

## CHAPTER-1

# Introduction

Bangladesh is the highest densely populated country (1015 people per km<sup>2</sup>) of the world with a population of 149.772 million people within the area of 147570 km<sup>2</sup>(**BBS, 2011**). About 80% people of this country still live in villages and are extremely poor. In 2000, 52.5% of the urban and 44.3% of the rural people were surviving under the poverty line (**Sumy et al., 2010**).

However, the people of our country is blessed with a variety of agricultural resources of which chicken rearing is considered to have potential both for poverty alleviation and food production (**Sumy et al., 2010**). Chicken rearing is suitable for widespread implementation as it cost less, requires little skills, is highly productive and can be incorporated into the household works (**Dolberget al., 1997**).

Poultry sector will create job opportunity for 10m people as claimed by poultry leaders in a roundtable titled —Present Crisis and Prospects of Poultry Industry in Bangladesh (**Source: Financial Express, Bangladesh 23 July,2010**). In the last few years, the recognition of small-scale commercial poultry production helps to accelerate the pace of poverty reduction riding in new height in Bangladesh. The poultry industry has been successfully becoming a leading industry of the country. The sector is also growing rapidly for last two decades though it started farming during mid-sixties in this country. It has already capable to rise at an annual growth of around 20 per cent during last two decades. This industry has immense potentialities from the point of view of the economic growth of the country as well as fulfillment of basic needs and to keep the price at a minimum level and ensuring food especially animal protein for the human being. This industry has immense scope for the country through changing livelihood & food habit, reduction of dependence of meat related to cow and goat and ultimately has positive Impact on GDP growth rate of the country.

Broiler farming plays an important role in improving livelihood, food security and poverty alleviation in rural and semi-urban communities in developing countries including Bangladesh. Broiler production has become a specialized and speedy business at present time for the people of the country due to short life cycle of the broiler and requirement of relatively less amount of capital attributed to its popularity to the farmers (**Ahmed *et al.*, 2009**). A study report on the impact on Smallholder Livestock Development Project (SLDP) in rural community at different rural areas of Bangladesh revealed that the overall socio-economic condition of the beneficiaries, their egg and meat consumption capability, empowerment of rural women in decision making issues and employment opportunities were significantly increased after the intervention made by SLDP (**Alam, 1997**). Another study showed that commercial broiler farming provided employment opportunities for unemployed family members, improved socio-economic conditions and increased women empowerment among rural people of Bangladesh (**Rahman *et al.*, 2006**).

Protein intake is recommended to be in range of 0.8 to 1.6 g per kg body weight for human (**Anonymous, 1998**) Broiler meat contains high quality protein and micro-nutrients which has had a tremendous impact on health and nutrition for the poor people in rural areas (**Neumann *et al.*, 2002; Barroetoa, 2007**). Again, another study reported that it can be the main source of family earning or can provide sufficient income and gainful employment opportunity to rural farmers throughout the year (**Bhende, 2006**). For this reason, broiler farming has been playing a key role in providing meat to overcome the malnutrition and serve as a tool for employment generation and poverty alleviation (**Raha, 2007**).

Eggs contain complete protein and can supply essential amino acids. Eggs also contain nine non-essential amino acids, vitamins, minerals, antioxidants, saturated, monounsaturated and polyunsaturated fatty acids, cephalin, lecithin, and cholesterol. The content of low-calorie eggs benefits populations throughout the world at every stage of the human life

cycle. So layer farming is very much important to fulfill the egg demand and to improve socio-economic condition of the farmers. (Ottingeret *al.*, 2009).

The Pabna district occupies an important place in Bangladesh in respect of poultry farming because of availability of all facilities. It is called the poultry belt of Bangladesh. So, the present study was undertaken to evaluate the existing management system of poultry farming and understanding the socio-economic condition of the broiler and layer farmers.

### **The specific objectives of the study:**

- To know the socio-economic status of the broiler and layer farmer
- To study the management system of broiler and layer farm in Bangladesh
- To identify the better management system
- To determine the productivity, profitability, cost and return aspects of different types of poultry farms under different management practices
- To collect information for policy maker to take necessary action for improvement of this sector
- To find out input output ratio to clarify sustainability of poultry farming in Bangladesh

## CHAPTRE- 2

# Materials and Methods

### 2.1 Study area/ Locale of the study

The study was conducted at Pabna district in Bangladesh. This district consists of 5 upazila: Pabna Sadar Upazila, Santhia Upazila, Bera town (Upazila), Atghoria Upazila, Chatmohor Upazila and Foridpur Upazila. The place of my study is the Ishwardi Upazila. From Ishwardi upazila 5 union named, Silimpur proper, Sahpur, Lakshmikunda, Pakshi and Dasuria union were selected for study. The district Pabna was selected due to availability of large number of broiler and layer farms (Poultry belt) and good communication facilities.

The geographical location of Pabna district is 24° 0' 0" North, 89° 15' 0" East in DMS (Degrees Minutes Seconds) .

