

世界的競争構造下におけるバングラデシュ酪農の持続的条件と  
支援システム

ーバングラデシュの主要な酪農地帯を事例にー

**The Sustainable Conditions and Support System for Bangladesh  
Dairy Sector under the Global Competition Structure: Case  
studies on the main dairy farming areas in Bangladesh**

**MD. MONJURUL HOQUE**

**2013**

**The Sustainable Conditions and Support System for Bangladesh  
Dairy Sector under the Global Competition Structure: Case  
studies on the main dairy farming areas in Bangladesh**

A Thesis Submitted to the United Graduate School of Agricultural Sciences  
Kagoshima University, Japan. In Partial Fulfillment of the Requirement for the Degree  
of DOCTOR OF PHILOSOPHY IN AGRICULTURE

By

MD. MONJURUL HOQUE

Master of Science, Faculty of Agriculture, Saga University, Japan.

September, 2013

## DECLARATION

I hereby certify that this thesis is the result of my own original work and has not previously been submitted to another university for the purpose of a degree. Where use has been made of the work of others, such work has been duly acknowledged in the text.

Name : Md. Monjurul Hoque

Signed : .....

Date : .....

## **DEDICATION**

**To my parent**

**To my country**

**“We cannot change our past but the future is in our hand”**

**KAGOSHIMA UNIVERSITY**  
**THE UNITED GRADUATE SCHOOL OF AGRICULTURAL SCIENCES**  
**21-24, KORIMOTO 1-CHOME, KAGOSHIMA 890-8580 JAPAN**

The dissertation entitled “The Sustainable Conditions and Support System for Bangladesh Dairy Sector under the Global Competition Structure” presented by Md. Monjurul Hoque at the following venue and date:

Venue : Department of Agricultural Economics, Kagoshima University.

Date : 27<sup>th</sup> July, 2013

KAGOSHIMA UNIVERSITY  
THE UNITED GRADUATE SCHOOL OF AGRICULTURAL SCIENCES  
21-24, KORIMOTO 1-CHOME, KAGOSHIMA 890-8580 JAPAN

The dissertation entitled, “ The Sustainable Conditions and Support System for Bangladesh Dairy Sector under the Global Competition Structure” prepared and submitted by Md. Monjurul Hoque in the partial fulfillment of the requirement for the degree of DOCTOR OF PHILOSOPHY is hereby accepted.

Date: 6<sup>th</sup> September, 2013

.....  
**Prof. Dr. SHIRATAKE Yoshiharu**  
Chairman, Advisory Committee  
Saga University

.....  
**Prof. Dr. KOBAYASHI Tuneo**  
Member, Advisory Committee  
Saga University

.....  
**Prof. Dr. IWAMOTO Izumi**  
Member, Advisory Committee  
Kagoshima University

.....  
**Prof. Dr. NAITOU Shigeyuki**  
Member, Advisory Committee  
University of the Ryukyus

.....  
**Prof. Dr. TASHIRO Shoichi**  
Member, Advisory Committee  
Kagoshima University

## ACKNOWLEDGEMENT

I would like to begin by thanking Professor Yoshiharu Shiratake for being a guide and a mentor during the entire process of completing this degree. I consider myself extremely fortunate to have had his professional and personal support, and unfaltering encouragement.

I would like to thank co-supervisors Professor Kobayashi Tuneo and Professor Iwamoto Izumi, advisory committee members Professor Tashiro Shoichi and Professor Naitou Shigeyuki for their valuable comments and advice.

I must also acknowledge the United Graduate School at the Kagoshima University for Travel Award which provided me an opportunity to travel to Bangladesh for PhD related field work.

I am grateful to my family for providing endless encouragement and support. Heartfelt thanks to my parents for their advice on life and spirituality. Thanks to my son Tahmidul Hoque Taheem for providing those warm hugs which brought such cheer and joy in life.

Finally, I wish to thank my wife Shanzida Akter Shanta for her unconditional support and encouragement. Her companionship and love was like a beacon that carried me through some of the very difficult times during all these years.

Md. Monjurul Hoque

## LIST OF PUBLICATIONS

- 1) Md. Monjurul Hoque and Yoshiharu Shiratake (2010), “Impact of importing powder milk on the dairy sector of Bangladesh”. The Journal of Japan Society for Distributive Sciences (JSDS), Volume 29. No. 1, pp.1-12
- 2) Md. Monjurul Hoque and Yoshiharu Shiratake (2013), “Impact of the Private Processors’ Competitions on the Dairy Cooperative in Bangladesh”. The Life Science Journal, Volume 10, version 2, pp. 1586-1593.
- 3) Md. Monjurul Hoque and Yoshiharu Shiratake (2013) “Significance and Development Conditions of a Dairy Co-operative in Bangladesh”. The Agricultural Co-operative Society of Japan
- 4) Md. Monjurul Hoque and Yoshiharu Shiratake (2013), “Evaluation of the sustainable conditions of small scale dairy farmers in Bangladesh”, under review by the Outlook of Agriculture





# BANGLADESH

## Administrative Divisions



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## ABBREVIATIONS and ACRONYMS

ARI	: Agricultural Research Institute
AR4D	: Agricultural Research for Development
BARI	: Bangladesh Agricultural Research Institute
BAU	: Bangladesh Agricultural University
BBS	: Bangladesh Bureau of Statistics
BDS	: Bangladesh Dairy Sector
BHS	: Bangladesh Households Survey
BLRI	: Bangladesh Livestock Research Institute
BSS	: Bangladesh Shangbad Songstha
CBO	: Community Based Organization
DLS	: Department of Livestock Services
DAE	: Department of Agricultural Extension
FAO	: Food and Agricultural Organization
NLDP	: National Livestock Development Policy
NAP	: National Agricultural Policy
NARS	: National Agriculture Research System
MOA	: Ministry of Agriculture
MDGs	: Millennium Development Goals
WTO	: World Trade Organization

## 世界的競争構造下におけるバングラデシュ酪農の持続的条件と支援システム

ーバングラデシュの主要な酪農地帯を事例にー

バングラデシュの酪農部門は、長い歴史を有し、国民の暮らしにおいて、雇用と所得、栄養と食事、エネルギーを創出する重要な役割を果たしてきた。酪農部門の国民経済における重要性を考慮して、政府は**1947**年に創設された酪農協を再編し、**1973**年に酪農協ミルクビタを開設した。その後、酪農協ミルクビタは酪農家に対し多様な無料奉仕事業を行い発展計画を遂行してきた。その結果、ミルクビタの組合員数は増加し、酪農家の生産性、原料乳生産量、乳牛飼養頭数の向上をもたらした。その中で、国民一人当たり年間ミルク消費量もまた増加した。

しかし、**1995**年、政府は乳製品に関する貿易自由化政策を採り、同時に酪農家に対する助成金削減を行った。特に、**2008**年後半、政府は輸入粉ミルクの関税率を**75%**から**36%**へ切り下げた。この関税政策の転換は安価な粉ミルク輸入の激増をもたらした。これはメラミンの影響を被る子供達にとって危険性が高まるばかりでなく、国内の酪農製品サプライチェーン関連業者にとって経済的脅威ともなった。特に、酪農家やミルクビタは、乳製品市場環境の複雑で急速な変化に直面することになった。酪農家は、貿易自由化によって変化した市場条件に順応することは難しく、世界的な隔絶した競争力に当面することになった。そこで、本研究は、バングラデシュの酪農部門の持続的条件とサポートシステム構築のための緊急課題を検討した。

第1に、輸入粉ミルクが国内産原料乳の市場構造の変容と私的加工業者が採る市場行動の変化に及ぼす影響を分析し、次の諸点を明らかにした。1) 乳製品の加工・小売を行うスイートショップは、国内原料乳の最大の使用者として国内酪農家と強い関係性を有してきたが、その加工原料乳を国内原料乳から輸入粉ミルクへ変換していること、2) ミルクビタを除く主な乳製品加工業者は酪農家から原料乳の集乳を減らしていること、3) 私的加工業者はSNFテスト基準を**2.5**から**4**へ上げ、また酪農家からの集乳日数を減らし、1日の集乳回数も減らしたこと、4) 以上の状況の中で、ミルクビタは酪農家から全ての原料乳を集乳できなかったが、組合員や他の酪農家から貯蔵力限界まで購入したこと、5) 酪農家は原料乳を経営費以下で販売したこと、その酪農家に乳牛を肉用として販売させ廃業に追込む状況を作ったこと等である。

第2に、貿易自由市場下における小規模な酪農家の持続的条件を査定し、次の諸点を明らかにした。1) 実態調査を行った酪農家の**62%**が小規模農家であるが、彼らの**94%**が複合経営方式を採って農業経営を持続していること、2) 彼等の**44%**が原料乳を適正価格で販売する為に都市消費者や病院と契約を結び原料乳を販売していること、3) 彼らのほとんどが地方市場において産地仲買人に代わる酪農協の機能を必要としていること等である。

第3に、私的加工業者の競争戦略が酪農協ミルクビタに及ぼす影響を分析し、次の諸点を明らかにした。1) 私的加工業者の市場シェアが拡大するに伴いミルクビタの純所得が減少したこと、2) 私的加工業者が原料乳集乳における戦略を巧妙にして組合員酪農家とミルクビタ間のミスマッチを創出した。3) 組合員の少数が乳製品加工技術を有し、原料乳をミルクビタへ最小限量だけ販売し、自家乳製品加工原料に回していること等である。

最後に、世界的競争構造下におけるバングラデシュ酪農の持続的条件を考察した。酪農経営の持続性は自由市場下では極めて低い、本研究は世界的競争下での酪農部門の発展の為の支援システムについて考察した。そして、1) ミルクビタは、酪農家に対し無料奉仕の目的を説明すること、簡易な借金返却システムを設置すること、組合員が原料乳を出荷し易くすること、加工技術を有する組合員との共同事業を企画すること、その事業機能を拡張すべきであること、2) 政府は輸入粉ミルクの品質を厳格にチェックし、輸入量を制限し、輸入粉ミルクの関税を高めること、そして補助金給付による助成で酪農家保護を検討すべきであること、3) 酪農家は複合経営、都市消費者との契約取引、産地仲買業に代替する協同組合システムを検討すべきであることなどを明示した。

The Sustainable Conditions and Support System for Bangladesh Dairy Sector under the Global Competition Structure: Case Studies on the main dairy farming areas in Bangladesh

**Abstract**

Bangladesh Dairy Sector (BDS) has a long history and paramount importance in the livelihood of local people and in generating employment, income, nutrition, and energy. By taking into account the importance of this sector in the local economy, the government established Milk Vita in 1973 by reorganizing a dairy cooperative system which was functioning since 1947. Since establishment, Milk Vita has been rendering various free services to dairy farmers and arranging development programs. As a result, members in Milk Vita have increased by times. This scenario has resulted in an increase of productivity of dairy farms, raw milk production and cattle population in the country. Per capita milk consumption also increased (BSH, 2005).

Since 1995, the government undertook the trade liberalized policy with regard to milk products while reducing the subsidy in dairy farming. Especially in late 2008, the government reduced the tariff level on imported powder milk from 75% to 36%. This change in the tariff policy resulted to a drastically increase in import of cheap powder milk in the milk market. This was not only a danger for the children who were affected by melamine but also a threat for the participants in the dairy food supply chain of the country. Especially dairy farmers and Milk Vita were confronted with a complex and rapidly changing of the milk market environment. The dairy farmers found it difficult to adjust to a situation marked by the trade liberalization and had a very little breathing time to face the challenges of global competition. Therefore, this study finds out an urgent problem for the sustainable conditions and support system of BDS.

