটাকারবিক্রয়হয়? ..... টাকা, বিক্রয়েরকতভাগমুনাফা? .....%, দোকানভাড়াহলেসেটিসহ, বিদ্যুৎ, পরিবহন, কর্মচারীওঅন্যান্যমাসিকখরচকত? ..... টাকা

৬. খামারিক্ষুদ্রব্যবসায়ীহলে- প্রত্যহকতটাকারবিক্রয়হয়? ..... টাকা, বিক্রয়েরকতভাগমুনাফা? .....%, দোকানভাড়াহলেসেটিসহ, বিদ্যুৎ, পরিবহন, কর্মচারীওঅন্যান্যমাসিকখরচকত? ..... টাকা

৭. খামারিহস্তশিল্পব্যবসায়ীহলে- মাসেকতগুলোদ্রব্যবিক্রয়করেন? ..... টি, প্রতিটিদ্রব্যেরবিক্রয়মূল্যকত? ..... টাকা, দ্রব্যটিরকাঁচামালবাবদখরচকত? ..... টাকা,
হস্তশিল্পতৈরীরকর্মচারীথাকলেতারবেতনওঅন্যান্যমাসিকখরচকত? ..... টাকা

৭ আপনারখানাপরিবারে১৫থেকে৪৯বৎসরবয়সীমহিলাগনগত২৪ঘন্টায় (দিনওরাত) নিমোক্তনির্ধারিত১০টিখাদ্যউপাদানেরমধ্যেকোনকোনখাদ্যগ্রহনকরেছে?

১. শস্য, সাদামূলবামূলজাতীয়এবংকন্দবাআলুজাতীয়, ২. মটরশুটি, মটরএবংমসুরডাল, ৩. বাদামওবীজ, ৪. দুধএবংদুগ্ধজাতখাদ্য, ৫. মাংস, মুরগিএবংমাছ, ৬. ডিম, ৭. গাঢ়সবুজবর্ণেরশাক-সবজি, ৮. ভিটামিনএসমৃদ্ধশাক-সবজি, ৯. অন্যান্যশাক-সবজি, ১০. যেকোনফল।

৪. আপনারগৃহেকোনকোনপ্রাণীরয়েছে?(টিক·দিন) মুরগি/ পাতিহাঁস / রাজহাঁস / মাসকোভিহাঁস/ তিতির/ কোয়েল / কবুতর / টার্কিছাগল / ভেড়া / গরু / মহিষ / শূকর

৫. মুরগিরধরনওসংখ্যা

নং	মুরগিরধরন	সংখ্যা			
		a ছোটবাচ্চা	b বাড়ন্ত	c বড়	d সর্বমোট
১	দেশিমুরগি				
২	হিলিমুরগি				
৩	আসিলমুরগি				
৪	টাইগারমুরগি				
৫	সোনালীমুরগি				
৬	মাল্টিকালারচিকেন				
৭	লেয়ারহাইব্রীড				
৮	ব্রয়লারহাইব্রীড				

৬. হাঁসেরধরনওসংখ্যা

নং	হাঁসেরধরন	সংখ্যা			
		a ছোটবাচ্চা	b বাড়ন্ত	c বড়	d সর্বমোট
১	দেশিপাতিহাঁস				
২	খাঁকিক্যাম্বেলহাঁস				

৩ ইন্ডিয়ানরানারহাঁস
৪ পেকিং/বেইজিংহাঁস
৫ জেনডিংহাঁস
৬ মাসকোভিহাঁস
৭ রাজহাঁস

৭. হাঁস-মুরগিপালনপদ্ধতি

নং	হাঁস-মুরগিরধরন	পালনপদ্ধতি(যথাযথস্থানেটিক·দিন)			
১	দেশিমুরগি	১. চড়েখাওয়া (স্ক্যাভেঞ্জিং),	২. খাঁচায়,	৩. ঘরেফ্লোরে,	৪. ঘরেমাঁচায়
২	সোনালীমুরগি	১. চড়েখাওয়া (স্ক্যাভেঞ্জিং),	২. খাঁচায়,	৩. ঘরেফ্লোরে,	৪. ঘরেমাঁচায়
৩	মাল্টিকালারচিকেন	১. চড়েখাওয়া (স্ক্যাভেঞ্জিং),	২. খাঁচায়,	৩. ঘরেফ্লোরে,	৪. ঘরেমাঁচায়
৪	হাইব্রীডলেয়ার	১. চড়েখাওয়া (স্ক্যাভেঞ্জিং),	২. খাঁচায়,	৩. ঘরেফ্লোরে,	৪. ঘরেমাঁচায়
৫	হাইব্রীডব্রয়লার	১. চড়েখাওয়া (স্ক্যাভেঞ্জিং),	২. খাঁচায়,	৩. ঘরেফ্লোরে,	৪. ঘরেমাঁচায়
৬	পাতিহাঁস	১. চড়েখাওয়া (স্ক্যাভেঞ্জিং),	২. সেমি- স্ক্যাভেঞ্জিং৩. পুকুর-নদী-বিল-এ		
৭	রাজহাঁস	১. চড়েখাওয়া (স্ক্যাভেঞ্জিং),	২. সেমি- স্ক্যাভেঞ্জিং৩. পুকুর-নদী-বিল-এ		
৮	মাসকোভিহাঁস	১. চড়েখাওয়া (স্ক্যাভেঞ্জিং),	২. সেমি- স্ক্যাভেঞ্জিং৩. পুকুর-নদী-বিল-এ		

৮. হাঁস-মুরগিরবাসস্থান, বিছানাওপরিস্কার-পরিচ্ছন্নতা

নং	নির্দেশক	উত্তর(যথাযথস্থানেটিক·দিন)
১	দেশিহাঁস-মুরগিরঘরেরধরন	১. মাটিরঘর, ২. কুঁড়েঘর, ৩. বাঁশ-কাঠ-টিন, ৪. পাকাঘর
২	দেশিহাঁস-মুরগিরঘরেরমেঝেরধরন	১. কাঁচা, ২. ইটবিছানো, ৩. ঢালাই/নেটফিনিশিং
৩	ঘরেপর্যাপ্তআলো-বাতাসপ্রবেশেরব্যবস্থাআছে?	১. আছে, ২. নাই
৪	লেয়ার/ব্রয়লার/সোনালীমুরগিরঘরেরধরনকেমন?	১. পাকা (টিনেরছাদ), ২. বাঁশ-কাঠ-টিন-নেট, ৩. .....
৫	ঘরেরমেঝেরধরন	১. পাকা (নেটফিনিশিং), ২. ইটবিছানো, ৩. মাঁচা, ৪. কাঁচা
৬	ঘরেপর্যাপ্তআলো-বাতাসপ্রবেশেরব্যবস্থাআছে?	১. আছে, ২. নাই
৭	ঘরেরমেঝেতেকিধরনেরবিছানারব্যবস্থাআছে?	১. নাই, ২. ধানেরকুড়া, ৩. কাঠেরভূষি, ৪. শুকনাখড়/পাতা
৮	ঘরেপ্রবেশেরমুখেজীবানুনাশকফুট-বাথআছে?	১. আছে, ২. নাই
৯	ঘরনিয়মিতপরিস্কার-পরিচ্ছন্নকরাহয়কিনা-	১. নিয়মিত, ২. অনিয়মিত
১০	ঘরেনিয়মিতজীবানুনাশকস্প্রেকরাহয়কিনা-	১. নিয়মিত, ২. অনিয়মিত, ৩. একেবারেইনয়