### 2.2 Study period

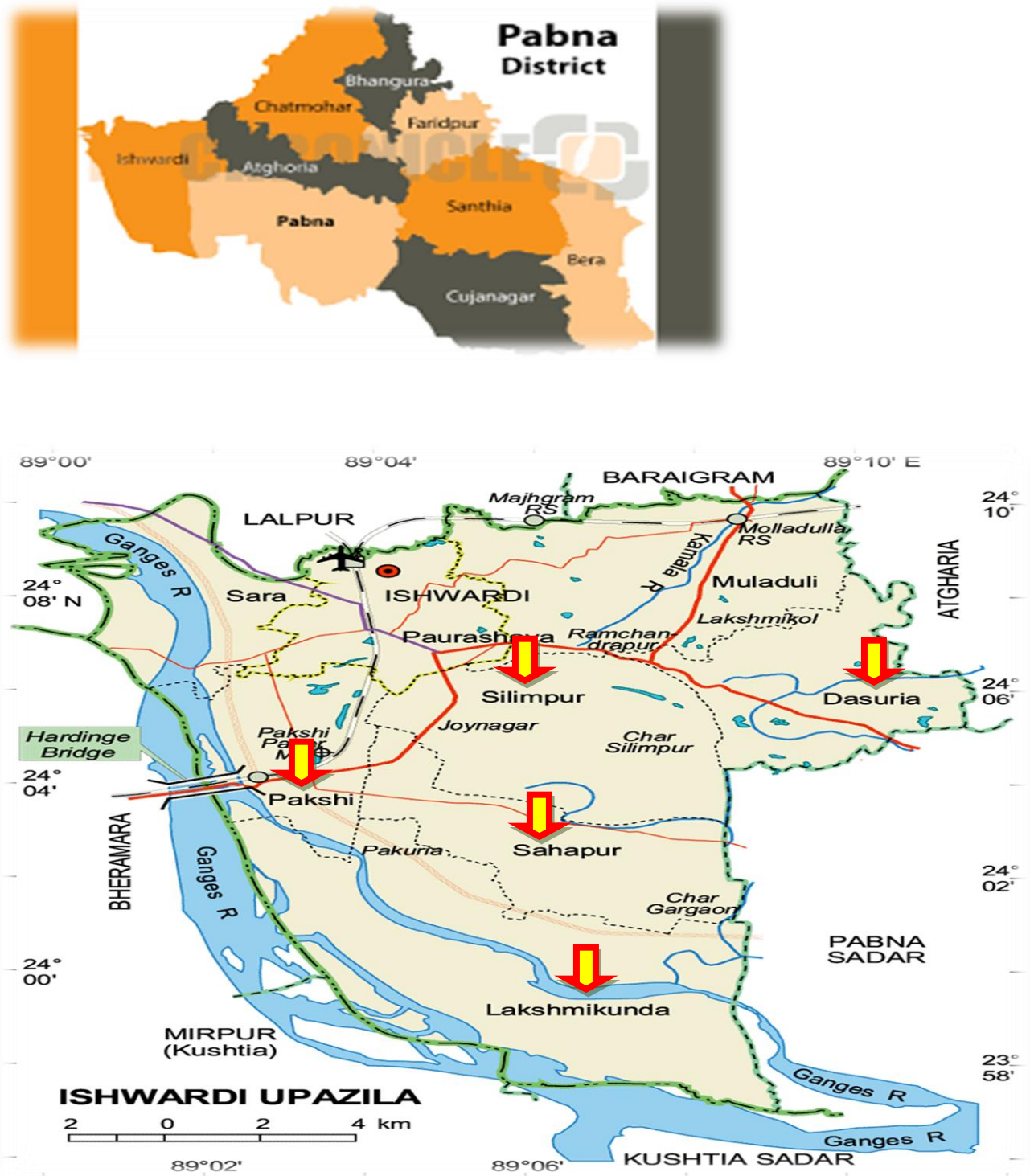
The study was conducted between the periods of 08 February, 2018 to 29 March, 2018, when I was in Upazila Veterinary Hospital (UVH) internship placement at Ishwardi Upazila Veterinary Hospital under Pabna district of Bangladesh.

### 2.3 Sources of data

Data for this study was obtained from both primary and secondary sources. The primary data were collected from the production performance, activities and economic condition of the chicken producers using structured questionnaires and the secondary data was obtained from Upazila Livestock Office at Ishwardi upazila under Pabna district.

### 2.4 Research design

The research design adopted for this study was of ex-post-facto in nature since the phenomenon has already occurred. According to **Sevillaet al., (2007)** ex-post facto research is a systematic empirical inquiry in which the researcher does not have direct control over independent variables, because their manifestation has already occurred or because they are not inherently manipulated.



**Figure 2.1:** The figure shows the Study area. (Yellow marks indicate the particular union: Silimpur, Dasuria, Pakshi, Sahapur and Lakshmikunda union).

## 2.5 Sampling Procedure

In an empirical investigation, it is impossible to collect information from the whole population. Therefore, the researchers are often forced to make inferences based on information derived from a representative sample of the population. The sample size and the degree of variation usually affect the quantity and quality of information obtained from the survey. Using appropriate sampling methods, both factors can be controlled (**Scheaffer, 1986**).

The aim is to devise a sampling scheme which is economical; easy to operate; and, provides unbiased estimates with small 'variance' (**Barnett, 1991**). Given limitations in terms of money; time; efforts; and, data management - sampling is more appropriate method. Further, sampling not only saves cost and time but can also give more accurate results than a census which are more acceptable (**Kinnear and Taylor, 1987; Casley and Kumar, 1988**). Following steps have been involved in the sampling procedure:

### 2.5.1 Defining the Population

Classification of the population is the first step in the sampling procedure, namely, the sector or element under investigation, the sampling unit, the area or extent of investigation, and the duration of investigation (**Kinnear and Taylor, 1987**). All the poultry farms of the district engaged in poultry production were classified as population of the study.