Chapter 3 analyzed the impact of imported powder milk on the change of raw milk marketing structure and the change of private processors' behaviors and revealed the followings. 1) The sweet shops, which were the biggest user of local raw milk and, had a strong link with local dairy farmers, changed their use from raw milk to imported powder milk. 2) Most of the main processors except Milk Vita have decreased raw milk collection from dairy farmers. 3) Private processors have changed the SNF test standard from 2.5 to 4, decreased number of collection days, and changed collection times. 4) Milk Vita has bought raw milk from members and other dairy farmers at fully level of its capacity but unable to collect all the milk from the farmers. 5) Dairy farmers had to sell their raw milk at lower price rather than the existing management cost. This situation has influenced the dairy farmers to change their job, stop their business and sell their cows to the meat market.

Chapter 4 evaluated the sustainable conditions of small scale dairy farmers under the liberalized market and revealed the following: 1) 62% of the surveyed dairy farmers were small scale, but continuing their farming along with other agricultural activities. 94% of them have adopted diversified farming system. 2) 44% of them have practiced contract marketing to sell raw milk at reasonable price to urban consumers and hospitals. 3) Most of them needed an economical organ instead of middleman in the local market.

Chapter 5 analyzed the impact of the private processors' competition on Milk Vita and revealed the followings. 1) The net income of Milk Vita decreased while increasing the raw milk market share of private processors. 2) The private processors developed their strategies in raw milk collection and made miss-match between the members and Milk Vita. 3) Some of the members had their own technique of milk processing, sold only the minimum amount of raw milk to Milk Vita and used the rest to produce their products.

Chapter 6 considered the sustainable conditions of dairy farmers in the country under the global competitive structure. Although the sustainability in dairy farming was very low under the liberalized marketing system, this study considered the support system for the development of dairy sector under the global competitions. 1) The government should consider the quality checking of imported powder milk strictly, limit the quantity, increase the tariff level on powder milk, and take responsibility to protect vulnerable dairy farmers through subsidy. 2) The dairy farmers should consider a diversified agriculture, a contract marketing of raw milk with urban consumers, and following the cooperative system for avoiding the middleman in the local market. 3) Milk Vita should expand its activities by informing the purposes of the free services to dairy farmers, setting a simpler micro credit system as well as a refund system, developing an advanced raw milk collection systems for the members, adopting the joint business venture with members cum processors.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the Thesis

Bangladesh is a south Asian country and an agriculture based economy where 70% of the overall population earns their living from agriculture. In agriculture, livestock sector contribute to the national GDP at 2.9% out of the agricultural GDP at 21%. Although, the contribution of this sector is low but more than 70% of the total population directly and indirectly rely on it. Moreover, Bangladesh Dairy Sector (BDS) has a long history and paramount importance in the livelihood of local people and in generating employment, income, nutrition and energy. By taking into account the importance of the sector in the local economy, the government established Milk Vita in 1973 by reorganizing a dairy cooperative system which was functioning since 1947. Since establishment Milk Vita has been playing an important role in the development of BDS by rendering various free services to dairy farmers and arranging development programs. As a result, farmers' participation in Milk Vita increased from 30,500 in 1991 to 160,000 in 2007. This has resulted in an increase of productivity of dairy farmers. In addition, the raw milk production in the country increased from 1.29 million tons in 1988 to 2.27 million tons in 2007. The number of cattle population in the country increased from 21.18 million in 1984 to 24 million in 2008. Per capita milk consumption also increased from 16 kg per year in 1981 to 32 kg in 2005 (BSH, 2005).

However, from 1995, the government adopted the trade liberalized policy, started to

curtail the subsidy in agriculture, and withdrew the restrictions on import of such items. Especially in late 2008, the government reduced the tariff level on powder milk from 75% to 36%. Therefore, the change in the tariff policy was resulted the much import of cheap powder milk which was not only a danger for the children who are affected by melamine but also a threat for the participants in the dairy food supply chain in the country. Especially dairy farmers and their organization Milk Vita were confronted with a more complex and rapidly changing the milk market environment. The dairy farmers found it difficult to adjust to a situation marked by the trade liberalization. Therefore, there was very little breathing time to face the challenges of global competition for the dairy farmers, 8,171,294 households, and 45.83% of the total households in the country.

## 1.2 Objective of the study

Dairy farming is ideally matching the country's conditions whereas the agricultural land is reportedly declining by about 1 per cent per year. It can be a necessary ingredient in the local economic development process in Bangladesh. It can play a key role in the socioeconomic status of the local population. It can be considered a source of food, source of manure, source of daily income and source of household energy. Moreover, dairy animals also play the central role in maintaining the soil nutrients, consume the crop residues after harvesting and help to recycle in mixed farming system. However, dairy farming in the country has been facing a global competition due to lack of organized market, unequal competitions, under developed infrastructure, lack of government support and subsidy to dairy farming, lack of fodder and its high and uncontrolled price, middlemen and huge import of milk products. As a result, milk

products of developed countries<sup>1</sup> are taking place in domestic market. Dairy farmers in developing country like Bangladesh cannot compete with this global competitions and loss their jobs, become workless and vulnerable farmers which lead to a vulnerable society and a nation.

Therefore, the general objective of this study was an inquiry into the sustainable conditions of dairy farmers in their livelihood. The study examined the sustainable conditions through the specific points as follows; 1) to examine the impact of imported powder milk on the rural dairy farmers in the country, focusing on Shirajgonj, 2) to evaluate the sustainable conditions of small scale dairy farmers, focusing on Tangail, 3) to examine the impact of the private processors' competitions on the dairy cooperative, focusing on Munshiganj.

### 1.3 Methodology of the study

Initially, the study was directed towards identifying the constraints and development of BDS. Considering this background, the study uses both primary and secondary sources of information to support each other. A detailed field survey was conducted to collect information mostly on different farming components. The primary data was collected mainly during the three field trips during three consecutive years 2008, 2009 and 2010. Srinagar from Munshiganj district, Baghabari from Shirajgonj district, Kalihati, and

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<sup>1</sup> The developed country means a technically developed country. It has highly developed irrigational system, marketing system, management system, and also skilled labor forces. The dairy farming of this country gets a huge government subsidy for their farm management and has a large and commercial production with low cost. They can sell their production in the international market with low price.



**Figure 1.1 Location of the main dairy farming areas in Bangladesh**

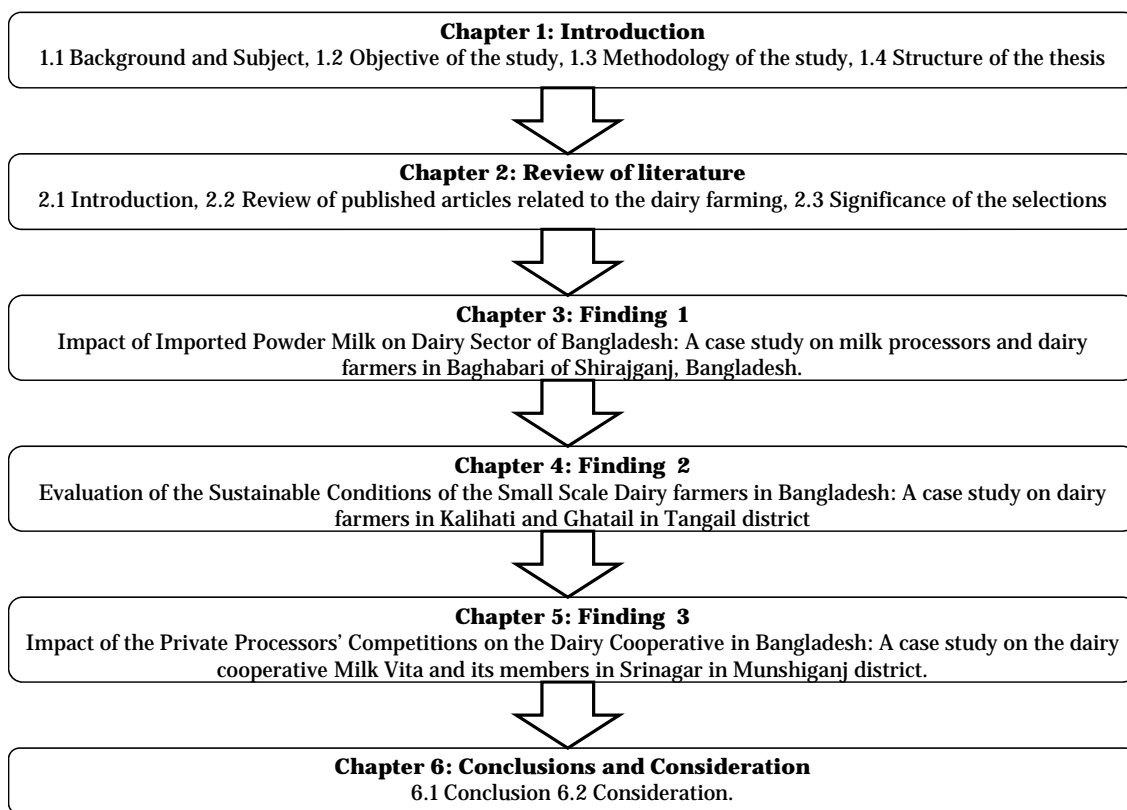
Ghatail from Tangail district were selected for the study (Figure 1.1). A total sample of 210 households was randomly selected and orally interviewed using pre-tested semi-structured questionnaires. Data analysis was done both quantitatively and qualitatively. Two main methods of data collection have been used in order to fulfill the objectives of the study. The empirical part of the study, which covers three chapters as three separate case studies conducted in three different districts have been totally based on extensive investigations at micro level.

A team of twelve trained field investigators and three supervisors were employed to carry out the surveys. The team of investigator consisted of under graduates, while experts supervised the field work. Each investigation lasted a period of two full time weeks, but meetings, discussions, and observations were conducted continuously at field level on several occasions even after the full investigation. This study has also employed some available data mainly in analyzing part at the macro level or national level. The data provided by the BBS, Bangladesh bank, population census etc. The collected data through the questionnaires was coded; it was processed with the help of the Microsoft Excel program and descriptive statistical method was used for the analysis part of the thesis. The part of methodology was described details in each case study.

#### 1.4 Structure of the Thesis

This study contains in a total six separate chapters. Chapter 1 Introduction part contains background and subject, objective of the study, methodology of the study, and structure of the thesis. Chapter 2 reviewed articles related to the dairy farming. Chapter 3 described the impact of imported powder milk on dairy sector of Bangladesh. Chapter 4





**Figure 1.2 The structure of the Thesis**

evaluated the sustainable conditions of the small scale dairy farming in Bangladesh. Chapter 5 described the impact of the private processor's competitions on the dairy cooperative in Bangladesh. Chapter 6 described the general conclusions and considered the cooperative system as a method of the sustainable development of local dairy farmers in the country.

## CHAPTER TWO

### REVIEW OF LITERATURE

#### 2.1 Introduction

Bangladesh dairy sector is an important and potential sector not only for the foods but also for the employment generation. This is an employment oriented sector for a large number of populations of the country. Despite of many kinds of positive aspects, this sector has gotten a least attention by the government and policy makers of the country. Not only that, research organizations and individual researchers also had limited affords to develop the sector sustainably. Therefore, to evaluate the conditions of research organizations and individual researchers on the research of dairy sector, the study divided into three parts. First part shows the research undertaken by research institutions, second part shows the research undertaken by individual researchers and third part shows the research undertaken by this study.

#### 2.2 Research under taken by the research organizations

In Bangladesh, there are three main research organizations that engaged on livestock researches. Department of Livestock Services (DLS), Agricultural Universities (AU), and Bangladesh Livestock Research Institute (BLRI) are those kinds of organizations in the country. The activities of these research organizations are described below:

##### 2.2.1 Department of Livestock Services (DLS)

DLS is one of the departments under the Ministry of Fisheries and Livestock in the

country. It spearheads the government's development in livestock sector in the country. This department has been rendering some extension services such as vaccination, artificial insemination, fodder production and technology transfer through Central Veterinary Hospital (CVH), District Veterinary Hospital (DVH) and Upazila Livestock Development Center (ULDC). DLS does not conduct any research activities for the development of dairy sector.