৯. হাঁস-মুরগিরখাদ্যপ্রদান

নং	নির্দেশক	উত্তর(যথাযথস্থানেটিক·দিন)
১	ছেড়েপালাদেশিমুরগিকেবাড়তিখাবারদেন?	১. হ্যাঁ, ২. না
২	বাড়তিখাবারদিলেকিখাবারদেন?	১. রেডিফিড, ২. খুদ/ভাত, ৩. ভুট্টারভাংগা, ৪. গমভাংগা, ৫. খাদ্যেরউচ্ছিষ্ট, ৬. ঘাস-পাতা-সবজি, ৭. পোকামাকড়
৩	মুরগিপ্রতিদৈনিককতটুকুবাড়তিখাবারদেন?	..... গ্রাম (অথবা ..... টিকে ..... কেজি)
৪	ছেড়েপালাহাঁসকেবাড়তিখাবারদেন?	১. হ্যাঁ, ২. না
৫	বাড়তিখাবারদিলেকিখাবারদেন?	১. রেডিফিড, ২. খুদ/ভাতওকুড়া/ভূষিমাখানোখাদ্য,

		৩. গৃহেরখাদ্যেরউচ্ছিষ্ট, ৪. পোকামাকড়/শামুক/ঝিনুক
৬	হাঁসপ্রতিদৈনিককতটুকুবাড়তিখাবারদেন?	..... গ্রাম (অথবা ..... টিকে ..... কেজি)
৭	দেশিমুরগি-হাঁসকেভিটামিন-খনিজমিশ্রনখাওয়ান?	১. হ্যাঁ, ২. না

১০. হাঁস-মুরগিরপ্রজনন, ডিমেরউর্বরতাওবাচ্চাফুটানো

নং	নির্দেশক	উত্তর(যথাযথস্থানেটিক·দিন)
দেশিমুরগি		
১	দেশিমুরগিরপ্রজননেরজন্যমোরগপালেন?	১. হ্যাঁ, ২. না
২	পাললেমোরগকোথাথেকেসংগ্রহকরেন?	১. নিজস্ব, ২. বাজারথেকেকেনা, ৩. প্রতিবেশিরমোরগ
৩	কয়টিমুরগিপ্রতি১টিমোরগপালেন?	..... টি (অথবা ..... টিমুরগিও ..... টিমোরগ)
৪	মুরগিরবাচ্চাফোটান?	১. হ্যাঁ, ২. না
৫	ফোটালেকিপ্রক্রিয়ায়?	১. কুঁচেমুরগিবসিয়ে, ২. ইনকিউবেটরে
৬	ইনকিউবেটরেহলেসেটিকার?	১. নিজস্ব, ২. অন্যেরভাড়ানিয়ে
৭	ভাড়াহিসাবেহলেপ্রতিডিমফোটানোরখরচকত?	..... টাকা
৮	কুঁচেমুরগিদিয়েহলেএকসাথেকয়টিডিমফোটান?	মুরগিপ্রতি ..... টিডিমদিয়েবসানোহয়
৯	সেগুলোডিমেমোটকয়টিবাচ্চাফোটে?	..... টি
১০	বাচ্চামারাযাওয়ারপরেমোটকয়টিবেঁচেথাকে?	..... টি
১১	কয়টিবাচ্চানষ্টহয়? (চিল, কুকুর, বেড়ালেরআক্রমনে)	..... টি
১২	ফোটানোডিমেরক্যান্ডলিং (উর্বরতাপরীক্ষা) করেন?	১. হ্যাঁ, ২. না
১৩	করলেকয়টিডিমথেকেকয়টিবাদযায়?	..... টিথেকে ..... টিবাদযায় (অনুর্বর)
দেশিহাঁস		
১৪	হাঁসেরবাচ্চাকোথাথেকেসংগ্রহকরেন?	১. নিজস্বফোটানো, ২. কেনা
১৫	নিজস্বফোটানোহলেকিভাবেফোটান?	১. কুঁচেমুরগিদিয়ে, ২. কুঁচেহাঁসদিয়ে, ৩. ইনকিউবেটরে
১৬	হাঁসেরবাচ্চাক্রয়করলেকোথাথেকেকেনেন?	১. প্রতিবেশি, ২. বাজারথেকে, ৩. হাঁসেরহ্যাচারি, ৪. ডিলার
১৭	বাচ্চাফোটালেপ্রজননেরজন্যপুরুষহাঁসপালেন?	১. হ্যাঁ, ২. না
১৮	পাললেপুরুষহাঁসকোথাথেকেসংগ্রহকরেন?	১. নিজস্ব, ২. বাজারথেকেকেনা, ৩. প্রতিবেশির
১৯	কয়টিমাদিহাঁসপ্রতি১টিপুরুষহাঁসপালেন?	..... টি (অথবা ..... টিমাদিও ..... টিমর্দা)
২০	ইনকিউবেটরেবাচ্চাফুটালেহলেসেটিকার?	১. নিজস্ব, ২. অন্যেরভাড়ানিয়ে
২১	ভাড়াহিসাবেহলেপ্রতিডিমফোটানোরখরচকত?	..... টাকা
২২	কুঁচেমুরগিদিয়েহাঁসেরবাচ্চাফোটালেএকসাথেকয়টিডিমবসান?	মুরগিপ্রতি ..... টিডিমদিয়েবসানোহয়
২৩	সেগুলোডিমেমোটকয়টিবাচ্চাফোটে?	..... টি
২৪	কুঁচেহাঁসদিয়েবাচ্চাফোটালেএকসাথেকয়টিডিমবসান?	হাঁসপ্রতি ..... টিডিমদিয়েবসানোহয়
২৫	বাচ্চামারাযাওয়ারপরেমোটকয়টিবেঁচেথাকে?	..... টি
২৬	কয়টিবাচ্চানষ্টহয়? (চিল, কুকুর, বেড়ালেরআক্রমনে)	..... টি
২৭	ফোটানোডিমেরক্যান্ডলিং (উর্বরতাপরীক্ষা) করেন?	১. হ্যাঁ, ২. না
২৮	করলেকয়টিডিমথেকেকয়টিবাদযায়?	..... টিথেকে ..... টিবাদযায় (অনুর্বর)

