**CHAPTER 3**

Research Methodology

**3.1 Study area:**

The study was conducted at Chittagong district in Bangladesh. This district consists of 14 upazila: Anwara, Banskhali, Boal khali, Chandanish, Fatikchari, Hathazari, Lohagara, Mirsharai, Patiya, Rangunia, Raojan, Sandwip, Satkania, Sitakundu **(Banglapedia, 2012).** The place of my study is the Patiya Upazila. The geographical location of Potiya Upazilla is 22.3000° North and 91.9833° East. It is bounded by Kotwali, Chandgaon and Boalkhali on the north, Chandanaish and Anwara on the south, Rangunia and Chandanaish on the east, Bandar on the west. It is 370 sq. km and total union is 22. From Patiya Upazila 5 union named Sikalbaha, Char Lakshya, Juldha, Char Patharghata and Kolagaon union were selected for study.

**Figure 3.1:** The figure shows the **Study area**. ( Green marks indicate the particular union: Sikalbaha, Char Lakshya, Juldha, Char Patharghata and Kolagaon union.)

**3.2 Study period:**

The study was conducted between the period of 17 December,2013 at 9.00 am to 10 January at 5.00 pm (Local time of Bangladesh).

**3.3 Collection of Data:**

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**). Data were collected through face to face interviewing of farmer and personal visits to the randomly selected dairy farming households involved in small scale dairy farming. A questionnaire was designed to capture information related to general characteristics of the household and the household head; farmland ownership and use housing pattern; production, inputs, costs and profits/income from dairy farming and other households activities; income from non-farm activities; expenditure of income from dairy farming; assets ownership; perceived benefits and constraints to dairy farming.

(**Uddin *et al.,* 2012** ).

For this reason necessary tools or materials were needed. Actually overall data of individual farms were soul material in this occasion. This data were collected by using following techniques:

* Visiting of individual farms.
* Cross questioning to the owner/ farmer / employee.
* Records maintain by the farmers ( if there any).

**3.4 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:

**3.4.1 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 dairy farms of the district engaged in production were classified as population of the study.

**3.4.2 Sample size:**

On the basis of - nature of research and analysis; number of variables; resource constraints; and, the importance of decision, a sample size of 30 Dairy farms was selected.

**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).**

**3.4.3 Sampling methods:**

Combination of Random, area & cluster sampling method was used. Patiya upazilla has 22 unions. From these unions five unions was randomly selected and from these five unions six farm from each union was randomly selected.

**Figure 3.2:** Sampling methods used in current study.

**3.4.4 Data Analysis:**

After collecting all the data of individual dairy farms we analyze some very much vital husbandry issues like Housing, Feeding, Breeding, Udder health status, Biosecurity condition etc. Here we tried to make a comparative deviation on these key issues from a minimum standard that required for a dairy farm operation. These standards get through from various literatures. Actually percentage ( % ) of some special important husbandry practice is find out here & graphically represent on some contrast.

**3.4.5 Statistical Analysis:**

The obtained data was stored in Excel-2000 and imported to software STATA/IC-11.0 for analysis. Stored data were tabulated and arranged as percent value. 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** ).