### 2.2.2 Agricultural Universities (AU)

There are four agricultural universities in the country named "Bangladesh Agricultural University", "Sher-e-Bangla Agricultural University", "Bangabandhu Sheikh Mujibur Rahman Agricultural University", and Sylhet Agricultural University". Among of these universities, BAO is an oldest and biggest one. It has six faculties, of which one of them is agricultural economics and rural sociology (AERS). The AERS consists of five department namely i) Agricultural Economics, ii) Agricultural Finance, iii) Agricultural Statistics, iv) Agribusiness and Cooperatives, and v) Rural Sociology. All the teachers of the faculty besides teaching also undertake researches in different fields of agricultural development of the country. The research projects are funded by both national and international organizations. There are also collaborative research projects. Their studies have covered different fields of agricultural development such as a) Farm management b) Economics of New Technologies, c) Agricultural Credit and Financial Management, d) Rural Institution, e) Pricing and Marketing of farm products, f) Irrigation and Water resources etc.

The research projects completed by the AERS in the last decade are understandably

quite useful. The main areas of the study completed so far include a) Food security, b) Poverty Alleviation, c) Farm Mechanization and Irrigation, d) Poultry and Dairy Farming, Marine Fisheries and Aquaculture, f) Arsenic Contamination, g) Impact Assessment of Action Plans on Pulses, Oilseeds and Spices etc. Areas left out of research at present appear to be a) International Trade and Export of Farm Products, b) Import of Farm Inputs and Agricultural Production, c) Conservation of Natural Resources and the Efficiency of their Uses, d) Protection of Natural Environment and Bio-diversity, e) Local government and its contributions to development, f) River transportation and dry seasons water flow and navigation, g) Pesticide use and quality of high value crops, h) Climate change and its possible effects, i) Agro-processing and its expansion prospects, j) Resource transfer from agriculture to non-agriculture, Irrigation and ground water aquapher etc. The main limitations to the research studies are considered to be i) lack of research fund, ii) inadequate institutional supports to the participation of national and international seminars, and iii) insufficient incentives to researchers etc.

However, the majority of research in Bangladesh in the university level is of an academic nature. In some cases, researchers undertake specific project based research funded by the Ministry of Science and technology, or aid agencies (World Bank, USAID, IFS, IAEA ).

### **2.2.3 Bangladesh Livestock Research Institute (BLRI)**

BLRI is the only research institute in Bangladesh for livestock. It has two out-stations for research at Shirajganj and Bandarban. The Institute has at present seven research divisions such as i) animal Production, ii) poultry Production, iii) Animal Health, iv) goat and Sheep Production, v) Socio-economics, vi) System research, and vii)

Bio-technology. The socio-economic division of the institute is very much poorly equipped having only four Agricultural Economics against the total scientists of 45 there. Research fund allocation to this division is also abnormally low. There are thus, few studies that have been carried out by this division despite having wide scopes for research in Bangladesh.

The socio-economic studies undertaken so far are limited to a) commercial dairy and poultry farms and their productions and b) diseases and infestations occurred. Research reports have also been found in goat, sheep and duck farming. Very recently a very broad based survey report has been presented on the impact of Avian Influenza of 2007 and 2008 on production and consumption of poultry meat and eggs. Similar studies were also carried out previously with the emphasis on the country's commercial poultry farms. Most of these study reports are related to costs and return and the problems faced by the farm owners. Very few studies are however, available on the adoption of new technologies, may be the institute is lagging behind in releasing new technologies or that they could not yet generate adequate number of suitable technologies owing to shortage of qualified scientists.

Policy studies are almost absent in the institute. There is no such specific research report that can indicate the policy actions to be undertaken towards the rapid expansion of dairy, poultry and meat farms in the country. Experience suggests that the organizations unfortunately lack qualified economists in motivating the policy makers towards rapid policy actions, as suggested by the FAO sponsored review report of 2006. The government seems little responsive to the livestock development.

Some of the titles of the research paper are mentioned below to show the conditions of the researches undertaken by BLRI. 1) Study on evaluation of the quality of different milk products available at Dhaka regions (2006 to 2007). 2) Embryo transplantation, sexing and cloning for improvement of livestock (2006 to 2007). 3) Development of existing feeding management system for geese in some selected areas of Bangladesh (2005 to 2006). 4) Technology transfer through farmers training, printing and distribution of technology manual of BLRI (2005 to 2006). 5) Study on the effect of triticale green fodder supplementation with rice straw based diet on production performance of dairy cows (2006 to 2007). 6) Demonstration and adoption of feeds and fodder technology by farm communities (2006 to 2011). 7) Transfer and impact analysis of high yielding forages to support smallholder dairy production in some selected regions of Bangladesh (2006 to 2009). 8) Utilization of triticale fodder and grain for dairy and poultry feeding (2006 to 2008). 9) Demonstration of processing techniques of maize stover under farmers condition as a feed for cattle (2005 to 2007). 10) Introduction of potential forages crops into the existing cropping systems of different agro-ecological zones of the country (2005 to 2007). 11) Improvement of high yielding forages and their multiplication and conservation (2006 to 2007). 12) Genetic improvement of native cattle through selective breeding (2004 to 2007). 13) Genetic studies of cattle and buffalo in different regions of Bangladesh (2006 to 2009). 14) Study on the effect of dietary arsenic levels on its balance, hematology, and production performances of growing bos indicus bull (2005 to 2006). 15) Study on cattle fattening and marketing systems and their improvement in the context of global meat market (2005 to 2007). 16) Development of herbal feed additive for cattle (2005 to 2008).

### 2.3 Researches under taken by the individual researchers in the country

The study identified some research articles on Bangladesh dairy sector. All of the reviewed articles until 2008 are described as bellow:

#### 2.3.1 M. Sadullah **1990**

The title of the article was “Livestock and Poultry Production Systems in Small Farms in Bangladesh”. The author showed a system of animal production and uses vary widely in accordance with climate, soil and socio economic opportunities in Bangladesh, like other developing countries. Traditionally small farmers are bulk producers of milk, eggs and meat. Besides, milk and meat livestock is valued for one or several of the following traits: capital, credit, traction, hides and skins, fuel and fertilizer. The systems of production are in contrast with simple single-product farming like beef, mutton, milk, grain etc. that are the characteristics in developed countries. The production systems are characterized by small number of animals with no or minimal inputs, low outputs and periodic destruction of animals by disease and mostly maintained under scavenging systems with little or no inputs for housing, feeding or health care. The types of cattle may be described as i. Large native ii. Small, native, and iii. Cross breed. These native animals are well adapted to the local environmental, low quality feed resources, housing facilities and scavenging systems and the most important aspect is that their performance is also good in terms of feed efficiency. The feed resource base for these animals is scavenging and consists of crop residues, household waste, tree fodder, roots and tuber, grain by-products and anything edible found in the immediate environment. The backyard goat, chicken and duck farming has of being less capital-intensive than larger enterprises and can often be financed by dormant rural

savings. Feed resource base for chicken and ducks is mostly scavenging in the small farm and consists of household waste, fruits by-products, roots and tubers and small amount of grains, grain by-products and anything edible found in the immediate environment. Goat and poultry raising is very effective means for poverty alleviation and with 7-8 goats and 15-20 poultry given to a poverty stricken farm family, under traditional feeding systems could easily alleviate poverty. The development of livestock and poultry in Bangladesh is constrained by feed scarcity, inefficient and poorly coordinated support services and lack of information on which to base to make decision.

#### 2.3.2 Kabir M. H. and Talukder, R.K 1994

The title of the article was “Economics of small scale dairy farming in Bangladesh under the government support program” and it was published in the Journal of animal science, Vol. 12, No. 3: 429-434. In this study the financial performance of small scale dairy farms participating in the government subsidy program and the impact of the government intervention on the number of animals owned, production and consumption of milk and labor employment in the farm households have been examined. After receiving the subsidy, dairy farmers expanded their herd size. The major changes occurred in the ownership of calves, heifers and cows in all categories of farms. Significant increases in production and consumption of milk as well as in labor employment were observed. The rates of increase for all the parameters studied were much higher in farms adopting cross breeding compared to those in only local-breed farms. The analysis showed that dairying was a profitable business. However, profitability was greater with cross-bred than with local bred animals.



### 2.3.3 Debnath N.C. 1994

The title of the article was “Calf losses on the Central Dairy Cattle Breeding Station in Bangladesh”. It was carried out between January 1980 and July 1992 (both months inclusive). Analyses of data on 681 abortions and 8623 live born calves out of which 1146 died within one year of age revealed that during the survey period mean annual abortion rate and mean annual calf mortality rate from birth to one year of age were 7.6+4.8% and 13.4+ 3.8%, respectively. Gastro-enteritis caused 30.7% of all deaths followed by respiratory diseases ( 16.7%). Tuberculosis and foot and mouth disease were responsible for 11.3% and 7.6% of the deaths, respectively. Calf mortality rate was significantly higher in male calves and in calves having exotic breeding and lower birth weight. Age at death during the first 12 months of life was described by life table methods. Life table analyses of all deaths or deaths due to gastro-enteritis and respiratory diseases demonstrated that mortality peaked during neonatal period (28 days inclusive) of life.

### 2.3.4 G. C. Saha and S. A. M. A. Haque 2000

The title of the article was “Small-scale processing and marketing in Bangladesh including reference to micro-credit facilities (good market access) Milk Vita: A case study”. Milk Vita has emerged as a successful co-operative endeavour in Bangladesh. It provides poor, landless and marginal milk producer farmers and women in the associated communities with regular supplementary incomes. It has shown itself capable of strengthening its activities further to increase dairy production and thereby to contribute effectively to the national economy through a strong and viable organization of small farmers. Therefore, Milk Vita recommends such as 1) framing,

within a given period of time, of an appropriate dairy policy for the country depicting all pertinent issues 2) formation of the Dairy Development Board of Bangladesh with professionals of the sector assuring adequate authority and autonomy (Rahman et al. 2000) 3) acquisition of *bathan* land for farmers' cattle grazing 4) government, national and international assistance in the milk sector both for plant establishment and infrastructural support 5) replication of the Milk Vita model in other parts of Bangladesh through government initiatives and funding for the benefit of both farmers and consumers and 6) channeling the government's poverty alleviation programmes through the infrastructure of Milk Vita in all the milk-shed areas of the country

#### 2.3.5 Ashoke Kumar Ghosh, Keshav Lall Maharjan <sup>2001</sup>

The title of the article was “Impacts of Dairy Cooperative on Rural Income Generation in Bangladesh”. The author highlighted the small dairy farmers in Bangladesh are collectively operating their dairy farming and generating employment for better earnings through a cooperative system. The findings of this study suggested that agriculture (crop production) is no longer the predominant occupation among the dairy cooperative members. In fact, dairy has emerged as a parallel occupation. Another trend observed in the study area is the diversification of income sources. The rural households have secondary and tertiary occupations. Thus, this trend of dairy development in farming through cooperative initiatives can play a very significant role in rural development.

#### 2.3.6 Hemme. T., Garcia. O. and A.R. Khan <sup>2002</sup>

In this article the author estimate of milk demand in Bangladesh demand is over two

and half times FAO's recorded national milk production for the country (for 2002). Therefore, meeting Bangladesh's potential milk demand is a huge national task and the question arises how well-positioned Bangladesh is to meet this milk demand. This study shows that the 2 cow farms (BD-2) not only cover full economic costs, but can produce milk at a cost almost as low as the larger farms included in the study. This should be very encouraging for more than 7.2 million Bangladeshi families involved in small scale cattle rearing, of which few make a profit and most consider it a highly risky activity. The small farm (BD-2) is competitive at the national level but not at the international level. The cost of milk production of all farms in comparison to larger farms in India, Pakistan and Oceania is around 50% higher. Assuming a liberal trade of dairy products in the future all farms analyzed will have to improve the production systems significantly to gain from the growing demand of dairy products in the country. Further studies of small dairy farms in Bangladesh need to include a land-less milk production system, a typical goat milk production system and a more exhaustive evaluation of the non-cash benefits obtained from dairy cattle (like draught power). Moreover the cost reduction potential of the farms by improvements in farm management should be analyzed.