১১. হাঁস-মুরগিরব্যবস্থাপনা, জৈবনিরাপত্তা, রোগপ্রতিরোধওমৃত্যুরহার

নং	নির্দেশক	উত্তর(যথাযথস্থানেটিক·দিন)
১	আপনারগৃহেরদেশিমুরগিওহাঁসকেলালন-পালনকরে?	১. স্বামী, ২. স্ত্রী, ৩. সন্তান, ৪. সবাইমিলে, ৫. কর্মচারী
২	দেশিমুরগিকেদিনেকয়বারবাড়তিখাদ্যদেন?	১. একবার, ২. দুইবার, ৩. তিনবার, ৪. একেবারেইদেইনা
৩	দেশিহাঁসকেদিনেকয়বারবাড়তিখাদ্যদেন?	১. একবার, ২. দুইবার, ৩. তিনবার, ৪. একেবারেইদেইনা
৪	হাঁস-মুরগিপালনেজৈব-নিরাপত্তাসম্পর্কেধারনাআছে?	১. হ্যাঁ, ২. না
৫	থাকলেকোথাথেকেজেনেছেন?	১. প্রশিক্ষণ, ২. পোল্ট্রিবিশেষজ্ঞ, ৩. এলএসপি, ৪. মিডিয়া
৬	আপনিকিতাঅনুসরনকরেন?	১. হ্যাঁ, ২. না
৭	হাঁস-মুরগিররোগপ্রতিরোধেনিয়মিতভ্যাক্সিনদেন?	১. নিয়মিত, ২. দেইতবেঅনিয়মিত, ৩. একেবারেইদেইনা
৮	দেশিমুরগিকেকিকিভেক্সিনদেন?	১. রানিক্ষেত, ২. গামবোরো, ৩. কলেরা, ৪. .....
৯	বানিজ্যিকলেয়ারকেকিকিভেক্সিনদেন?	১. রানিক্ষেত, ২. গামবোরো, ৩. কলেরা, ৪. করাইজা, ৫. ব্রঙ্কাইটিস, ৬. পক্স, ৭. ইডিএস, ৮. মাইকোপ্লাজমা, ৯. সালমোনেলা, ১০. এভিয়ানইনফ্লুয়েঞ্জা, ১১. কক্সিডিওসিস, ১২. .....
১০	বানিজ্যিকব্রয়লারকেকিকিভেক্সিনদেন?	১. রানিক্ষেত, ২. গামবোরো, ৩. .....
১১	সোনালিওমাল্টিকালারচিকেনকেকিকিভেক্সিনদেন?	১. রানিক্ষেত, ২. গামবোরো, ৩. .....
১২	হাঁসকেকিকিভেক্সিনদেন?	১. ডাকপ্লেগ, ২. ডাককলেরা, ৩. .....
১৩	হাঁস-মুরগিকেকিনিয়মিতকৃমিনাশকপ্রদানকরেন?	১. নিয়মিত, ২. দেইতবেঅনিয়মিত, ৩. একেবারেইদেইনা
১৪	লেয়ারমুরগিরডিবিকিং (ঠোঁটকাটা) করেন?	১. হ্যাঁ, ২. না
১৫	গতছয়মাসেদেশিবড়মুরগি-মোরগমারাগেছে?	১. হ্যাঁ, ২. না
১৬	মারাগেলেসর্বমোটকয়টিমুরগি-মোরগমারাগেছে?	..... টি
১৭	গতছয়মাসেদেশিবড়হাঁসমারাগেছে?	১. হ্যাঁ, ২. না
১৮	মারাগেলেসর্বমোটকয়টিবড়হাঁসমারাগেছে?	..... টি
১৯	আপনারবানিজ্যিকলেয়ারফার্মেডিমপাড়ারআগপর্যন্তমুরগিরমৃত্যুহারকত?	.....% (অথবামোট ..... টিরমধ্যে ..... টিমারাগেছে)
২০	ডিমপাড়ামুরগিরমৃত্যুহারকত?	.....% (অথবামোট ..... টিরমধ্যে ..... টিমারাগেছে)
২১	ব্রয়লারেরমৃত্যুহারকত?	.....% (অথবামোট ..... টিরমধ্যে ..... টিমারাগেছে)

২২	সোনালীবামাল্টিকালারচিকেনএরমৃত্যুহারকত?	.....% (অথবামোট ..... টিরমধ্যে ..... টিমারাগেছে)
২৩	আপনারবানিজ্যিকহাঁসফার্মেডিমপাড়ারআগপর্যন্তহাঁসেরমৃত্যুহারকত?	.....% (অথবামোট ..... টিরমধ্যে ..... টিমারাগেছে)
২৪	ডিমপাড়াহাঁসেরমৃত্যুহারকত?	.....% (অথবামোট ..... টিরমধ্যে ..... টিমারাগেছে)
২৫	দেশিমুরগিসাধারনতঃকোনকোনরোগেমারাযায়?	১. রানিক্ষেত, ২. গামবোরো, ৩. কলেরা, ৪. করাইজা, ৫. ব্রঙ্কাইটিস, ৬. পক্স, ৭. মাইকোপ্লাজমা, ৮. সালমোনেলা, ৯. এভিয়ানইনফ্লুয়েঞ্জা, ১০. কক্সিডিওসিস (রক্তআমাশা), ১১. অথবালক্ষ্যন .....
২৬	বানিজ্যিকলেয়ারসাধারনতঃকোনকোনরোগেমারাযায়?	১. রানিক্ষেত, ২. গামবোরো, ৩. কলেরা, ৪. করাইজা, ৫. ব্রঙ্কাইটিস, ৬. পক্স, ৭. ইডিএস, ৮. মাইকোপ্লাজমা, ৯. সালমোনেলা, ১০. এভিয়ানইনফ্লুয়েঞ্জা, ১১. কক্সিডিওসিস, ১২. অথবালক্ষ্যন .....
২৭	বানিজ্যিকব্রয়লারসাধারনতঃকোনকোনরোগেমারাযায়?	১. রানিক্ষেত, ২. গামবোরো, ৩. বার্ডফ্লু (এভিয়ানইনফ্লুয়েঞ্জা), ৪. ব্রঙ্কাইটিস, ৫. অথবালক্ষ্যন ....
২৮	সোনালীবামাল্টিকালারচিকেনসাধারনতঃকোনকোনরোগেমারাযায়?	১. রানিক্ষেত, ২. গামবোরো, ৩. বার্ডফ্লু (এভিয়ানইনফ্লুয়েঞ্জা), ৪. ব্রঙ্কাইটিস, ৫. অথবালক্ষ্যন ....
২৯	হাঁসসাধারনতঃকোনকোনরোগেমারাযায়?	১. ডাকপ্লেগ, ২. ডাককলেরা, ৩. অথবালক্ষ্যন ....

১২. হাঁস-মুরগিরউৎপাদনবৈশিষ্ট্য

নং	নির্দেশক	উত্তর(যথাযথস্থানেটিক·দিন)
দেশিমুরগি		
১	দেশিমুরগিকয়মাসবয়সেডিমপাড়াশুরুকরে?	..... মাস
২	দেশিমুরগিএকটানাকয়টিডিমদেয়?	..... টি
৩	কুঁচেমুরগিডিমেনাবসলেকতদিনপরকুঁচেভাঙ্গে (বাআবারডিমদেয়াশুরুকরে)	..... দিন
৪	বাচ্চানাফোটালেআপনিকিভাবেমুরগিরকুঁচেভাঙ্গান?	১. কিছুইকরিনা, ২. ডিমপাড়াস্থানেবসতেদেইনা,