### 2.5.2 Sample size

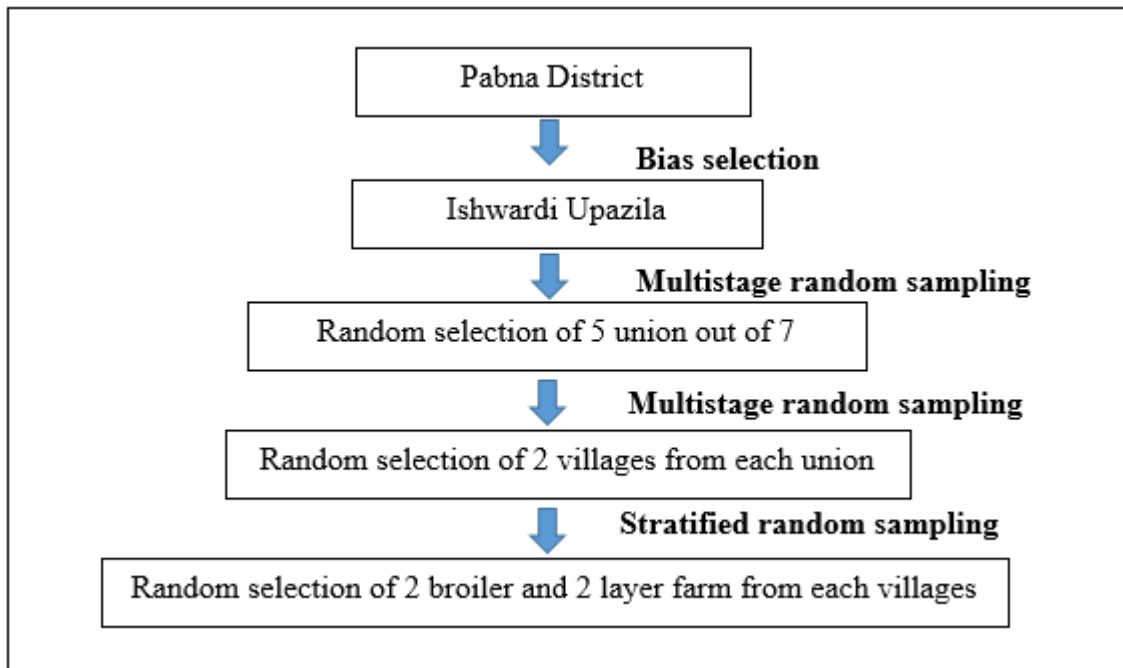
**Casely and Kumar, (1988)** suggested that a good survey sample should have both a small sampling error and minimum standard error. This can be obtained if one has unlimited resources. However, given constraints, such as finance, time and data management compromises have to be made in selecting the sample size (**Poate and Daplyn, 1993**).

Thus on the basis of - nature of research and analysis; number of variables; resource constraints; and, the importance of decision, a sample size of 40 (20 broiler and 20 layer farms) poultry farms engaged in poultry production was selected.

### 2.5.3 Sampling methods:

Pabna district and Ishwardi upazila were selected biasly (Non random selection). Ishwardi upazila has seven unions. From these unions' five unions was randomly selected and from these five unions' two villages from each union was randomly selected (Multi-stage random sampling). From these selected villages two farms of each category (Broiler and

Layer) were selected randomly (Stratified random sampling). Each farm rearing at least 1000 bird is taken under consideration.



**Figure 2.2:** Sampling methods used in current study.

## 2.6 Methods of data collection

Data were collected through direct interview schedule and recorded in a questionnaire/interview schedule. The schedule was prepared maintaining relevance with the objectives of the study. Before launching the survey, the questionnaire was pretested and improved accordingly. In order to collect the more purified data of various farms an organized questionnaire was formatted (Nauta *et al.*, 2001; De Jong and Van Soest, 2001). Key informant technique was also employed to get the basic relevant information of the proposed study.

## 2.7 Analytical techniques

The data were put on the master sheet in Microsoft Office Excel 2007 and were arranged in tabular form. The obtained data imported to software STATA/IC-11.0 for analysis. Descriptive statistics (i.e. means, frequencies etc) was done to estimate the different variables. Unpaired unequal t-test was used to determine the level of significance ( $p < 0.05$  and  $p < 0.01$ ) between categorical variables (Uddin *et al.*, 2012).

## CHAPTER- 3

**Results and Discussion****3.1 General description of the farm**

The **Table 3.1** revealed that the mean farm size (Number of bird), number of family member, number of educated person per farmer family and amount of land (acre) per farmer were  $4336.84 \pm 541.99$ ,  $6.16 \pm 0.47$ ,  $1.26 \pm 0.23$  and  $3.51 \pm 0.4$  with range; 1500-10000, 3-10, 0-3 and 0.2-5.6 respectively in broiler farms and  $5252.63 \pm 708.61$ ,  $4.79 \pm 0.27$ ,  $1.37 \pm 0.21$  and  $4.1 \pm 0.45$  with range; 1200-1000, 3-7, 0-3 and 0.45-6.3 respectively in layer farms. There were found no statistically significance difference ( $p > 0.05$ ) between the broiler and layer farms in terms of farm size (Number of bird), number of educated person per farmer family and amount of land per farmer. But there were found statistically significance difference ( $P < 0.05$ ) in number of family member between broiler and layer farmers.

**Table 3.1:** Analysis of different parameters related to farms and farm owners (N=40).

Parameters	Broiler farm (N=20)		Layer farm (N=20)		P-value
	Mean $\pm$ SE	Range (Min-Max)	Mean $\pm$ SE	Range (Min-Max)	
Farm size (Number of bird)	$4336.84 \pm 541.99$	1500-10000	$5252.63 \pm 708.61$	1200-10000	0.41
Number of family member	$6.16 \pm 0.47$	3-10	$4.79 \pm 0.27$	3-7	0.02
Number of educated member per farmer's family	$1.26 \pm 0.23$	0-3	$1.37 \pm 0.21$	0-3	0.74
Amount of land per farmer (acre)	$3.51 \pm 0.4$	0.2-5.6	$4.1 \pm 0.45$	0.45-6.3	0.36



**Islam et al., (2010)** found per farmer have 0.49 acre and **Devendra, (1993)** showed 0.99-1.97 acres of land per farmer. **Rahman et al., (2002)** in their study observed 47.3% educated farmer.