#### **2.3.7 M. Hasanuzzaman, M. A. Barik and M. Z. Rahman <sup>2002</sup>**

The title of the article was "Milk Fat Production Trend and Effect of Season on it at Sree-Nagor". The author find out the milk fat production trend both in qualitative and quantitative aspect and seasonal effect on it at Sree-Nagor Milk Shed Area (MSA) under Milk Vita in Munshigonj, Bangladesh. From this study it was concluded that milk fat followed a specific trend and season have a tremendous effect on production system.

Availability of forages may play the major role.

#### **2.3.8 Ashoke Kumar Ghosh Keshav Lall Maharjan 2002**

The title of the article was “Milk Marketing Channels in Bangladesh: A case study of three villages from three districts”. The author showed a general feature of milk marketing in Bangladesh and explores some of the issues on milk production among dairy households and their conditions under various milk marketing channels. Further development of dairy farming depends upon the organized marketing channel in which farmer can get fair price. Collective marketing like cooperative system can also reduce the transportation cost. Majority of the dairy farmers are satisfied with cooperative marketing system. So, keeping in mind for mass of the small producer, cooperative milk marketing system can be developed for betterment of the rural dairy farmers

#### **2.3.9 M. S. Zaedi, K. Demura, Y. Yamamoto 2004**

The title of the article was “Bangladeshi Dairy Farmers' Conditions under Milk Vita”. This paper was published in “The Review of Agricultural Economics”, vol. 64, pp. 181-190. The purpose of this study was to investigate Milk Vita member dairy farmers' profitability in the selected study area. The study was conducted in three villages of Bagabarighat under the Shahjadpur Upazila in Sirajganj District in Bangladesh. With this view, the empirical data were collected to identify the member dairy farmers' profitability. The findings of the study were as follows. First, regardless of farm size, dairy farming under Milk Vita is profitable and farmers' income ranged between the middle and higher income group in the country. Second, all the sample farmers' number of milking cows and profit also increased significantly after becoming a

member of Milk Vita. The profitability of dairy farming under Milk Vita has attracted the farmers to become its members, which ensures dairy farmers better economic life.

#### 2.3.10 Hossain M.M., Alam M.M., Rashid M.M., Rahman M.M. 2005

The title of the article was “Small scale dairy farming practice in a selective area of Bangladesh”. It was a published paper in Pakistan journal of Nutrition, 4 (4): 215-221, 2005. Studied to determine the status including general information, feeding breeding housing milking etc. and costs & returns of small dairy farms, to compare the productive and reproductive performance of crossbred and indigenous cows and to make recommendation for development of small scales dairy farm. With this view, the empirical data were collected by using protested questionnaire. The study was conducted at 8 thanas in Rangpur district, and four months-long survey was diminished on thirty small dairy owners. It appeared from the study that 57% farm owners belong to business class and remaining 43 per cent to different categories. Fifty three per cent took dairying as a side-business whereas only 47 per cent took it as a main business enterprise. Major percentage of farm owner education level that was Higher Secondary level (60%) and the average number of animal per farm was 13.01. The average monthly income of farm owners found in the study area was Tk. 4387. It was observed that farm owners had 85.4% crossbred (like Friesian cross and Jersey cross) and was 14.6% indigenous cattle, and 87% farmers used artificial insemination and rest used both artificial and natural services. Daily milk yield/cow/farm was 4.27 and 1.78 liters for a crossbred and indigenous dairy cow, respectively. It was estimated that the rearing cost of dairy cow was Tk. 67.5/cow/day and return from rearing dairy cow was Tk. 85.2/cow/day. The net return was Tk. 17.7/cow/day from crossbred in the study area

and cost benefit ratio was 1: 1.26. The study showed that there were significant ( $P < 0.01$ ) differences within the dry period, service per conception, calving to first service, highest and lowest milk production and lactation period of crossbred and indigenous dairy cows. The study also showed non-significant differences within calving interval for crossbred and indigenous. In case of small dairy farming, the farms were facing a lot of problems such as scarcity of feeds and fodder, high price of concentrate and lack of technical knowledge. Although the dairy cow owners face problems, the study observed that there were potentials particularly for the small dairy farmers. The small farmers by keeping 8-10 crossbred cows could earn a modest living by adopting small dairy farming as a profession.

#### 2.3.11 Shamsuddin. M., Alam. M.M. and Hossein. M.S. 2007

The title of the article was “Assessed resources, challenges and prospects of the dairy industries in four districts of Bangladesh”. Author used ten participatory rural appraisal (PRA) tools, namely social mapping, semi structured interview, activity profiles, seasonal calendar, pie charts, mobility diagram, matrix ranking, preference ranking and scoring, system analysis diagram and focus group discussion in 57 PRA sessions from September through October 2002. Dairying contributed more to family income (63 to 74%) and utilized a smaller portion of land than did crops. Twenty seven to 49% of cattle feed is rice straw. Only Sirajganj and Chittagong had limited, periodic grazing facilities. Fodder (Napier, Pennisetum purpureum) cultivation was practised in Sirajganj and Satkhira. Fodder availability increased milk production and decreased disease occurrence. Friesian crossbred cows were ranked best as dairy cattle. The present utilization of veterinary and AI services were ranked highly. Farmers outside the milk

union desired milk purchasing centers as the most required service in the future. They identified veterinary and AI services as inadequate and desired significant improvements. The PRA tools effectively identified resources, constraints, opportunities and farmers' perspectives related to the dairy industries in Bangladesh.

#### **2.3.12 Livestock research for rural development <sup>2008</sup>**

The title of the article was "A farm economic analysis in different dairy production system in Bangladesh". The study showed different milk production systems with the magnitude of inputs (feed, land, labor etc) and output (milk). The degree of intensification and potential availability of input and support services play a great role in reducing the costs with increasing the return and improving productivity. The institutional arrangements and natural resource endowments in each system also influence the costs of inputs and support services. Therefore, intensive dairy farming system produces higher milk with lower cost and hence it is more competitive. On the other hand, the extensive and traditional farming systems produce low amount of milk with a reasonably high cost. The intensive farmers are in better position in terms of costs and profits than extensive and traditional systems and are more competitive due to lower per unit costs, higher milk prices, higher milk production, higher land, and labor productivity. From these results, the one option might be that it is necessary to take initiatives by the policy makers and development planners to intensify the dairy production systems for sustainable dairy development.

#### **2.3.13 Uddin M. N., Uddin M. B., Hassan M. M. and Khan M. M. H.**

The study was conducted to explore the experiences of small-scale dairy producers in

Barura, Comilla, Bangladesh, with the particular focus on the Small-scale dairy farming for livelihoods of rural farmers. The aim of the study was to determine the role of small scale dairy cattle farming in improving their life styles, identifications of the problems of dairy cow raising and to provide suggestions for their improvement. A total of 100 farmers were selected where 40 and 60 for small scale-dairy farming/households (SCD/SCH) and non-farming households (NFH), respectively. The Data were collected through face to face interviewing and personal visits. Results showed that farming system, breeding policy and veterinary services has significant ( $p < 0.01$ ) roles in production performances between the SCH and NFS and housing also has significant ( $p < 0.05$ ) contribution. There were no significant relation on other variables such as sex, age, marital status and education of the producer in production performances. Surveyed reports showed that disease was the most important dilemma followed by unpredictable milk market and high prices of drugs for household income. This research is important in relation of farm-level policy and decision making, government program analysis, performance analysis, and resource allocation to small-scale dairy farming.

#### 2.3.14 Md. Monjurul Hoque <sup>2008</sup>

The title of the article was “Constraints and development conditions of Bangladesh dairy sector”. Initially, the study was directed towards identifying the constraints and development conditions of BDS in the country. The study identified core problems in this sector. Among of them, fodder problems, cattle population problems, problems in farming system, problems in raw milk marketing system etc. There are limited governmental supports to dairy sector, unequal competitions among dairy processing industries.



## 2.4 Research undertaken by this study on Bangladesh dairy sector

This study reviewed articles that were connected to the BDS. Reviewed articles were selected from the various sources included online journal papers, library books, governmental publications and proceedings etc. Among of those articles, most of them related to the technical problems of dairy farming, raw milk productions, and problem of cattle population, breeds development, and productivity of the dairy farmers. Very few articles were focused on the marketing conditions of raw milk in the country. Therefore, considering the situation of the research undertaken by the research institute and the reviewed of the literature, this study focused on a new angle based. This study is a new knowledge on the dairy sector of Bangladesh. This study was on the interventions of government, dairy cooperative Milk Vita and dairy farmers regarding to the sustainable condition of BDS. There were no a single article similar or near to similar with this study. Some of the articles are described in this chapter those were near to similar with this study titled “The sustainable conditions and support system for Bangladesh dairy sector under the global competition structure”.

## CHAPTER THREE

### Impact of imported powder milk on dairy sector of Bangladesh: A case study on milk processors and dairy farmers in Baghabari of Shirajganj, Bangladesh

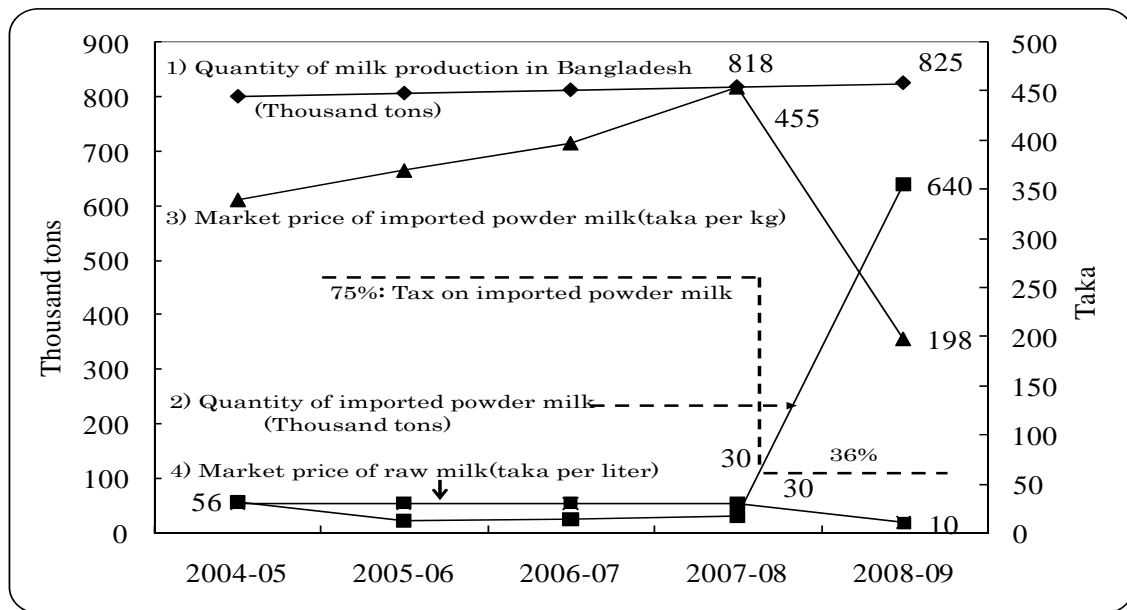
#### 3.1 Background and subject

The dairy sector has been playing an important role in the national economy of Bangladesh. Respectively, about 25% and 50% of the total population directly and indirectly are engaged in dairy farming and dairy related activities for their livelihoods. In 2008, the sector's contribution to the GDP was 2.9% and it was 17.5% of the agricultural GDP. Indeed, more than 25% of national demand of raw milk is produced by dairy farmers of two groups. The first group is constituted by the small scale dairy farmers in the rural areas mostly. They have 1 or 2 cows, which are used for cultivation purposes and are fed by using agricultural by-products, which produce 2 or 3 liters of raw milk per day. The second group represents about 2 million dairy farmers who produce raw milk for the market mainly. Due to increasing market demand and raw milk production, Milk Vita (the only dairy co-operative in Bangladesh) in 1973 and 13 private dairy processing industries during 1993 to 2008 and at the same period unlimited <sup>2</sup> sweet shops and yoghurt factories were entered into the market operation to process and sell liquid milk and milk related products. Indeed, the imported powder milk usually from India and China filled the gap between domestic production and consumption. However today, it has become a threat to the dairy sector due to the newly adopted import policy in 2008 by the government under the WTO <sup>3</sup> regulations.