		৩. পানিতেচুবাই, ৪. নাকেপালকঢুকিয়েদেই, ৫. অন্য .....
৫	দেশিমুরগিমোটামুটিকয়মাসবয়সে১কেজিওজনেরহয়?	..... মাস
বানিজ্যিকলেয়ার		
৬	আপনারলেয়ারেরবর্তমানবয়সকত?	..... সপ্তাহ
৭	বর্তমানেডিমউৎপাদনেরহারকত?	.....% (অথবা ..... টিমুরগিসর্ব্বোচ্চ ..... টিডিমদেয়)
৮	সর্ব্বোচ্চডিমউৎপাদনহারকতপেয়েছেন?	.....% (অথবা ..... টিমুরগিসর্ব্বোচ্চ ..... টিডিমদেয়)
৯	বয়সঅনুযায়ীকাংখিতডিমউৎপাদনপাচ্ছেন/পেয়েছেন?	১. হ্যাঁ২. না
১০	নাপেলেতারকারনকি?	১. রোগ, ২. খাদ্য, ৩. জাত, ৪. আবহাওয়া, ৫. জানিনা
দেশিহাঁস		
১১	দেশিহাঁসকয়মাসবয়সেডিমপাড়াশুরুকরে?	..... মাস
১২	দেশিহাঁসএকটানাকয়টিডিমদেয়?	..... টি
১৩	হাঁসকুঁচেহলেঅথবাডিমপাড়াবন্ধকরলেযদিনাডিমেতাদেয়, তবেকতদিনপরআবারডিমদেয়াশুরুকরে?	..... দিন
১৪	বাচ্চানাফোটালেআপনিকিভাবেহাঁসেরকুঁচেভাঙ্গান?	১. কিছুইকরিনা, ২. ডিমপাড়াস্থানেবসতেদেইনা, ৩. নাকেপালকঢুকিয়েদেই, ৪. অন্য .....
বানিজ্যিকলেয়ারহাঁস (খাঁকিক্যাম্বেল, রানার, পেকিন)		
১৫	আপনারলেয়ারহাঁসেরবর্তমানবয়সকত?	..... সপ্তাহ
১৬	বর্তমানেলেয়ারহাঁসেরডিমউৎপাদনেরহারকত?	.....% (অথবা ..... টিহাঁসসর্ব্বোচ্চ ..... টিডিমদেয়)
১৭	সর্ব্বোচ্চডিমউৎপাদনেরহারকতপেয়েছেন?	.....% (অথবা ..... টিহাঁসসর্ব্বোচ্চ ..... টিডিমদেয়)
১৮	বয়সঅনুযায়ীলেয়ারহাঁসেরকাংখিতডিমউৎপাদনপাচ্ছেন/পেয়েছেন?	১. হ্যাঁ২. না
১৯	নাপেলেতারকারনকি?	১. রোগ, ২. খাদ্য, ৩. জাত, ৪. আবহাওয়া, ৫. জানিনা
সোনালী/মাল্টিকালারচিকেন		
২০	সোনালী/মাল্টিকালারচিকেনকতদিনপরেবিক্রয়উপযোগীহয়?	..... দিন
২১	বিক্রয়উপযোগীসোনালী/মাল্টিকালারচিকেনেরআনুমানিকগড়ওজনকতহয়?	..... গ্রাম
২২	সোনালীবামাল্টিকালারচিকেনযতটুকুওজনবৃদ্ধিহওয়ারকথাততটুকুকিপান?	১. হ্যাঁ২. না
২৩	নাপেলেতারকারনকি?	১. রোগ, ২. খাদ্য, ৩. জাত, ৪. আবহাওয়া, ৫. জানিনা
ব্রয়লার		
২৪	আপনারখামারেরব্রয়লারকতদিনপরেবিক্রয়উপযোগীহয়?	..... দিন
২৫	বিক্রয়উপযোগীব্রয়লারেরআনুমানিকগড়ওজনকতহয়?	..... কেজি
২৬	ব্রয়লারেরবিক্রয়উপযোগীসময়েযতটুকুওজনহওয়ারকথাততটুকুকিপান?	১. হ্যাঁ২. না
২৭	নাপেলেতারকারনকি?	১. রোগ, ২. খাদ্য, ৩. জাত, ৪.

১৩. হাঁস-মুরগিরউৎপাদনখরচ

A.দেশিমুরগিরনিয়মিতখরচ

	ধ	ন	প	ফ
নং	খরচেরখাতসমূহ	দৈনিকখরচ	বিক্রয়পর্যন্তখরচ (মাংসেরজন্যবিক্রয়যোগ্য)	বাৎসরিকখরচ (ডিমপাড়ামুরগির)
১	বাচ্চাবামুরগিক্রয়			
২	খাদ্য			
৩	চিকিৎসা			
৪	ঔষধ			
৫	টিকা (ভেক্সিন)			
৬	শ্রমিক (যদিথাকে)			
৭	বিবিধ			
৮	সর্বমোটখরচ			
৯	সর্বমোটমুরগিরসংখ্যা = ...			
১০	বিক্রয়েরবয়স (দিন) = ...			
১১	মুরগিপ্রতিখরচ =			

খাদ্যখরচবেরকরারউপায়ঃ

	প্রদানকৃতখাদ্যেরনাম	খাদ্যপ্রদানেরপরিমান (কেজি)	প্রতিকেজিরমূল্য (টাকা)	খরচ (টাকা)
১.				
২.				
৩.				
৪.				
	মোট			

B.সোনালী, মাল্টিকালারচিকেনওব্রয়লারেরনিয়মিতখরচ

	a	b	c	d
নং	**খরচেরখাতসমূহ**	১দিনবয়সথেকেবিক্রয়পর্যন্তখরচ (টাকা)		
		ব্রয়লার	সোনালীমুরগি	মাল্টিকালারচিকেন
১	বাচ্চাক্রয় (১দিনবয়সি)			
২	খাদ্য			
৩	চিকিৎসা			
৪	ঔষধওভিটামিন-মিনারেল			
৫	টিকা (ভেক্সিন)			
৬	লিটার (তুষ)			
৭	বিদ্যুৎওপানি			
৮	শ্রমিক (যদিথাকে)			
৯	সেডভাড়া (যদিনিজেরনাথাকে)			
১০	বিবিধ (জীবানুনাশক, যাতায়াত.....)			
১১	সর্বমোটখরচ			
১২	সর্বমোটমুরগিরসংখ্যা =			
১৩	বিক্রয়েরবয়স (দিন) =			
১৪	বিক্রয়েরসময়গড়ওজন (কেজি) =			
১৫	মুরগিপ্রতিখরচ =			

১৬ এফ.সি.আর=

C.**বানিজ্যিকলেয়ারমুরগিরনিয়মিতখরচ**

	a	b	c	d	e
নং	**খরচেরখাতসমূহ**	ডিমপাড়ারআগপর্যন্তখরচ	ডিমপাড়ামুরগিরদৈনিকখরচ	ডিমপাড়ামুরগিরমাসিকখরচ	মুরগিবিক্রয়পর্যন্তখরচ
১	বাচ্চাবাপুলেটক্রয়				
২	খাদ্য				
৩	চিকিৎসা				
৪	ঔষধ				
৫	টিকা (ভেক্সিন)				
৬	লিটার (তুষ)				
৭	বিদ্যুৎওপানি				
৮	শ্রমিক (যদিথাকে)				
৯	বিবিধ				
১০	সর্বমোটখরচ				
১১	সর্বমোট**মুরগির**				
১২	**সংখ্যা =**				
১৩	বিক্রয়েরবয়স (সপ্তাহ) = ...				
১৪	মুরগিপ্রতিখরচ =				

D.**দেশিহাঁসেরনিয়মিতখরচ**

	a	b	c	d
নং	**খরচেরখাতসমূহ**	দৈনিকখরচ	বিক্রয়পর্যন্তখরচ (মাংসেরজন্যবিক্রয়যোগ্য)	বাৎসরিকখরচ (ডিমপাড়াহাঁসের)
১	বাচ্চাবাহাঁসক্রয়			
২	খাদ্য			
৩	চিকিৎসা			
৪	ঔষধ			
৫	টিকা (ভেক্সিন)			
৬	শ্রমিক (যদিথাকে)			
৭	বিবিধ			
৮	সর্বমোটখরচ			
৯	সর্বমোটহাঁসের**সংখ্যা =**			
১০	বিক্রয়েরবয়স (দিন) = ...			
১১	হাঁসপ্রতিখরচ =			

খাদ্যখরচবেরকরারউপায়ঃ

প্রদানকৃতখাদ্যেরনাম	খাদ্যপ্রদানেরপরিমান (কেজি)	প্রতিকেজিরমূল্য (টাকা)	খরচ (টাকা)
১.			
২.			

৩.
৪.