### 3.2. Socio-economic condition of the farmers

Different factors associated with socio-economic condition of the farmers of Pabna district are listed in **Table 3.2** and specific findings of the study also describe below:

**Table 3.2:** Factors associated with socio-economic status of the farmers in Pabna district (N=40).

Variables	Categories	No. of farm/ Farm owner	Percentage (%)
Type of farmer	Landless (0.00-0.50 acre)	2	5
	Marginal (0.51-1.24 acre)	3	7.5
	Small (1.25-2.47 acre)	5	12.5
	Medium (2.48-4.94 acre)	13	32.5
	Large ( $\geq$ 4.95 acre)	17	42.5
Source of investment	Own	23	57.5
	Bank loan	13	32.5
	With interest from money lender	3	7.5
	Without interest from money lender	1	2.5
Number of birds	< 3000	10	25
	3000-5000	18	45
	> 5000	12	30
Training	Yes	11	27.5

	No	29	72.5
Family Type	Single	19	47.5
	Joint	21	52.5
Farming is main occupation	Yes	22	55
	No	18	45
Amount of loan (BDT.)	No loan	20	50
	<100000	5	12.5
	100000 - 500000	9	22.5
	> 500000	6	15
Level of educational knowledge	High ( Above secondary)	5	12.5
	Medium (Secondary)	10	25
	Poor ( Primary)	25	62.5
Level of poultry farm management skill	High	15	37.5
	Medium	15	37.5
	Poor	10	25

### 3.2.1 Socio-economic status in terms of land

About 42.5% large, 32.5% medium, 12.5% small, 7.5% marginal and 5% landless farmers were involved in farming in Ishwardiupazila of Pabna district(**Table 4.1**). These findings agree with the study of **Rahman et al., (2002)** in Rajshahi district. These findings indicate that, in this sector, comparatively rich farmers are more involved than poor, although **Islam et al., (2010)** reported that all of the farmers involved in the farming are small categories (Having 6-49 decimal land).

### 3.2.2 Sources of investment of the farmer

The present study shows that, 57.5% farmer invest their own money in farming and 32.5% takes bank loan, 75% manage investment from money lender in terms of interest and remaining 2.5% also takes from money lender but without interest. These findings have similarity with **Rahman *et al.*, (2002)** in a study in Rajshahi district.

### 3.2.3 Size of the farm

The size of the farm reflects the socio-economic status of the farmer. About 30% of the farmers have more than 5000 birds, 45% have 3000-5000 birds and 30% have more than 5000 birds.

### 3.2.4 Training

About 27.5 % of the farmer had received training of farming and left 72.5% did not take any training at all about poultry farming. It was enumerated that 8.5 % of the poultry farmer had received training in any times of his farming life (**BBS, 2011**).

### 3.2.5 Farming as occupation

The present study shows that, farming is the main occupation of 55% of the farmers involved in the study and for remaining 45%, it is subsidiary occupation. **Ahmed *et al.*, (2009)** showed that, farming is the main occupation of the 35% of the broiler farmer. This higher value in my finding is due to involvement of layer in my study but **Ahmed *et al.*, (2009)** did not consider layer farmers.

### 3.2.6 Loan

About 12.5% of the farmers involved in my study have loan less than BDT. 100000. 22.5% farmers have loan between BDT. 100000-500000, 15% have more than BDT. 500000. and 50% of the farmers have no loan.

### 3.2.7 Level of knowledge and managerial skill

Most of the farmers have poor level of knowledge (62.5%), but level of managerial skill is high in 37.5% of the farmers. **Rahman *et al.*, (2002)** found that, 71.43% and 24.29% of the farmers have high and medium level of knowledge respectively. So the findings of my study more or less similar with **Rahman *et al.*, (2002)**.

### 3.2.8 Literacy level of the farmers

The literacy level of the farmers have been grouped into five educational group according to **Sumy et al., (2010)**. The **Table 3.3** shows the literacy level of the farmers. There were found 15% illiterate, 20% class I-V, 35% class VI-VIII, 20% class VIII- X and remaining 10% are SSC/above. These findings are agreement more or less with **Sumy et al., (2010)** that were in a study on backyard chicken owners.

**Table 3.3:** Literacy level of the farmers (N=40).

Literacy levels Farmers	No. of farmers	Percentage(%)
Illiterate	6	15
Class (I - V)	8	20
Class (VI - VIII)	14	35
Class (VIII - X)	8	20
SSC/ Above	4	10
Total	40	100

### 3.2.9 Educational status of farmer's children

The level of education of the farmer's children reflects the socio-economic position of a family in a society. In my study there were found (**Table 3.4**) the average number of boys and girls per farm owner attend to primary 0.7 and 0.5, high school 0.75 and 0.45, college 0.1 and 0.07 and university 0.01 and 0.01 respectively. These findings of the study agreement with **Ahmed et al., (2009)** they also found more or less similar findings.

**Table 3.4:** Distribution of children of farm owner by institute (N=40).

Particulars	Average no. of boys/farm	Average no of girls/farm
Primary	0.7	0.5
High school	0.75	0.45
College	0.10	0.07
University	0.01	0.01

### 3.2.10 Sources of drinking water and latrine condition

In present study it was revealed that about 87.5% of the farmer uses their own tube well as a source of drinking water. 5% use shared in tube well and 7.5% use shared in deep well (**Table 3.5**). The shearing of tube well is restricted to some drought months only.