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<sup>2</sup> Unlimited means very small scale producers, not popular, unknown producers.

<sup>3</sup> In 1995, Bangladesh has become the member of WTO.



**Figure 3.1 Trend of raw milk production, imported powder milk and its market prices, Bangladesh.**

Source: Field survey, FAO, BSS (Bangladesh Sangbad Sangstha), IFCN.

The policy <sup>4</sup> has changed the structure of the dairy sector as shown by figure 3.1. The tariff level was reduced from 75% to 36% in 2007-08 and it causes to drop market price of imported powder milk sharply from 455 taka to 198 taka per kg while resulting to rapid increase in quantity of it in market from 30,000 tons to 640,000 tons. Therefore, the cheapest imported powder milk<sup>5</sup> is highly dominating the raw milk market. The market share of imported powder milk has increased significantly which is resulting to a drastic reduction of local market price of raw milk. For instant, during 2008-09, the market price of raw milk decreased from 30 taka to 10 taka per liter by 67%. In contrast

<sup>4</sup> The import policy: 1) Unlimited quantity allowed (16.17.1 Import of non-fat dried milk, packed in bag/ tin, shall be allowed). 2) The Bangladesh government has reduced the import tariff for skim milk powder from 75% to 36% (via news paper [www.prothom-alo.com](http://www.prothom-alo.com) date 19.04.2009). 3. In the early 90<sup>th</sup>, Bangladesh has introduced dairy tariffs.

<sup>5</sup> The cheapest imported powder milk: The word is used to compare with domestic powder milk. Taka 198 per kg of imported powder milk was the cheapest rate after started the imports since 1990.

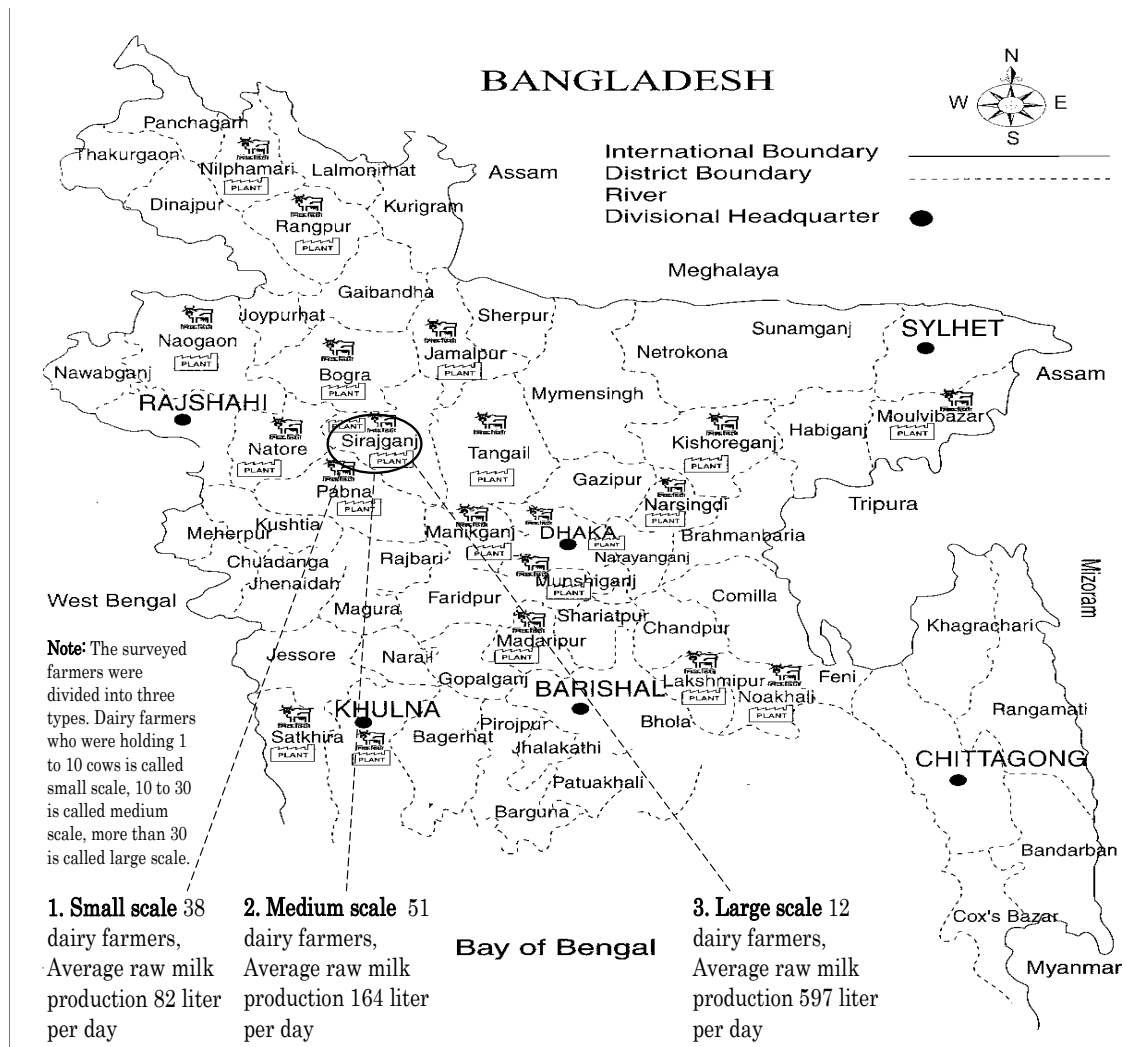
the raw milk shipping slightly increased from 818 thousand tons to 825 thousand tons in the same period due to the low income dairy farmers who have to ship the production to the market to earn income as their primary income source.

Therefore, the objective of the study is to identify the impact of imported powder milk on the dairy sector. In this connection, the following points will be studied: (1) changes of milk marketing structure in Bangladesh and survey area, (2) changes of processors behavior in the context of changing policy environment with regard to importing powder milk, (3) influences of changing behavior of processors on the local dairy farmers.

## 3.2 Methodology

### 3.2.1 Reasons for the selection of study area

Primary data were obtained from the field survey carried out in Baghabari, Nag demra, Ramkhabua, Potajia, Choyra, tearbondor, Barabill, Chinalari, and Shahjadpur hamlets of Shirajganj district that called milk pocket area in Bangladesh (Figure 3.2). Reasons for selecting the study area were as follows: 1) it is well connected with the capital city Dhaka because of the easy transportation facilities, 2) it is the biggest raw milk producing area in Bangladesh and almost one-third of raw milk production is produced by this area, 3) due to the huge raw milk production of this area, the Milk Vita has established a powder milk factory and a condense milk factory in the area, 4) not only



**Figure 3.2 Survey area and characteristics of dairy farmers**

Source: The field survey during June and July, 2009.

Note: 1. Cow's symbol are located Milk Vita. It is in survey area since 1977 with capacity 242,000 liter.

the Milk Vita but also other private dairy processing industries such as Aftab dairy, Amomilk, Pran dairy, Bikrampur dairy and Arong are collecting raw milk from this area and 5) recently, due to the fall of raw milk market price of this area, the dairy farmers have demonstrated against processors and the government by throwing their produced milk on the street.

### 3.2.2 Sampling and data collection

The sample of the study consisted of 120 scattered dairy farmers of above mentioned 9 hamlets. The farmers were randomly selected and interviewed by using structured questionnaire during June and July 2009. For the better use of data, only 101 dairy farmers' data were effective for the research. In addition, 4 raw milk processors which were in the position 1<sup>st</sup>, 2<sup>nd</sup>, 6<sup>th</sup>, 7<sup>th</sup> based on their collection capacity among 8 collectors in the survey area were surveyed. The surveyed collectors; Milk Vita, Arong dairy, Pran dairy and Amomilk, were collecting raw milk from the area since 1977, 1980, 1990, and 1999 respectively. The collected data was analyzed by applying the descriptive statistical methods.

## 3.3 Analysis and results

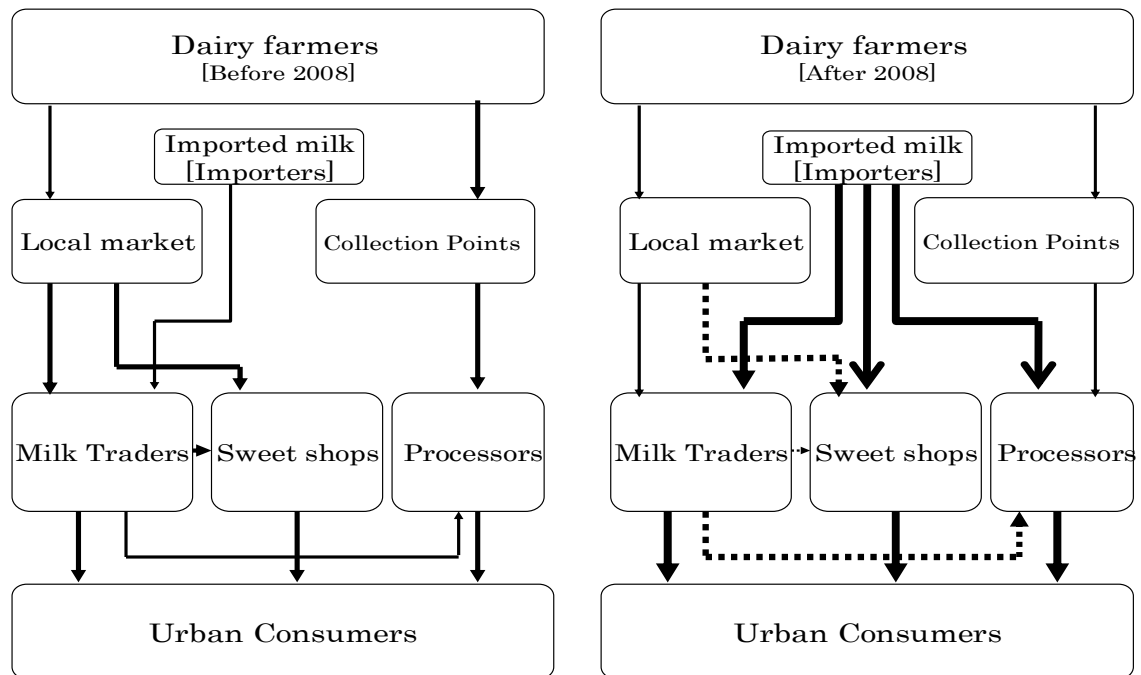
### 3.3.1 Changes of milk marketing structure in Bangladesh before and after 2008

Figure 3.3 shows the changing milk marketing structure of the country before and after 2008. Before 2008, about 30,000 tons of imported powder milk was annually consumed through milk traders and produced raw milk by small scale and large scale dairy farmers were consumed through local market <sup>6</sup> and processors respectively. However, in 2008-09 the imported cheap powder milk about 640,000 tons has been consumed in different forms by the consumers through different channels. As per right side figure, sweet shops are buying powder milk from importers instead of buying raw milk from the dairy farmers. Sweet shops were the soul of the local market as

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<sup>6</sup> Local market: The term "Local market" is used to refer the local consumers, retailers, small scale processors, roadside markets and whole sale markets in terms of whole Bangladesh. But, in terms of survey area the local market is used to refer the roadside markets, local consumers, small sweet shops.