মোট

১৪. মুরগি-হাঁস-ডিমবাজারজাতকরনওমুনাফা

নং	নির্দেশক	উত্তর(যেথাযথস্থানেটিক·দিন)
দেশিমুরগি		
১	আপনিকিগতছয়মাসেদেশিমোরগ-মুরগিবিক্রয়করেছেন?	১. হ্যাঁ২. না
২	নাকরলেসেগুলোকিকরেন?	১. নিজেখাই, ২. সংখ্যাবাড়াচ্ছি, ৩. মারাগেছে
৩	বিক্রয়করলেগত৬মাসেআপনিকয়টিবিক্রয়করেছেন?	..... টিমোরগ, ... টিমুরগি
৪	সেগুলোরগড়ওজনকতছিল?	মোরগ .....কেজি, মুরগি .....কেজি
৫	সেগুলোরগড়বিক্রয়মূল্যকতছিল?	মোরগ .....টাকা, মুরগি ..... টাকা
৬	আপনিকিগতছয়মাসেদেশিমুরগিরডিমবিক্রয়করেছেন?	১. হ্যাঁ২. না
৭	নাকরলেসেগুলোকিকরেন?	১. এখনওডিমদেয়নি, ২. নিজেখাই, ৩. বাচ্চাফুটাই
৮	বিক্রয়করলেগত৬মাসেআপনিকয়টিডিমবিক্রয়করেছেন?	..... টি
৯	প্রতিহালিডিমকতটাকায়বিক্রয়করেছেন?	সর্ব্বোচ্চ ..... টাকা, সর্বনিম্ন ..... টাকা
সোনালী/মাল্টিকালারচিকেন		
১০	আপনিগত১বছরেমোটকয়টিসোনালী/মাল্টিকালারচিকেনেরব্যাচবিক্রয়করেছেন?	১. ..... টি, ২. একটিওনা
১১	সর্বশেষব্যাচেসর্বমোটকয়টিমুরগিবিক্রয়করেছেন?	..... টি
১২	বিক্রয়মূল্যকতটাকাপেয়েছেন?	প্রতিকেজি ..... টাকা
১৩	বিক্রয়করেমুনাফাপেয়েছেন?	১. হ্যাঁ২. না
১৪	মুনাফাপেলেকতটাকাপেয়েছেন?	..... টাকা
১৫	মুনাফানাপেলেকারনকি?	১. মুরগিরদরপতন, ২. মুরগিরকাংখিতবৃদ্ধিনাহওয়া, ৩. অধিকমৃত্যুহার, ৪. অন্য .....
ব্রয়লার		
১৬	আপনিগত১বছরেমোটকয়টিব্রয়লারেরব্যাচবিক্রয়করেছেন?	১. ..... টি, ২. একটিওনা
১৭	সর্বশেষব্যাচেসর্বমোটকয়টিব্রয়লারবিক্রয়করেছেন?	..... টি
১৮	বিক্রয়মূল্যকতটাকাপেয়েছেন?	প্রতিকেজি ..... টাকা
১৯	বিক্রয়করেমুনাফাপেয়েছেন?	১. হ্যাঁ২. না
২০	মুনাফাপেলেকতটাকাপেয়েছেন?	..... টাকা
২১	মুনাফানাপেলেকারনকি?	১. মুরগিরদরপতন, ২. মুরগিরকাংখিতবৃদ্ধিনাহও

		য়া, ৩. অধিকমৃত্যুহার, ৪. অন্য .....
বানিজ্যিকলেয়ারেরডিম		
২২	আপনিগত১মাসেসর্বমোটকতগুলোলেয়ারেরডিমবিক্রয়করেছেন?	..... টি
২৩	প্রতিশ' (১০০) ডিমেরমূল্যকতটাকাপেয়েছেন?	সর্ব্বোচ্চ ..... টাকা, সর্বনিম্ন ..... টাকা
২৪	ডিমবিক্রয়থেকেগত১মাসেমুনাফাপেয়েছেন?	১. হ্যাঁ২. না
২৫	মুনাফাপেলে১মাসেমোটকতটাকাপেয়েছেন?	..... টাকা
২ ৬	মুনাফানাপেলেকারনকি?	১. ডিমেরদরপতন, ২. মুরগিরডিমউৎপাদনকম, ৩. অন্য .....

১৫. প্রয়োজনীয়উপকরন, সেবাসহায়তাকারীএবংবাজারব্যবস্থারসহিতসংযোগ

নং	নির্দেশক	উত্তর(যথাযথস্থানেটিক·দিন)
১	হাঁস-মুরগিরখাবারকোথাথেকেসংগ্রহকরেন?	১. স্থানীয়বাজার, ২. দূরবর্তীবাজার
২	হাঁস-মুরগিরঔষধকোথাথেকেসংগ্রহকরেন?	১. স্থানীয়ফার্মেসী, ২. দূরবর্তীফার্মেসী, ৩. পল্লীচিকিৎসক
৩	হাঁস-মুরগিরখাদ্য-পানিরপাত্রওঅন্যান্যপ্রয়োজনীয়উপকরনকোথাথেকেসংগ্রহকরেন?	১. স্থানীয়বাজার, ২. দূরবর্তীবাজার
৪	হাঁস-মুরগিরভেক্সিনকোথাথেকেসংগ্রহকরেন?	১. পশুহাসপাতাল, ২. স্থানীয়ফার্মেসী, ৩. দূরবর্তীফার্মেসী
৫	হাঁস-মুরগিরচিকিৎসাসহায়তাকারকাছথেকেপান?	১. পশুহাসপাতাল, ২. স্থানীয়পল্লীচিকিৎসক, ৩. নিজেই৪. অন্যঅভিজ্ঞখামারি, ৫. ঔষধবিক্রেতা, ৬. ঔষধকোম্পানীরপ্রতিনিধি, ৭. কারোসহায়তাপাইনা
৬	লেয়ারমুরগিরঠোঁটকাটারজন্যকারসহায়তানেন?	১. নিজেই, ২. অন্যঅভিজ্ঞখামারী, ৩. .....
৭	দেশিহাঁস-মুরগিকোথায়বিক্রয়করেন?	১. প্রতিবেশিরকাছে, ২. বাসাথেকেপাইকারনেয়, ৩. স্থানীয়বাজারে, ৪. .....
৮	ব্রয়লার/সোনালী/মাল্টিকালারচিকেনকোথায়বিক্রয়করেন?	১. পাইকারীব্যবসায়ী, ২. বাজারেরখুচরাব্যবসায়ী, ৩. চুক্তিবদ্ধব্যবসায়ী/প্রতিষ্ঠান, ৪. .....
৯	দেশিহাঁস-মুরগিরডিমকোথায়বিক্রয়করেন?	১. প্রতিবেশিরকাছে, ২. বাসাথেকেপাইকারনেয়, ৩. স্থানীয়বাজারে, ৪. মুদিরদোকান, ৫. বেকারি, ৬. বিক্রিকরিনা
১০	বানিজ্যিকলেয়ারেরডিমকোথায়বিক্রয়করেন?	১. খামারথেকেপাইকারনেয়, ২. নিকটবর্তীডিমেরপাইকারীব্যবসায়ী৩.