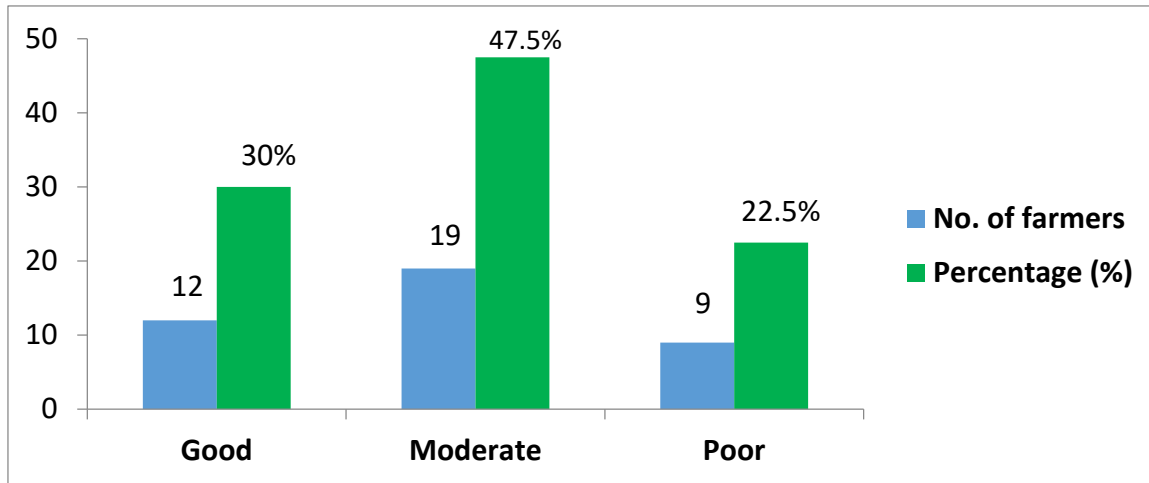
**Table 3.5:** Sources of drinking water and condition of latrines (N=40).

Particulars	No. of farmer	Percentage (%)
<i>Sources of drinking water</i>		
Own tube-well	35	87.5
Shared-in tube-well	2	5
Shared-in deep tube-well	3	7.5
<i>Latrine condition</i>		
<i>Katcha</i>	0	0
Semi-sanitary	10	25
Sanitary	27	67.5

No farmer use katcha latrine, 25% use semi-sanitary and 67.5% use sanitary latrine. **Ahmed et al., (2009)** showed using of higher percentage of semi-sanitary latrine among the farmer.

### 3.2.11 Health statuses of the farmers

In terms of health status there revealed that about 30% of the farmers had good health, 47.5% and 22.5% had moderate and poor health respectively. The health statuses of the farmers are shown in **figure 3.1**.



**Figure 3.1:** Health statuses of the farmers

### 3.3 Economic analysis

#### 3.3.1 Per bird annual gross cost (Average)

Per bird average annual gross cost for rearing of broiler and layer are 925.5 BDT. and 1332.5 BDT. respectively (**Table 3.6**).

**Table 3.6:** Per bird annual gross cost (Average)

Items	Expenditure					
	Per bird cost in one batch		Total cost (BDT.)	Per bird annual cost		Total cost (BDT.)
	Gross Cost (BDT.)	Depreciation cost (BDT.)		Gross cost (BDT.)	Depreciation cost (BDT.)	
DOC	45	-	55	50	-	50
Feed	81	-	81	1259	-	1259
Labor	8	-	8	10	-	10
Medication	8	-	8	10	-	10

Housing	-	2	2	-	3.00	3
Equipment	-	0.25	0.25	-	0.50	0.5
Total gross	142	2.25	154.25	1329	3.50	1332.5
Total gross cost for 6 batch in a year: $154.25 \times 6 = 925.5$						

\* DOC: Day Old

Chick

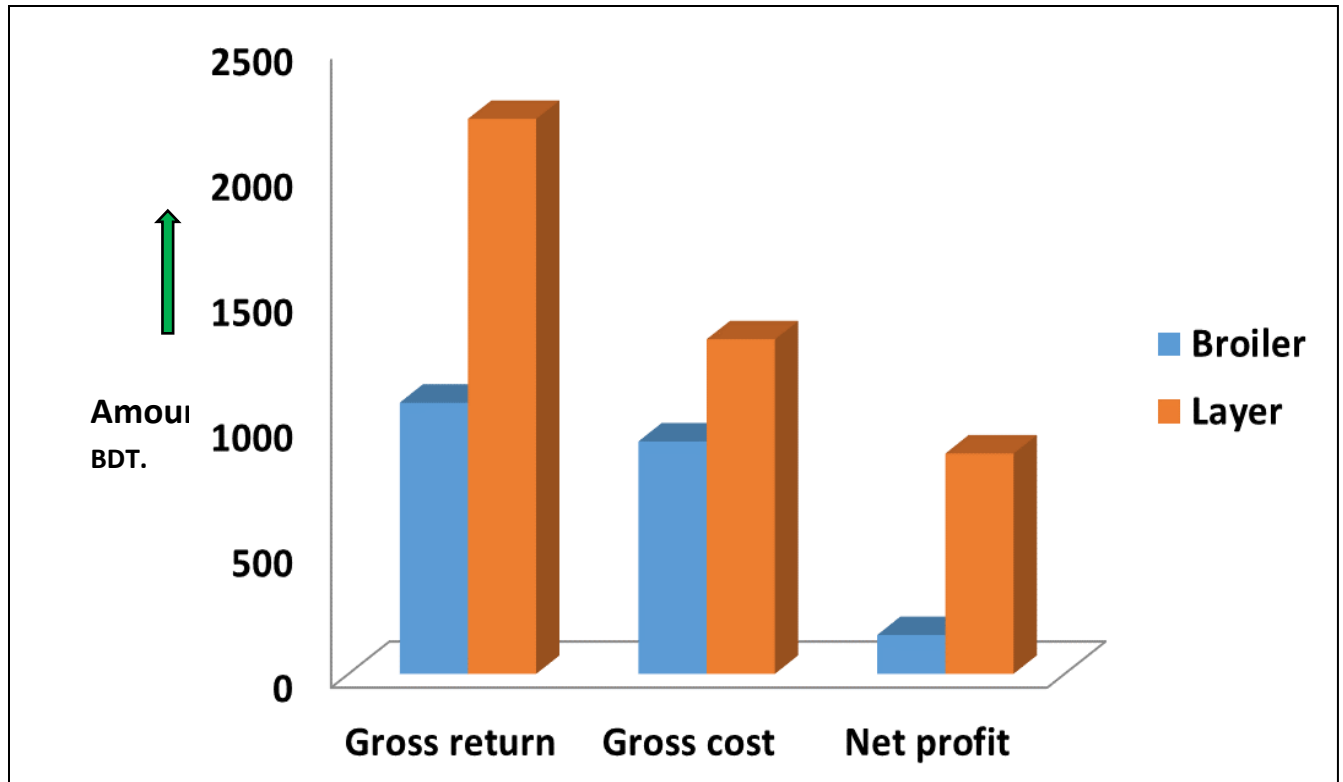
**Islam, J., (1995)** studied economic analysis of poultry farms of different sizes in some selected area of Dhaka district. He found that the total costs of per poultry bird per year were BDT. 406.17, 373.86 and 347.54 for small, medium and large poultry farms respectively. **Alam, J., (1997)** found the cost per bird was BDT. 106.68 for intensive farm. The higher value of cost in my study due to recent increase of price of feed and other raw materials.