traditionally the sweet is daily consumed by the Bangladeshi people. On the other hand, most of the main dairy processing industries, except Milk Vita have decreased raw milk collection from dairy farmers by substituting cheap imported powder milk to produce liquid milk and milk related products. The following are the major changes of milk



**Figure 3.3 Milk marketing structure in Bangladesh before and after 2008**

Source: The field survey during June and July 2009, E-prothom-alo Newspaper,

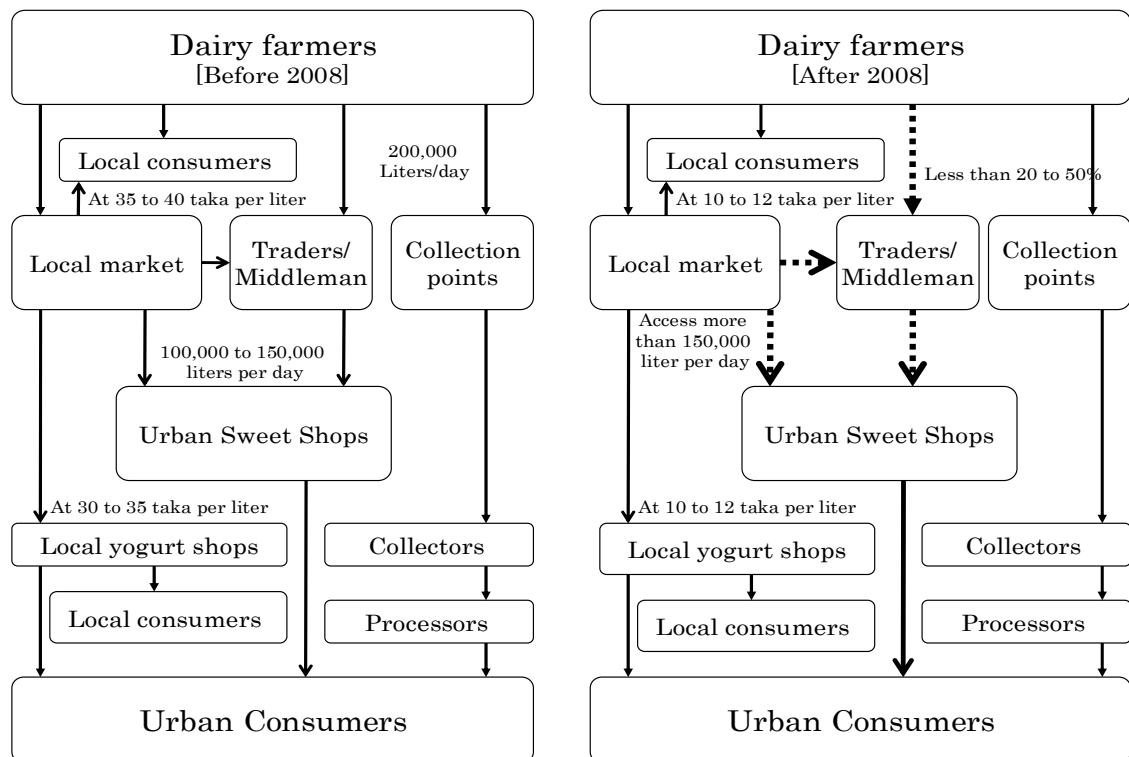
Note: 1) Dotted line means the closed raw milk marketing channels in Bangladesh. 2) The arrow from local market to milk traders means middle man in the local market who purchased raw milk for the urban sweet shops and urban market.

marketing structure in Bangladesh occurred due to the introduction of new import policy. 1) Before 2008, urban sweet shops purchased 100% of required raw milk from local market but after 2008 they do not buy raw milk from local market and they are totally dependent on imported powder milk, 2) private processors before collected 100% of required raw milk through collection points but after they have decreased the collection by 50% and changed it into imported powder milk, 3) milk traders bought

raw milk from local market before and sold to urban sweet shops, but after 2008, they cannot sell collected raw milk to urban sweet shops. As a result, farmers have lost their previous market to sell their produced raw milk except local market. But, there is a surplus of raw milk in local market which affects to lower the prices of raw milk due to the limited customer base.

### 3.3.2 Changes of raw milk marketing structure in the survey area before and after 2008

Figure 3.4 shows the following changes of raw milk marketing structure in the survey area after the government new policy decision. 1) There was no imported



**Figure 3.4 Milk marketing structure in survey area before and after 2008**

Source: The field survey during June and July, 2009

Note: 1) Dotted line indicating the closed marketing channel.

powder milk in the marketing structure of survey area. 2) The urban sweet shops

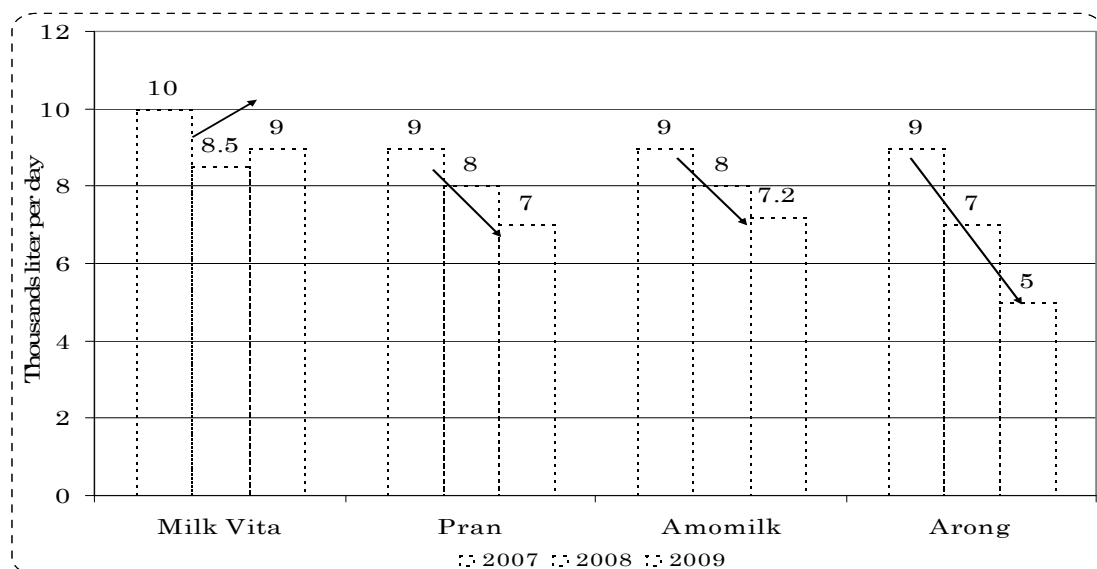


collected more than 100,000 liters per day before 2008 but after 2008 they have stopped to buy raw milk from local market, milk traders and middleman. 3) The private dairy processing industries collected more than 200,000 liters per day before 2008 but after 2008 they have decreased raw milk collections through collection points by 20% to 50%. 4) More than one third of commercial raw milk included unsold to sweet shops and private processors is being directed to local market. As a result, the raw milk is going to local consumers and local yogurt shops at a very cheap price at 10 to 12 taka per liter (before it was 30 to 35 taka per liter).

### 3.3.3 Changes of processors behaviors in the context of changing policy of milk powder

#### 3.3.3.1 Decreasing raw milk collection by the major collectors in survey area

Figure 3.5 shows average amount of raw milk collection per day in every year from



**Figure 3.5 Quantity of raw milk collection by processors**

Source: The field survey during June and July 2009

Note: 1) `Thousand liter per day` was an average collection per day

2007 to 2009 of surveyed 4 collectors. It shows the daily average collection of raw milk during the month of June from their chilling center located in the area. All collectors' raw milk collections except Milk Vita were decreased remarkably. The Milk Vita was trying to buy raw milk based on its collection capacity. Interview with branch manager of the collection centers revealed that current collection of raw milk depends on factory's requirement.

### 3.3.3.2 Changing strategies of the private dairy processing industries

The survey also revealed that instead of buying local raw milk, all processors except Milk Vita are using cheap imported powder milk. In order to reduce the raw milk purchasing, they are changing raw milk collections strategies as follows. 1) They are doing many tests such as SNF (Solid Non Fat) and so on. The standard of SNF test was 2.5 (1 or 1.5 years ago). But at present, they have decided it 4. 2) They do not purchase all the raw milk from dairy farmers by making excuse of SNF standard. 3) Suddenly, they stop to collect raw milk from the farmers without any advanced notice. 4) Without any prior notice, one or two times in a week, they are not collecting raw milk from the farmers. 5) Before they have collected two times a day but now they are collecting either in the morning or in the evening. 6) They provided some services to the dairy farmers before but now they have decreased the services such as AI (Artificial Insemination). They are charging more than 70% cost of AI from the dairy farmers. 7) They have reduced the micro credit facilities to the dairy farmers.

### 3.3.3.3 Facing difficulties by the Milk Vita

In the survey area, Milk Vita has a powder milk factory which is the first powder milk

factory in Bangladesh. The factory is now in economic trouble due to the high production cost and cheap imported powder milk as at 198 taka per kg. However, Milk Vita has to bear 400 taka per kg only for the production cost of powder milk. It cannot compete with imported powder milk. After the government decision on tariff with regard to imported powder milk, domestic powder milk of Milk Vita has lost its market. As a result, it had 800 tons of unsold powder milk in its storage in June 2009. For this reason, it is trying to reduce the powder milk production. On the other hand Milk Vita provided some services freely to dairy member farmers before, but now it is difficult to give free all the services such as AI (artificial Insemination). Therefore, now it is charging 50% of the total cost of AI from the dairy member farmers.

### 3.3.3.4 Influences of changing behaviors of processors on the local dairy farmers.

**Table 3.1 Trends of dairy farmers' management conditions in survey area**

Farmer	No. Cows		Growth rate	Milk production	Selling channel		Gross income	Production cost	Net income
	2008	2009	%	Liter	P (%)	LM(%)	2009	2009	2009
Group 1	90	90	0	1,620	74	26	38,280	44,550	-6,270
	75	70	-6.7	960	70	30	22,280	26,400	-4,120
	70	50	-28.6	600	70	30	13,860	16,500	-2,640
	60	50	-16.7	800	70	30	18,480	22,000	-3,520
	55	50	-9.1	620	72	28	14,530	17,050	-2,520
	50	40	-20.0	450	70	30	9,855	12,600	-2,745
	35	30	-14.3	410	73	27	9,200	11,480	-2,280
	35	26	-25.7	320	78	22	8,300	8,960	-660
	30	25	-16.7	300	70	30	7,590	8,400	-810
	30	25	-16.7	300	70	30	7,420	8,400	-980

	30	30	0.0	370	70	30	7,950	10,360	-2,410
	30	30	0.0	410	73	27	8,350	11,480	-3,130
Group 2	26	23	-11.5	310	71	29	6,840	8,680	-1,840
	26	22	-15.4	250	70	30	6,070	7,000	-930
	25	30	20.0	360	69	31	7,170	10,080	-2,910
	25	30	20.0	380	71	29	7,370	10,640	-3,270
	25	23	-8.0	280	71	29	6,200	7,840	-1,640
	25	20	-20.0	250	70	30	5,900	7,000	-1,100
	25	20	-20.0	290	72	28	6,130	8,120	-1,990
	24	12	-50.0	130	69	31	4,700	3,640	1,060
	22	20	-9.1	250	70	30	5,475	7,000	-1,525
	22	10	-54.5	110	72	30	4,075	3,080	995
	22	8	-63.6	98	71	29	3,955	2,744	1,211
	20	20	0.0	210	71	29	4,990	5,880	-890
	20	20	0.0	240	70	30	4,950	6,720	-1,770
	20	15	-25.0	180	75	25	4,350	5,040	-690
	20	20	0.0	260	73	27	4,810	7,280	-2,470
	18	15	-16.7	170	71	29	3,910	4,760	-850
	18	20	11.1	260	77	23	4,895	7,280	-2,385
	15	15	0.0	180	72	28	4,010	5,040	-1,030
	15	15	0.0	180	72	28	4,010	5,040	-1,030
	15	12	-20.0	130	69	31	3,425	3,640	-215
	15	8	-46.7	100	70	30	3,040	2,800	240
	15	15	0.0	170	74	26	3,485	4,760	-1,275
	15	15	0.0	180	72	28	3,415	5,040	-1,625
	15	20	33.3	270	74	26	4,230	7,560	-3,330
	14	10	-28.6	110	73	27	2,630	3,080	-450
	13	18	38.5	210	71	29	3,630	5,880	-2,250
	13	13	0.0	150	70	30	3,030	4,200	-1,170
	13	15	15.4	180	72	28	3,330	5,040	-1,710
	12	12	0.0	120	75	25	2,730	3,360	-630
	12	12	0.0	120	70	30	2,730	3,360	-630
	12	12	0.0	130	69	31	2,830	3,640	-810
	12	10	-16.7	110	72	28	2,545	3,080	-535
12	12	0.0	135	70	30	2,795	3,780	-985	
12	8	-33.3	95	73	27	2,310	2,660	-350	