		দূরবর্তীডিমেরপাইকারীব্যবসায়ী, ৪. স্থানীয়বাজারে, ৫. মুদিরদোকানে, ৬. বেকারিরকাছে, ৭. চুক্তিবদ্ধব্যবসায়ী/প্রতিষ্ঠান, ৮. .....
১১	হাঁস-মুরগি-ডিমবিক্রয়েসংগঠিতকোনবাজারসংস্থারসহিতচুক্তিবদ্ধহয়েছেনকি?	১. হ্যাঁ, ২. না

১৬. পোল্ট্রিপালনসংক্রান্তঅভিজ্ঞতা,প্রশিক্ষণ, যান্ত্রিকরণওতথ্যপ্রযুক্তিরব্যবহার

নং	নির্দেশক	উত্তর(যথাযথস্থানেটিক·দিন)
১	আপনিদেশিমুরগিকতবছরযাবৎপালছেন?	১. পারিবারিকভাবেবংশপরম্পরায়, ২. .....বছর
২	আপনিদেশিহাঁসকতবছরযাবৎপালছেন?	১. পারিবারিকভাবেবংশপরম্পরায়, ২. .....বছর
৩	আপনিবানিজ্যিকলেয়ারকতবছরযাবৎপালছেন?	..... বছর
৪	আপনিসোনালী/মাল্টিকালারচিকেনকতবছরযাবৎপালছেন?	..... বছর
৫	আপনিব্রয়লারকতবছরযাবৎপালছেন?	..... বছর
৬	আপনিবানিজ্যিকলেয়ারহাঁসকতবছরযাবৎপালছেন?	..... বছর
৭	আপনিপোল্ট্রিপালনবিষয়ককোনপ্রশিক্ষণপেয়েছেন?	১. হ্যাঁ, ২. না
৮	পেলেকোনবিষয়ে?	১. মুরগি, ২. হাঁস, ৩. অন্য .....
৯	কোনসংস্থাথেকেপ্রশিক্ষণপেয়েছেন?	১. সরকারীসংস্থা, ২. এনজিও
১০	কয়বারপ্রশিক্ষণপেয়েছেন?	..... বার
১১	সর্বমোটকতদিনেরপ্রশিক্ষণপেয়েছেন?	..... দিন
১২	আপনিকিপ্রশিক্ষণগ্রহনেরপরেলেয়ার/ ব্রয়লার/ সোনালী/হাঁসেরখামারদিয়েছেন?	১. হ্যাঁ, ২. না
১৩	প্রশিক্ষণনানিয়েকিভাবেখামারকরলেন?	১. অন্যেরদেখে, ২. খামারেকাজকরেশিখে, ৩. অন্যখামারিরসহায়তানিয়ে, ৪. .....
১৪	পোল্ট্রিপালনেআধুনিকপ্রযুক্তিওযন্ত্রপাতি (যেমনঃচেইনফিডার, নিপলড্রিংকার, কুলিং/হিটিংসিস্টেম, গ্যাসব্রুডিং, ওইংব্যালেন্স, অটোসিরিঞ্জ...) ব্যবহারকরেন?	১. হ্যাঁ, ২. না
১৫	পোল্ট্রিপালনবিষয়কতথ্যপ্রযুক্তিরজন্যকোনমোবাইলঅ্যাপসকিংবাঅনলাইনমাধ্যমব্যবহারকরেন?	১. হ্যাঁ, ২. না
১৬	পোল্ট্রিপন্যবিক্রয়েঅনলাইনমাধ্যমেসংযুক্তহয়েছেন?	১. হ্যাঁ, ২. না
১৭	পোল্ট্রিপালনেগ্লোবালগ্যাপ (গ্রঅচ)	১. হ্যাঁ, ২. না
১৮	বাউত্তমঅনুশীলনসম্পর্কেকিআপনারকোনধারনাআছে?	
১৯	ধারনাথাকলেকোথাথেকেজেনেছেন?	১. প্রশিক্ষণ, ২. অনলাইনমিডিয়া, ৩. বই-

		পুস্তক, ৪. .....
১	আপনারখামারপরিচালনায়কিতাঅনুসরনকরেন?	১. হ্যাঁ, ২. না
৯		

১৭. হাঁস-মুরগিপালনেপরিবেশওস্বাস্থ্যঝুঁকি

নং	নির্দেশক	উত্তর(যথাযথস্থানেটিক·দিন)
১	হাঁস-মুরগিরবিষ্ঠাকিকরেন?	১. বিক্রয়করি, ২. জমিতেসারহিসাবেব্যবহারকরি, ৩. বাইরেফেলেদেই (নষ্টহয়) ৪. .....
২	প্রাকৃতিকদুর্যোগে (ঝড়, বন্যা) আপনারহাঁস-মুরগিরখামারকিক্ষতিগ্রস্থহয়/হয়েছে?	১. হ্যাঁ, ২. না
৩	ক্ষতিগ্রস্থহলেকিধরনের?	১. ঘড়নষ্টহয়/উড়েযায়, ২. রোগেরপ্রাদুর্ভাববাড়ে, ৩. হাঁস-মুরগিমারাযায়, ৪. .....
৪	অধিকগরম, অতি-বৃষ্টি, খড়াওঅনাবৃষ্টিতেআপনারহাঁস-মুরগিরকিসমস্যাহয়?	১. সমস্যাহয়না, ২. হাঁস-মুরগিহাঁপায়, ৩. খাদ্যখাওয়াকমিয়েদেয়, ৪. প্রচুরপানিখেয়েলিটারভিজিয়েদেয়, ৫. ডিমউৎপাদনকমেযায়, ৬. রোগেরপ্রকোপবেড়েযায়, ৭. গরমেস্ট্রোককরেমারাযায়, ৮. .....
৫	হাঁস-মুরগিররোগপ্রতিরোধেকিনিয়মিতঅ্যান্টিবায়োটিকব্যবহারকরেন?	১. একেবারেইকরিনা, ২. নিয়মিতকরি, ৩. অনিয়মিতকরি, ৪. রোগহলেকরি
৬	অ্যান্টিবায়োটিকব্যবহারকরলেব্যবহারশেষহওয়ারকয়দিনপরেহাঁস-মুরগিবিক্রয়করেন?	১. যেকোনসময় (নির্দিষ্টনয়), ২. ..... দিনপরে, ৩. ঔষধেরগায়েলেখানির্দেশনামোতাবেক
৭	লেয়ারমুরগিতেঅ্যান্টিবায়োটিকব্যবহারকরলেব্যবহারকালিনমুরগিরডিমকিবিক্রয়করেন?	১. হ্যাঁ, ২. না
৮	হাঁস-মুরগিরদৈহিকবৃদ্ধিরজন্যকিনিয়মিতগ্রোথপ্রমোটর (ঔষধ) ব্যবহারকরেন?	১. একেবারেইকরিনা, ২. নিয়মিতকরি, ৩. অনিয়মিতকরি, ৪. বৃদ্ধিনাহলেকরি
৯	হাঁস-মুরগিরডিমউৎপাদনবৃদ্ধিরজন্যকিবিশেষকোনঔষধ (ভিটামিন-খনিজবাদে) ব্যবহারকরেন?	১. একেবারেইকরিনা, ২. নিয়মিতকরি, ৩. অনিয়মিতকরি, ৪.

উৎপাদনকমহলেকরি

১৮. পোল্ট্রিপালনেকর্ম-সংস্থান,ঋণওপোল্ট্রি-বীমা

নং	নির্দেশক	উত্তর(যথাযথস্থানেটিক·দিন)
১	**হাঁস-মুরগিপালনেআপনারনিজেরশ্রমছাড়াবেতনভূক্তকোনকর্মচারীরয়েছে?**	১. হ্যাঁ, ২. না
২	**থাকলেকয়জন?**	..... **জন**
৩	**নাথাকলেআপনিপ্র**ত্যহকতসময়ব্যয়করেন?	..... ঘন্টা
৪	হাঁস-মুরগিপালনেরজন্যআপনিকিকোনলোন/ঋণনিয়েছেন?	১. হ্যাঁ, ২. না
৫	নিলেকতটাকানিয়েছেন?	..... টাকা
৬	কারকাছথেকেঋণনিয়েছেন?	১. এনজিও, ২. ব্যাংক, ৩. ব্যক্তিরনিকটথেকে
৭	আপনারচাহিদাঅনুযায়ীকিঋণপান?	১. হ্যাঁ, ২. না
৮	পোল্ট্রিপালনেকিবীমা (ইনস্যুরেন্স) সুবিধাপেয়েছেন?	১. হ্যাঁ, ২. না

********* এতক্ষণধৈর্য্যধরেসময়দেয়ারজন্যআপনাকেঅনেকধন্যবাদ **********

Annex V: Terms of Reference (ToR)

Rural Microenterprise Transformation Project (RMTP)

Terms of Reference (TOR) for conducting a baseline study
on
Market System development of safe poultry and poultry products.