### 3.3.2 Per bird annual gross return (Average)

Per bird gross return of broiler and layer are shown in the **Table 3.7**. Per bird gross return of broiler and layer are BDT. 1080 and BDT. 2210 respectively which is higher than per bird net cost. **Islam, J., (1995)** found average gross return per poultry bird per year stood at BDT. 614.15, 599.67 and 351.69 for small, medium and large farm respectively. **Alam, J., (1997)** found the return per bird was BDT. 129.5 for intensive farm. The higher value of return in my study due to recent increase of price of chicken meat and eggs.

**Table 3.7:** Per bird annual gross return (Average)

Items	Broiler (BDT.)	Layer (BDT.)
Selling of bird (broiler/spend hen)	1080	180
Selling of eggs (290 pieces)	-	2030
Total gross return	1080	2210
Per bird annual cost benefit ratio (Annual per bird total gross return ÷ Annual per bird total gross cost)	1: 1.17	1: 1.66



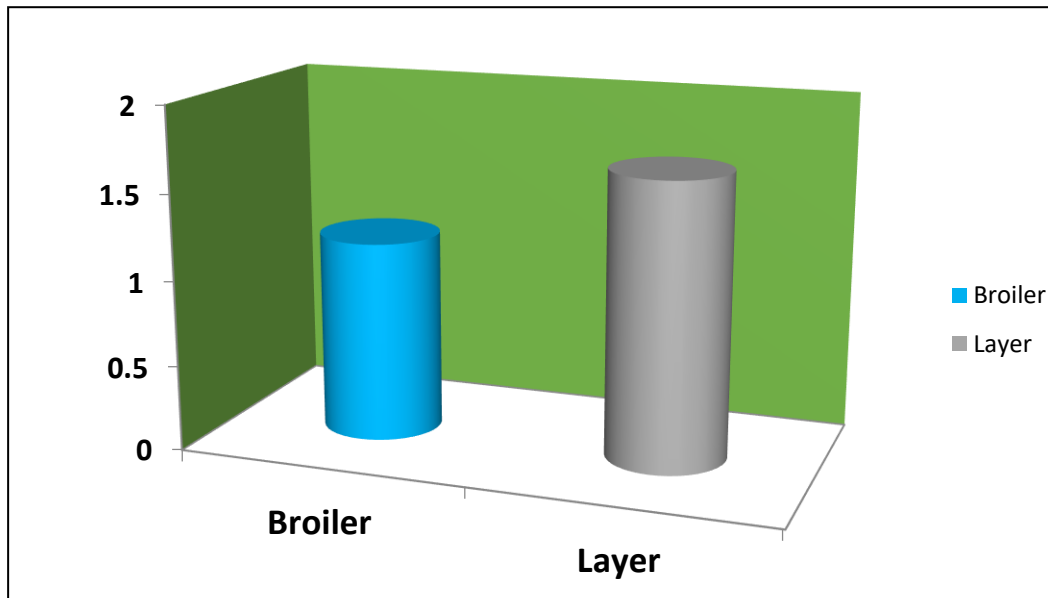
**Figure 3.2:** Gross return, gross cost and net profit of per broiler and layer.

The **figure 3.2** shows that gross return, gross cost and net profit is higher in layer than broiler. This indicates that although rearing cost is high in layer farm but it is more profitable than broiler farming.

### 3.3.3 Cost Benefit Ratio

The cost benefit ratio is shown in **Table 3.7**. The result of cost benefit ratio is 1: 1.17 in broiler and 1: 1.66 in layer. The cost benefit ratio value in my study more or less close to the findings of **Alam, J., (1997)**, he found 1: 1.22 cost benefit ratio for intensive farms.





**Figure 3.3: Cost benefit ratio** for broiler and layer (Per bird).

The **figure 3.3** shows that per bird **cost benefit ratio** is higher in layer than broiler. So layer farming is more profitable.

### 3.4 Common management Practices in poultry farms under study:

**Table: 3.8:** Management of broiler farm in study area of Pabna district(N=20).

Variables	Categories	No. of farms	% of farms
<b>Housing</b>			
Floor	Concrete	15	75
	Muddy	5	25
	Slats	0	0
Roof	Iron sheets	17	85
	Concrete	2	10
	Bamboo & leaf	1	5
Sidewall	Wire netting	19	95
	Bamboo splint	1	5
<b>Floor</b>			
Rearing system	Floor	20	100
	Case	0	0
Litter material	Rice husk	15	75
	Saw dust	3	15
	Wood shavings	2	10
Frequency of litter change/month	2 times	8	40
	3 times	6	30
	4 times	6	30
<b>Feeding</b>			
Feeder type	Hanging plastic feeder	17	85
	Pot/ bucket	3	15
	Attached	0	0
Feed type	Self prepared	3	15
	Readymade mash	3	15
	Readymade pellet	14	70
	Use in crop production	5	25
	Allowed	7	35
<b>Use of fan</b>	Yes	12	60
	Not	8	40