11	11	0.0	120	71	29	2,560	3,360	-800
11	10	-9.1	125	72	28	2,610	3,500	-890
10	10	0.0	110	73	27	2,460	3,080	-620
10	10	0.0	100	70	30	2,360	2,800	-440
10	10	0.0	110	73	27	2,460	3,080	-620
10	10	0.0	110	73	27	2,460	3,080	-620
10	10	0.0	110	73	27	2,460	3,080	-620
10	12	20.0	130	69	31	2,660	3,640	-980
10	10	0.0	110	73	27	2,460	3,080	-620
10	5	-50.0	60	75	25	1,960	1,680	280
10	10	0.0	100	70	30	2,360	2,800	-440
10	3	-70.0	40	75	25	1,760	1,120	640
10	8	-20.0	100	70	30	2,360	2,800	-440
10	10	0.0	130	69	31	2,490	3,640	-1,150
10	12	20.0	130	69	31	2,490	3,640	-1,150
10	7	-30.0	80	69	31	1,990	2,240	-250
10	10	0.0	100	70	30	2,190	2,800	-610
<hr/>								
9	7	-22.2	90	72	28	2,090	2,520	-430
9	9	0.0	100	70	30	2,190	2,800	-610
8	8	0.0	95	63	37	2,140	2,660	-520
8	8	0.0	90	72	28	2,090	2,520	-430
8	10	25.0	100	70	30	2,190	2,800	-610
8	8	0.0	100	70	30	2,190	2,800	-610
8	8	0.0	100	70	30	2,190	2,800	-610
8	8	0.0	100	70	30	2,190	2,800	-610
8	5	-37.5	50	70	30	1,520	1,400	120
8	10	25.0	110	73	27	2,290	3,080	-790
8	10	25.0	110	73	27	2,205	3,080	-875
8	8	0.0	95	68	32	2,055	2,660	-605
8	8	0.0	95	68	32	2,055	2,660	-605
8	10	25.0	110	73	27	2,205	3,080	-875
8	7	-12.5	80	75	25	1,905	2,240	-335
8	10	25.0	110	73	27	2,120	3,080	-960
8	10	25.0	100	70	30	2,020	2,800	-780
8	4	-50.0	40	75	25	1,420	1,120	300
8	10	25.0	110	73	27	2,120	3,080	-960

Group 3

8	8	0.0	90	67	33	1,920	2,520	-600
8	10	25.0	110	73	27	2,035	3,080	-1,045
7	7	0.0	85	71	29	1,870	2,380	-510
7	4	-42.9	40	75	25	1,420	1,120	300
7	5	-28.6	40	75	25	1,420	1,120	300
7	7	0.0	80	75	25	1,650	2,240	-590
6	6	0.0	70	71	29	1,550	1,960	-410
6	7	16.7	80	75	25	1,650	2,240	-590
6	7	16.7	80	75	25	1,565	2,240	-675
6	7	16.7	85	71	29	1,615	2,380	-765
5	5	0.0	52	58	42	1,030	1,456	-426
5	6	20.0	70	71	29	1,295	1,960	-665
5	6	20.0	70	71	29	1,210	1,960	-750
5	8	60.0	90	72	28	1,410	2,520	-1,110
4	7	75.0	80	75	25	1,310	2,240	-930
4	4	0.0	40	75	25	9,10	1,120	-210
4	4	0.0	48	63	37	990	1,344	-354
3	5	66.7	60	75	25	1,110	1,680	-570
2	4	100.0	45	67	33	960	1,260	-300

Source: Field survey 2009

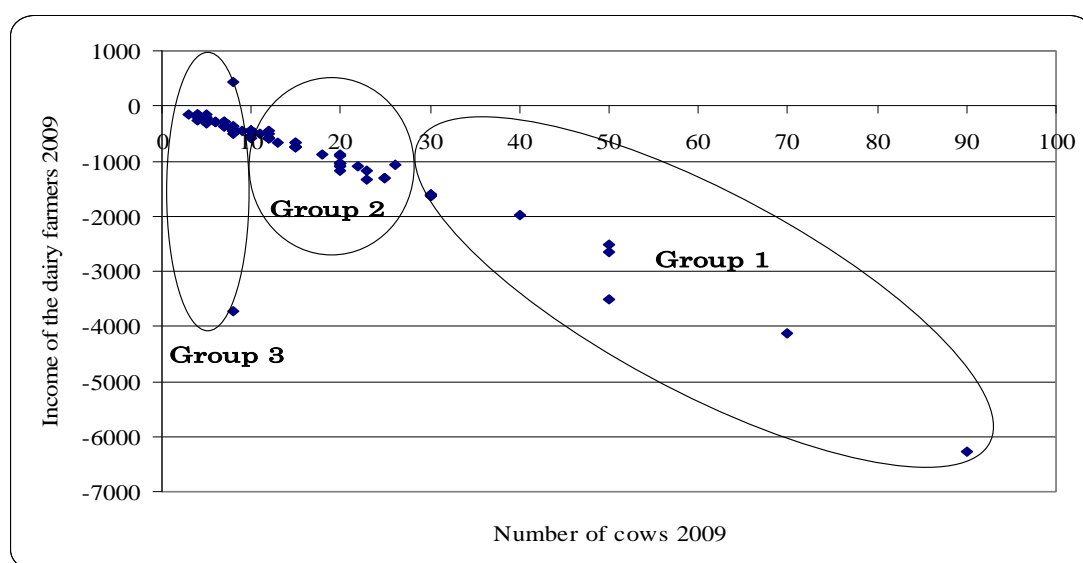
Note: (1) Number of cows (June 2008 to June 2009) (2) Cows growth rate were in a year (3) Average milk production per day were in wet season June-July. (4) Average of gross income per day in wet season (5) Average production cost per liter in wet season (6) Average of net income per day from selling raw milk in wet season. (7) P means Processors and LM means Local Market.

Table 3.1 shows the dairy farmer's management conditions. The dairy farmers were classified into three types based on the number of cows such as group 1, large scale (more than 30 cows), group 2 medium scales (10 to 30 cows) and group 3 small scales (less than 10 cows). There were 12 dairy farmers in group 1, 51 in group 2, and 38 in group 3, producing on average of 697, 164 and 83 liters per day respectively. The growth rate of number of cows in group 1, group 2, and group 3 were -13%, -8.6% and 10.50% respectively. Table 1 further revealed that the majority of the farmers have been

able to sell only 70% of their total raw milk productions, in the period of post import policy, although it was 100% before 2008. Therefore, farmers had to sell the rest of 30% to local market due to gradual reduction of raw milk collections by processors and urban sweet shops.

### 3.3.3.5 Conditions of net income of the dairy farmers in the survey area

Figure 3.6 shows the net income of dairy farmers in terms of number of cows. Large



**Figure 3.6 Condition of farmer's income in study area**

Source: Field survey 2009

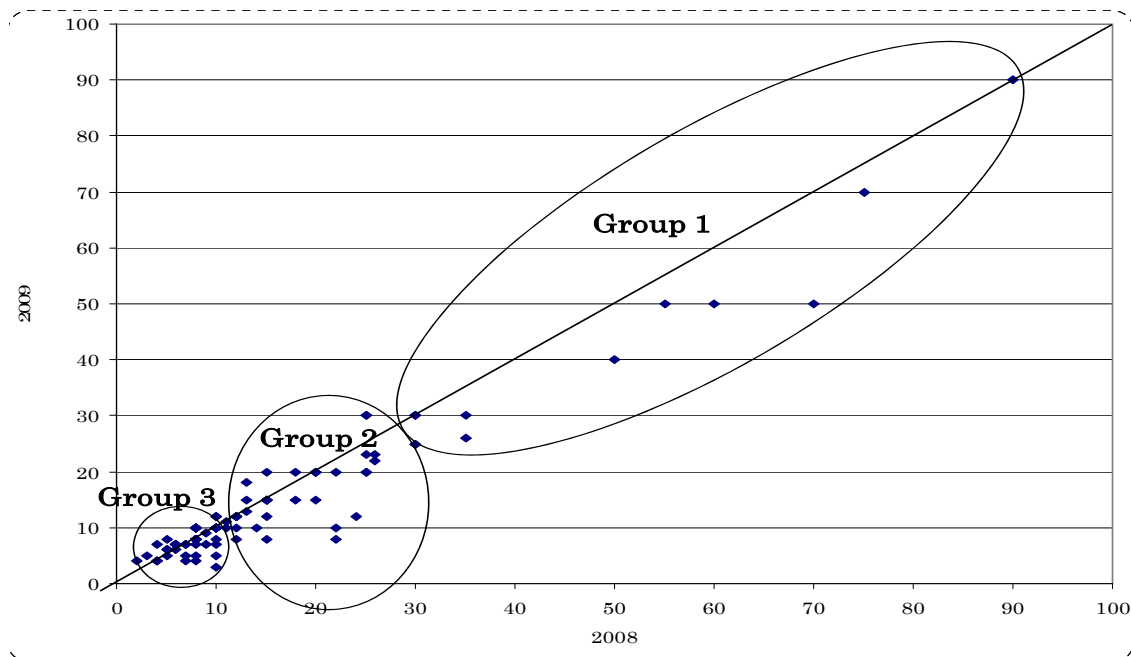
scale dairy farmers' net income derived from raw milk selling was -3,295 taka per day on average. Medium and small scale dairy farmers' net income was -943 and -545 taka per day respectively. The raw milk prices offered by the dairy processors do not meet the management or material cost <sup>7</sup> of producing raw milk per liter. Surveyed 101 farmers'

<sup>7</sup> Management or material cost: The management cost was calculated based on feed cost, veterinary and medicine cost and hired labor cost per day excluding owner's labor cost, mating cost, liter cost, light, heat, water and power cost, building cost, vehicle cost because those costs do not have so much impact on management cost of raw milk in rural area in Bangladesh.

net returns of dairy farming were almost negative. The income of the dairy farming was not sufficient to maintain their daily living expenses. Small scale dairy farmers can maintain their living expenses due to the other types of income such as cropping and they can continue their business. However, in case of large and medium scale dairy farmers, they do not earn sufficient income from dairy farming in order to maintain the daily living expenses. The situation is getting worst as the dairy farming is primary income source of majority of them in these groups.