1. About the organization:

Ghashful is a renowned Non-Governmental Organization in Bangladesh established by Late Shamsunnahar Rahman Paran an icon, trailblazer woman in the development sector of Bangladesh. The organization has been working for the betterment of humanity from the time of its inception. The organization started it's journey in newly independent Bangladesh by some informal social work in urban slum areas of Chattogram, through relief work, women's empowerment, family planning and in rehabilitation of War heroines (women freedom fighters) to give them a life free of agony, a life with dignity. Ghashful is working with the vision of a **conscious, self-reliant Bangladesh with equality where everyone's basic rights are ensured to live with dignity.** Present days, Ghashful is serving the

society by engaging in variety of social works like education, health, microfinance, community development, agriculture and also on fighting against climate change.

2. About the Project:

The project titled 'Market System development of safe poultry and poultry products' jointly financed by Palli Karma-Sahayak Foundation (PKSF) and the International Fund for Agricultural Development (IFAD), will be implemented in Naogaon Sadar, Manda, Mohadebpur, Patnitala, Bodolgachhi Upazilas of Naogaon district by **Ghashful**. The project will be working to increase income, ensure food security and improve family nutrition of marginal and small farmers and poultry related backward and forward market entrepreneurs. The sub-project will also work on value addition at various levels, expansion of financial services for enterprise development, and strengthening of the institutional framework for the development of safe eggs, meat and meat products of the value chain. Efforts will be made to scale up and expansion of enterprises through efficient production methods and strong market linkages of marginal and small farmers. If the sub-project is implemented, the income of 70 percent of the entrepreneurs will increase by at least 50 percent and 30 percent of the project members will be able to add nutritious food to their regular diet.

The value chain analysis of the sub-sector has been undertaken while taking up the sub-project. The study found several constraints to the development of the livestock sub-sector, the problems in the project area are - inadequate supply of purebred chicks & quality feeds, conventional farming management, poor farm biosecurity, lack of quality livestock services, untrustworthy poultry & egg production, poor processing facilities, lack of ICT & financial services, improper use of farm waste and poor market linkages for safe egg and meat production and so on. Besides, it is not possible to sell locally produced animal products at competitive prices. There are 9.5/19 thousand farmers under the sub-project and 0.5/1 thousand service providers in strengthening backward and forward markets. Working to solve the problems mentioned in the project area will increase the sales of safe eggs, meat and meat products by at least 30 percent and increase net profit by at least 20 percent of 80 percent of the entrepreneurs.

3. The Project results:

The consultant should follow the project's logical framework to get a clear understanding of the project, cross-section of the logical framework is necessary to carry out the baseline as it is a prime requirement of this assignment. The following are the project results-

3.1. Goal: To increase the income, food security, and nutrition of farmers and service providers across poultry value chains.

3.2. Development Objective: The sustainable growth of poultry value chains with comparative advantage, market demand, growth potential, and backward & forward linkages to small farmers and micro-entrepreneurs.

3.3. Outcome: The outcomes are- a) The project participants will adopt improved production methods and establish sustainable market linkages, and b) The enterprises will have access to sustainable financial services.

3.4. Immediate result: Increased use of information technology on farms and improved farm management practices will result in a 10 percent reduction in overall poultry mortality, gain in body weight as per the growth chart, and a 10 percent reduction in production costs. The linkage of institutional and non-institutional buyers will increase sales of poultry and poultry products (including waste) by 25 percent and prices by 10 percent. Local-level processing plants will be set up, 10 percent of the total poultry production will be processed in local plants, frozen meat will be sold locally and nationally through sub-contracting, the establishment of commercial compost production plants using farm/kitchen market waste and make a linkage with big buyers to sell poultry products/by-products following the cross-cutting (gender, nutrition,

climate change & environment) issues. The backward and forward market's linkage with the poultry farmers will gradually increase, wages increase by 10 percent and an additional 15 percent of employment opportunities will be created.

4. Purpose of the Baseline Study:

The baseline study is intended to provide social, economic, and environmental data at the beginning of the project. The study acts as an accompaniment to the quantitative and qualitative data that is also recommended when implementing a project for the first time at the beginning of the project. This should help to identify any major issues and provide some insights into the opinions of the community concerning the poultry value chains. The baseline results will point to how best the project will be rolled out and set priorities for the project sometimes providing information that acts as a benchmark for measuring project success or failure. The study must produce information that will be used to direct and guide the implementation of the project and to measure the present condition of the project indicators, participants' knowledge attitude and practice. The task of the individual consultants is not limited to the following areas-

- Prepare a value chain existing map and make a profile of the Poultry value chain in the respective district.
- Conduct an end-to-end assessment of input, service, value chain products, and different buyers (formal and informal) and provide a detailed analysis of the value chain and provide recommendations on how the selected target group can be engaged in the value chain in different roles (Supplier of input, producer, processor, transporter, traders and so on).
- Assess the selected market system supporting environment (services, policies and rules regulations, infrastructure) & supporting functions and point out the market constraints.
- Assess the ongoing business of the different market actors, their present situation, role, and finally figure out the areas of intervention in the value chain for the actors including youth, persons with disability, older men & women.
- Describe skills training needs related to potential roles in the value chain.

5. Approach and Methodology

The baseline study is to be carried out in Naogaon District by an independent consultant/consulting firm using a combination of qualitative and quantitative methods. All data, qualitative and quantitative will be collected through the assessment and must be disaggregated by age, sex, poverty, and Birds types (poultry) as per project design. Finally, the consultant is expected to propose a suitable methodology for carrying out the work and fulfilling the objectives of the study. The methodology should follow the standard statistical method. The consultant is free and encouraged to be as creative as possible in arriving at a suitable methodology that will ensure that the objectives of the study are fully met in a timely and efficient way. The consultant is required to elaborate a detailed baseline design and methodology as part of their Work plan. The baseline study will be conducted in the project areas following appropriate, applicable statistical sampling procedures. However, the sample size could be finalized after discussion with the project professionals. A detailed approach and methodology to conduct the baseline study should be suggested by the consultant in compliance with the, goal, objective and log-frame of sub-project.The baseline design document should include a series of data collection instruments. The sub-sector assessment used primary data combined with some secondary data, mainly livestock statistics from the Department of Livestock Service (DLS). The collection of primary data involved consecutive mixed methods: Focus Group Discussion (FGD), Individual Interview (II), Key Informant Interview (KII), and Data Validation Workshop (VW). The sub-sector assessment followed the collection of a high level of qualitative information backed up by some quantitative information collected from the Individual Interview.

6. Duration of the study and schedule of the reports

The total duration of the assignment will be 90 days. A detail implementation plan will be agreed upon in consultation with the **Ghashful**, however, it is anticipated that the inception report should be submitted within 10 days upon signing the contract. The draft report of the study should be submitted by the consultant within 65 days, and a presentation on the draft report should be given to **Ghashful** within 75 days after signing the agreement.