Variables	Categories	No. of farms	% of farms
<b>Water</b>			
Drinker type	Hanging drinker	17	85
	Pot/ bucket	3	15
	Attached	0	0
Water supply	Manual	8	40
	Pump	12	60
<b>Disease management</b>	own effort	5	25
	By quack	8	40
	By vets	5	25
	All	2	10
<b>Vaccination</b>	Regular	12	60
	Irregular	4	20
	Not at all	4	20
<b>Waste disposal (litter material)</b>	To open air	3	15
	To a pit	4	20
	Biogas plant	5	25
	Sell	1	5
	Fish feed	2	10
	Crop field	5	25
<b>Biosecurity</b>			
Enclosure surrounding the farm	Present	0	0
	Absent	20	100
Footbath	Present	2	10
	Absent	18	90
Disinfectant spray	Use	5	25
	Not	15	75
Visitors	Restricted	4	20
	Moderately restricted	9	45
	Allowed	7	35
Isolation of birds	Yes	2	10
	Not	18	90
Migrating birds	Restricted	13	65

**Table 3.9:** Management of layer farms in study area of Pabna district (N=20).

Variables	Categories	No. of farms	% farms
<b>Housing</b>			
Floor	Concrete	16	80
	Muddy	4	20
	Slats	0	0
Roof	Iron sheets	17	85
	Concrete	3	15
	Bamboo & leaf	0	0
Sidewall	Wire netting	20	100
	Bamboo splint netting	0	0
Rearing system	Floor	7	35
	Case	13	66
<b>Feeding</b>			
Feeder type	Hanging plastic feeder	4	20
	Pot/ bucket	3	15
	Attached with cage	13	65
Feed type	Self preparation	8	40
	Readymade mash	12	60
	Readymade pellet	0	0
Amount of feed/ day	Less than 115 gm	5	25
	115- 120 gm	12	60
	More than 120 gm	3	15
Frequency of feeding/day	2 times	14	70
	3 times	4	20
	4 times	2	10
<b>Egg collection</b>	Manual	20	100
	Automated machine	0	0

Variables	Categories	No. of farms	% farms
<b>Water</b>			
Drinker type	Hanging drinker	4	20
	Pot/ bucket	3	15
	Attached	13	65
Water supply	Manual	6	30
	Pump	14	70
<b>Use of fan</b>	Yes	13	65
	Not	7	35
<b>Disease management</b>	Own effort	3	15
	By quack	5	25
	By vets	8	40
	All	4	20
<b>Vaccination</b>	Regular	14	70
	Irregular	4	20
	Not at all	2	10
<b>Waste disposal (litter material)</b>	To open air	5	25
	To a pit	5	25
	Biogas	3	15
	Sell	2	10
	Fish feed	2	10
	Use in crop production	3	15
<b>Biosecurity</b>			
Enclosure	Present	1	5
	Absent	19	95
Footbath	Present	9	45
	Absent	11	55
Disinfectant spray	Use	10	50
	Not	10	50
Visitors	Restricted	5	25
	Moderately restricted	8	40
	Allowed	7	35
Isolation	Yes	2	10
	Not	18	90
Migrating birds	Restricted	15	75
	allowed	5	25

### 3.4.1 Housing

The poultry houses in the Pabna district, that are found in this study are mainly made of concrete (75% of the broiler and 80% of the layer houses) and remaining are made of mud(25% of broiler and 20% of layer houses). Corrugated iron sheet made roof were found 85% cases of both broiler and layer houses, concrete roof were found 10% of broiler and 15% of layer houses. Roof made of bamboo and leaf was found in 5% cases of broiler house but not found in layer house. In most of the cases sidewall of the house consists of wire netting (95% cases in broiler and 100% cases in layer house). Only one case of broiler (5%) the sidewall consists of bamboo splint netting. (Table 3.8 and 3.9).

The poultry house floor should made by concrete. **Farooq et al.,(2002)** showed the mortality of bird lower in concrete floor ( $12.43\pm 1.45\%$ ) than in those on brick and mud made floors ( $14.36\pm 1.55\%$ ). **Farooq et al., (2002)** also reported that, maintenance of broiler under good hygiene conditions on well finished concrete floor, providing the required space per broiler following recommended vaccination are the key factors to reduce mortality among the broilers.

**Abreu et al., (2011)** found no difference in live performance parameters (Live weight, Feed intake, FCR) but total mortality and sudden death were higher in bird reared on dirt floor compared to concrete floor. **North and Bell, (1990)** suggested a concrete or similar type of floor is mandatory. In terms of side wall, **North and Bell, (1990)** suggested that the side wall should remain open. The height of the opening depends on climatic condition. For broiler 1/2 to 2/3 of each side should keep open. In present study the use of wire netting is more or less similar as open side's house because of free access of air.

In present study there were found most of the roof of farm made of corrugated iron sheets. These findings have similarity with **Chaboet al., (2000)**who reported that the most common material used in roofing poultry house is corrugated iron sheets.

### 3.4.2 Floor management

In current study it was revealed that in 100% cases broilers are reared in floor and 35% of the layer farm rears their bird in floor(**Table 3.8 and 3.9**).**Ratsakaet al., (2012)**conducted a study to compare floor and cage rearing of broiler. Feed intake, body weight gain and FCR of the chickens in that study were not affected by the system of rearing.

About 75% of the broiler farmer use rice husk, 15% use saw dust and 10% use wood shavings these findings are found in current study(**Table 3.8 and 3.9**).**Mizuet al., (1998)**

reported that in Bangladesh different types of litter such as saw dust, sugarcane bagasses, rice husk, wheat straw, sand and ash are used.

### 3.4.3 Feeding

In present study it was revealed that 85% of the broiler and 20% of the layer farmer use hanging plastic feeder, 15% of both broiler and layer farmer use pot / bucket feeder and in 65% of the layer farm the feeder are attached with case (**Table 3.8 and 3.9**).

In terms of type of feed used, 15% of the broiler farmer used self prepared and readymade mash feed and remaining 70% use readymade pellet feed. In layer none of the farmer use readymade pellet but, 60% use readymade mash and remaining 40% use self prepared feed (**Table 3.8 and 3.9**). **Jahanet al., (2006)** in a study on poultry farm of Bangladesh Agricultural University, found the highest, intermediate and lowest body weight gain by crumble, pellet and mash feeding respectively. **Mendes et al., (1995)** showed that, bird feed mash diet had a better feed conversion ratio (FCR) than pellet.

In current study it was found that, the broiler are maintained with ad libitum feeding where as the amount of feed per bird per day in case of layer are categories as less than 115 gm (25% of the farm); 115-120 gm (60% of the farm) and more than 120 gm (15% of the farm) (**Table 3.8 and 3.9**).

**Elliot, (2002)** reported that the amount of feed required depends on poultry breed, size and chemical composition of the ingredients used to making feed.

**Mahmud et al., (2008)** conducted a study in which all experimental birds were fed a commercial layer ration @ 110 gm per bird per day.

### 3.4.4 Water management

In this study it was found that, 85% and 20% of layer farmer, 15% of both broiler and layer farmer use hanging plastic feeder and pot/bucket respectively. In 65% of the layer farms, the drinker is attached with the cage (**Table 3.8 and 3.9**).

The scenery of water supply is that, 40% of broiler and 30% of layer farm perform water supply manually and 60% of broiler and 70% of layer farm use pump (**Table 3.8 and 3.9**).

### 3.4.5 Waste management

In terms of waste management there were found 15% of the broiler and 25% of the layer farmer dispose waste material (droppings and litter) to open air, 20% of broiler and 25% of

layer farmer dispose to a pit, 25% of broiler and 15% of layer farmer used the litter in biogas plant, 5% of the broiler and 10% of the layer farmer sell to the market, 10% of the both broiler and layer farmer use as fish feed and 25% of broiler and 15% of layer farmer use to crop production(**Table 3.8 and 3.9**). Similar study was conducted by **Sarkeret al., (2009)** they showed that 20% of small farmer could not use their poultry litter for any particular work.

### **3.4.6 Biosecurity**

The Biosecurity practices of the farms involved in present study is not so good. In broiler farms there is no enclosure found, footbath present only in 10% of the farm, disinfectant spray use only 25% of the farm, in about 35% of the farm the visitors are allowed, 90% of the farm have no isolation facilities and about 35% of the farms have chance to entry of migrating bird. In layer farm these parameters are 5%, 55%, 50%, 35%, 90%, and 25% respectively.(**Table 3.8 and 3.9**).

### **4.4.7 Others management practices**

About 25% of the broiler and 40% of the layer farmer manage disease by the help of vets. Regular vaccination is performed in 60% of broiler and 70% of layer farms. Egg collection is manual in all of the layer farms. Fan is used in about 60% of broiler and 65% of layer farms (**Table 3.8 and 3.9**).

So we can conclude that the overall management practices in layer farms is somewhat improved than broiler farms.



**a. Floor rearing of broiler.**



**b. Manually water supply by**



**c. Floor rearing of layer.**



**d. Case rearing of layer.**



**e. Farmer spray on his body before entering the farm.**



**f. Throwing the poultry droppings in open air.**

**Figure 3.2: Activities in the poultry farm of Pabna district.**

## CHAPTER- 4

### **Limitations of the study**

There were some limitations in my study. The study period was limited and study area restricted to a particular district, for this reason the findings may not reflect the whole country. There was limited recording system in poultry farms under study as a result it was difficult to select valid data. Some of the farmers were not cooperative to give information.



## CHAPTER- 5

### Conclusion

Poultry farming is a great opportunity for the rural people and youth as a means of income generation. Socioeconomic development might be achieved with the help of household poultry farming. There is a wide scope for the development of poultry farming in the countrywide because rural poor people have enough time for rearing poultry. It would be really very helpful for income generation, women empowerment, and fill up nutritional gap for the rural family. Socio-economic position on subsidiary occupation, monthly household income and expenditure, cash in hand, savings with bank, household assets, number of school going children, monthly consumption of meat, eggs, vegetables, milk and fish, sources of drinking water, condition of latrines and health status of farmers were improved and the annual cost for treatment is reduced after adopting farming. Since most of the people irrespective of caste and religion prefer chickens and eggs, its demand is and price is gone up. Most of the poultry farmers were small farmers while some of them were landless. Some improvements in the status of clothing, toilet condition, medical facilities, drinking water and housing have been taken place because of poultry farming. It was also revealed that layer farming is more profitable than broiler, so farmers can adapt layer farming for maximum profit. In the present study, in terms of overall socio-economic improvement it was found that poultry farming helped to improve their socioeconomic condition. As a result, tendency to initiate poultry farming is widely observed in rural areas.

## Chapter-6

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**The author,**

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I'm **S. M. Abdus Salam**, an intern student at Chittagong Veterinary and Animal Sciences University (CVASU), originate from Pabna, Rajshahi. After completing one year intern period, I will receive my Doctor of Veterinary Medicine (DVM) degree with lots of real life experiences. As an intern student I've received clinical training from Madras Veterinary College and Veterinary College & Research Institute, Namakkal, Tamilnadu, India. I've a great enthusiasm in research and have done some clinical research works. I've published one scientific paper in **Journal of Veterinary Science & Technology** titled by "Comparative Study on Newcastle Disease and Infectious Bursal Disease in Chicken Submitted to Upazilla Veterinary Hospital, Bogra Sadar, Bangladesh". I have more interest on pathology, microbiology, medicine, surgery, theriogenology and epidemiological field area.