7. Quality and Ethical Standards

The consultant hired should take all reasonable steps to ensure that the baseline study is designed and conducted to respect and protect the rights and welfare of people and the communities of which they are members, and to ensure that the baseline study is technically accurate, reliable, and legitimate, conducted in a transparent and impartial manner, and contributes to organizational learning and accountability.

a) Utility: The Baseline Study must be useful and will be used by **Ghashful** /PKSF.
b) Feasibility: The Baseline Study must be realistic, and managed in a cost-effective manner.
c) Ethics & Legality: The Baseline Study must be conducted in an ethical and legal manner, with particular regard for the welfare of those involved.
d) Impartiality & Independence: The Baseline Study should be impartial, providing a comprehensive and unbiased assessment that considers the views of all stakeholders.
e) Transparency: The Baseline Study activities should reflect an attitude of openness and transparency.
f) Accuracy: The Baseline Study should be technical accurate, providing sufficient information about the data collection, analysis, and interpretation methods so that its worth or merit can be determined.
g) Participation: Stakeholders should be consulted and meaningfully involved in the evaluation process when feasible and appropriate.
h) Collaboration: Collaboration between key operating partners in the evaluation process improves the legitimacy and utility of the evaluation.

8. Deliverables

All written documents are to be submitted in English using Microsoft Word in both soft and hard copy. The main body of all reports should be written in simple, non-technical language (i.e., plain English), with any technical material to be presented in annexes. All primary data collection and analysis conducted for the baseline will remain the property of PKSF/Ghashful and must be submitted electronically and in a clear and comprehensible format in Microsoft Excel and Word. The consultant will provide the following deliverables to the PKSF/ **Ghashful** within the timeframe stated

a) **Inception Report:** by 10 working days after signing the contract, a detailed report on the consultant's proposed final baseline design and methodology will be submitted to PKSF/**Ghashful** for approval. This will provide preliminary understandings based on document review, rationale, and a detailed description of the methodology and tools, analytical methods, and detailed work plan for the entire exercise. Any draft questionnaires or interview forms will also be submitted for review at this stage.
b) A detailed determination of sample size and sampling frame using statistical tools and formula.
c) Baseline survey questionnaire (for the quantitative part) and Checklist (for the qualitative part) to capture all required data and information of the study.
d) **Interview Notes and List of Resource Documents:** The Consultant shall provide summaries of all key meetings, and discussions conducted during the baseline and copies of any relevant documents and reports gathered during the baseline by (timeline).
e) **Summary Presentation of Findings:** The Consultant shall present initial findings to **Ghashful** for review, comment, and feedback by (timeline). A PowerPoint presentation and handout (maximum of two pages) shall be prepared for the presentation through a workshop to the project stakeholders preferably via an

online platform. The Consultant shall consider **Ghashful** and stakeholder comments and revise the draft report as appropriate.

f) Findings brief: The Consultant should provide a brief of the findings corresponding to the objectives of the study that can be widely circulated. The brief of the study could be within three pages.

g) Indicator Table with Value: The Consultant should provide an indicator table including the values which got in the baseline study.

h) Final Database: The consultant should review, recheck and finalize the data set before starting the final analysis. The final database should be handed over to **Ghashful** management along with the final report.

i) Final Report will sketch with the following headings: The final report will contain a short executive summary (not more than 1,000 words) and a main body of the report (not more than 10,000 words) covering the background of the intervention evaluated, a description of the evaluation methods and limitations, findings, conclusions, lessons learned, recommendations and action points related to these.

a) Acknowledgements
b) Acronyms
c) Glossary
d) Executive Summary
e) Introduction/Background
f) Rationale and Objectives of the Baseline Study
g) Scope of the Baseline Study
h) Methodology
i) Findings and Discussion
j) Recommendations
k) Conclusion and lessons learned
l) References

Annexes, including:

a. Scope of Work
b. Data collection tools
c. Key data sets, including interview transcripts
d. List of key informants

9. Consultant requirements

The Consultant should have previous working experience in providing such kinds of services. Should have expertise in the area of the said Sub-Sector/s, Environment, and micro-enterprise. The enumerators of this study will be hired by the consultant/consulting firm. The expected qualifications of the independent consultant are given below:

a) Education: He/she should have a minimum Master's Degree in Poultry Science/Agriculture, PhD will be the additional advantage. Global GAP assurer/trainer will get preferences to conduct the baseline as food safety is the main concern of RMTP.

b) Experience: The consultant should have 10 years of working experience in research including 5 years of experience in the value chain approach. Research experience in environmental sustainability, economic viability, micro-enterprise development, nutrition, sectoral policy review/analysis, and value chain development will add additional value. Experience in evaluating any projects/sectoral study funded by IFAD/World Bank/ADB/DANIDA and/or any other UN agencies will preferable.

c) Publication: The consultant should have at least 3 publications in an international/national journal. However, poultry-related sectoral publications will be given high preference for the selection of the consultant.

d) Familiarity: Familiarity with the following areas: a) Environment & Climate Change, b) Micro and small enterprise, c) livelihoods d) employment, e) pro-poor development, f) gender and nutrition.

e) **Language:** Excellent writing and oral communication in English is required.
f) **Computer Literacy:** MS Word, Excel, PowerPoint, SPSS/Strata**.**

10. Proposal submission:

The proposal should include the following below six items.

i. **Cover letter:**Clearly summarizing Consultant experience and competency as it pertains to this assignment
I. **Technical proposal:** Not exceeding eight (08) pages expressing an understanding and interpretation of the ToR, the proposed methodology, relevant experience and time and activity schedule.
II. **Financial proposal:**Itemizing estimated costs for services rendered (daily consultancy fees), accommodation and living costs, transport costs, stationery costs, and any other related supplies or services required for the review in BDT and modality of payment. Please also attach a TIN/Registration Certificate.
III. **Detailed CVs**of all professionals who will work on the process. CVs of proposed study team (will add additional value), please attach a table describing the level of effort (in number of days) of each team member in each of the Baseline activities.
IV. **Professional references** are needed to provide two or three references from your previous clients.
V. **A short example from previous Baseline study**report (value chain preferred) that is relevant to this work (5-7 pages)

(Application materials are non-returnable, and we thank you in advance for understanding that only short-listed candidates will be contacted for the next step in the application process and the selection panel does not have the ability to respond to any requests for application feedback. Please take note that expressions of interest that do not cover these requirements will not be considered.)

Application Procedure: Please email complete applications to basuniar83@gmail.

Deadline for Application: The application deadline is 15 December 2022.

Interested individuals will provide a technical proposal. The total budget is BDT 3.0 lakh taka, which includes consultancy fees, field data collection, and other necessary costs. The VAT and Tax will be deducted at source as per the government rules. Interested consultants are invited to submit their technical proposal along with a detailed CV and one page of cover letter by 15 December 2022. **Ghashful** will form a review committee to analyze the applications, shortlisting, interview, select the firm/individual and execute the deed of contract.

11. Payment

Ghashfulwill pay the cost of the study to the assigned firm subject to the completion of all deliverables and reports acceptance of **Ghashful** by deducting VAT and TAX at source as per the Government rules. Payments will be made based on the following percentages and milestones:

a) 1st Payment (30% of total contract value): The 1st payment will be made upon submission and acceptance of the inception report by **Ghashful.**
b) 2nd Payment (30% of total contract value): The 2nd payment will be made upon submission and acceptance of the draft report by **Ghashful.**
c) Final Payment (40% of total contract value): The final payment will be made upon acceptance of the final report by **Ghashful.**

12. Timeframe

The study shall be conducted expectedly in three months from start of the study, and is scheduled to preferably start in the 8 January 2023. The consultant will submit the final report latest by 8 April 2023. The timeline may be finalized as agreed by the consultant and Ghashful.

13. Disclaimer

The **Ghashful** reserves the right to amend the terms of reference at any time as required upon mutual discussion with the consultant. The **Ghashful** reserves the right to terminate the contract at its sole discretion in case of non-compliance of the terms and conditions that will be finally agreed. The consultant will never be used this Baseline Study information for his/her own needs. If it requires, the consultant must take prior permission from **Ghashful**.