### 3.3.3.6 Changes in the number of cows of the dairy farmers

Figure 3.7 shows the changes of number of cows of each dairy farmer in the survey area. X axis is showing the number of cows in 2008 and Y axis is showing the number of cows in 2009. In group 1 dairy farmer are doing only dairy farming as their main job and they the survivable conditions of the dairy farmer. The survivable conditions of these farmers were low. As a result, they are selling not only the calves but also the cows to meat



**Figure 3.7 Changes cow numbers of farmer**

Source: Field survey 2009



market to cover the daily living expenditure. On the other hand, some dairy farmers' number of cows has increased and constant who were mostly from group 3 and some of them from group 2. These kinds of dairy farmers are not only doing the dairy farming but also doing other non-dairying activities such as cropping. Non-dairy incomes do not have any other non-dairying income. Non-dairying income was asked to know activities help them to continue the dairy farming, although it revealed negative profit. It supports farmers to maintain the daily living expenditure. The low price of the raw milk does not affect the dairy farmers of group 3 as the most of the produced milk are consumed by themselves and remaining was selling. The analysis showed that even in the worst situations, they do not sale their calves to the meat market.

### 3.3.3.7 Dairy farmers' perceptions to the processors and the government after 2008

Table 3.2 shows some complain, expectations and thinking of the dairy farmers after the market changed. 79% of the surveyed dairy farmers have complained to the processors on giving them low prices that they cannot cover the cost of production of the raw milk. 67% have complained on sudden stop raw milk collection by the processors, one or two times in a week, without any advanced notice. 48% have complained that processors do not give them payment of raw milk purchasing timely. Therefore, 85% are thinking that it is difficult to continue the farming, 62% are thinking to change the business and 50% said that some neighbors of them have already changed their business. In this situation, dairy farmers have had expectations about the stable market form the processors and government. For instance, 84% want a regular raw milk market with sustainable price instead of importing powder milk, 81% want a low feed price and 40% want micro credit

services with low or without interest.

**Table 3.2 Dairy farmer's opinions to the processors and the government after 2008**

	Items	Attendants	Percentage
1. Complain	1. Raw milk collectors give them low price	80	79
	2. Suddenly, collectors stop to collect raw milk one or twice a week	67	67
	3. Collectors do not pay bill of raw milk timely	48	48
	4. Collectors do not buy all the raw milk from farmers	33	32
	5. They do not give us any services such as treatment, vaccine, loan	28	28
2. Expectation	1. Regular milk market	85	84
	2. Low feed price	82	81
	3. Reasonable raw milk price	73	73
	4. Micro credit	41	40
	5. Stop foreign powder milk	35	35
	6. Treatment facilities and medicine availabilities	34	33
3. Present thinking	1. It is very much difficult to continue the business in this condition	86	85
	2. Most of the family members want to change the business	63	62
	3. Some neighbors has changed already their business	51	50
	4. Some times thinking for the change but we do not have alternative	36	36

Source: The field survey 2009

### 3.4 Conclusion and consideration

This study clarified the influences of sharply increased imported powder milk on the dairy farmers after 2008 through the empirical study by analyzing the following points:

1) changes of the raw milk marketing structure and 2) the changes of private processors behaviors. The changes of raw milk marketing structure due to the availability of

cheap imported powder milk at the domestic market were as follows: 1) sweet shops which were the biggest user of local raw milk, had a strong link with local dairy farmers through middle man or milk traders, have changed into using imported powder milk to produce it's products, 2) most of the main dairy processing industries, except Milk Vita, have decreased raw milk collection from dairy farmers by using cheap imported powder milk to produce liquid milk and milk related products, 3) in the survey area, unsold raw milk are going at a very cheap price to local consumers and local yogurt shops which are still using local raw milk as its capacity and 4) the Milk Vita has not changed the raw milk collection channel. The changes of private processors behavior due to the availability of the imported powder milk were as follows: 1) urban sweet shops have stopped raw milk collection from local market and local farmers by 100%, 2) private processors have decreased raw milk collection from farmers by 50% with changing SNF test standard 2.5 to 4, decreasing number of collection days 7 to 5 or 6 days per week, changing collection times 2 to 1 per day either in morning or in evening, decreasing micro credit facilities more than ever and changing free treatment into payable to dairy farmers. 3) Milk Vita has bought raw milk of members at fully level of capacity in order to protect the member farmers but the market of its produced powder milk could not compete with the cheap imported powder milk. As a result, the influences of the behaviors of the urban sweet shops and private processors on the local dairy farmers were as follows: 1) dairy farmers have lost their market except Milk Vita to sell raw milk, 2) the local markets' demand for raw milk is low and farmers have to sell it at very low price, 10 taka per liter, although the management cost per liter is 28 taka. This situation is influencing the dairy farmers to change their job, to stop their business and to sell their cows to the meat market, 3) about 2 millions commercial dairy farmers and 50% of

the people of Bangladesh who have engaged indirectly in the dairy sector have put into vulnerable in terms of livelihood activities which is enough to make the economy and the country unstable.

The dairy sector of Bangladesh which developed through the hard work and a lot of investment by the people and the government ought not to be destroyed for the powder milk imports. For the better performance of the dairy sector and the all types of dairy farmers, the followings measures should be considered: 1) government should be strict in quality checking of imported powder milk, limit the imported quantity and increase the tariff level on powder milk which can protect dairy sector. 2) If large volume of imported powder milk is permitted by the government, it is prime responsibility of the government to protect many vulnerable dairy farmers. Government should provide subsidies to dairy farmers to cover the cost of production and establish the stable raw milk market.

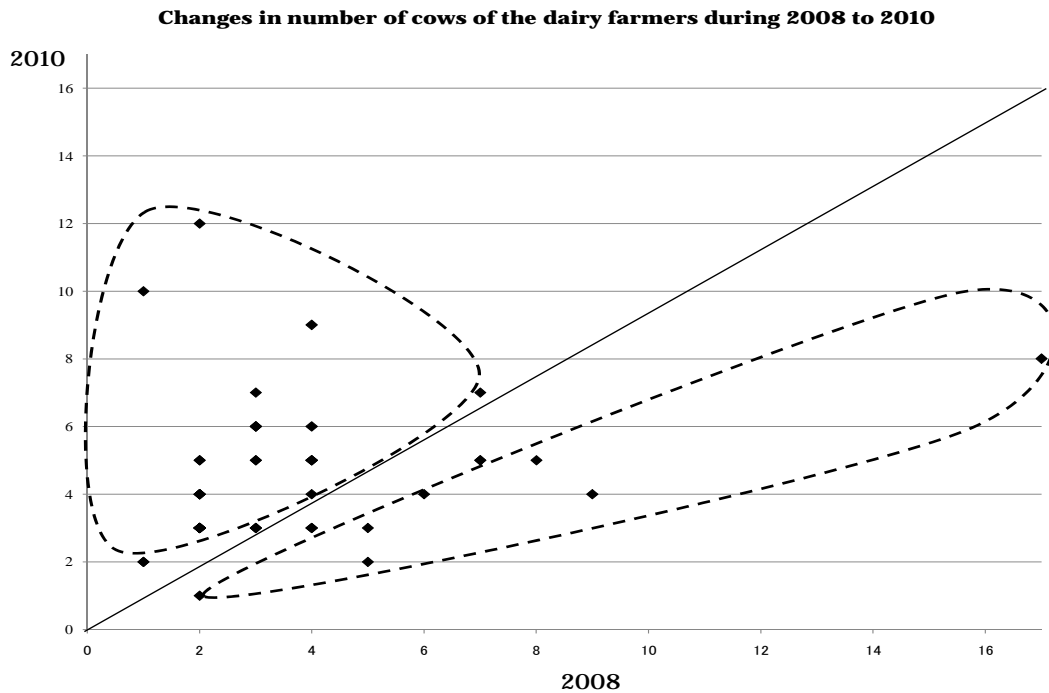
## CHAPTER FOUR

### Evaluation of the Sustainable Conditions of Small Scale Dairy Farmers in Bangladesh: A case study on dairy farmers in Kalihati, Ghatail of Tangail district

#### 4.1 Background

Dairy farming is an important sector in agrarian economy of Bangladesh. Especially, in the rural economy, dairy farming has been playing an important role in income generation and food security of the rural people. Most of the farm households in the country usually keep cattle to use them in crop cultivation, crop harvesting and also to get milk. Indeed, milk is an important agricultural product which has a great demand as children food security. But only 25% of national demand of raw milk is produced by the small scale dairy farmers mainly in the rural areas. They have 1 or 2 cows, which are used for cultivation purposes and are fed by using agricultural by-products, which produce 2 or 3 liters of raw milk per day.

However, while the government changed the tariff policy under the pressure of market liberalization system, while the milk processors changed their behaviors under the free trade system, while the dairy farmers especially commercial dairy farmers have been suffering a lot in marketing of their produced raw milk under the market liberalized system, while the opportunity for the development of large scale dairy farmers is limited due to scarcity of land, then the small scale dairy farmers in the mixed farming system, have been ongoing their farming under the market liberalization system. Figure 4.1 shows, most of the dairy farmers increased their number of cows in their farming, some of them were constant in number of cows and very few were decreased in number of cows.



**Figure 4.1 Trends of each household's cows in the study area**

Source: The field survey 2010

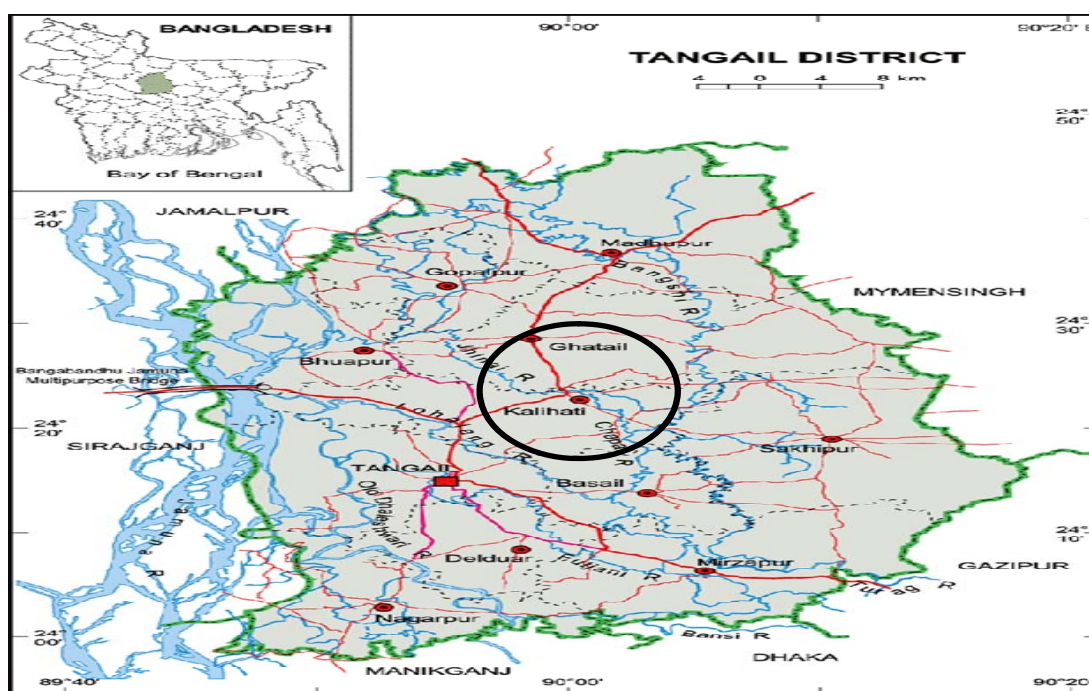
Moreover, very limited study has done on the small scale dairy farmers in the country. Among of them, Kabir (1994), G.C Saha (2000), Hossain (2005) and Hoque (2008) are conducted on the conditions and development of the small scale dairy farmers in the country. But nobody conducted on the sustainability of the small scale dairy farmers under the absence of a organized market for the farmers during the market liberalized system.

Therefore, this study evaluated the sustainable conditions of small scale dairy farmers in the country through examined the following points: 1) Conditions of the dairy farmers' net income from farming, 2) Adoption of the farming system by the dairy farmers, 3) Adoptions of the raw milk marketing system by the dairy farmers.

## 4.2 Materials and methods

### 4.2.1 The survey area selections

The survey area was in Kalihati and Ghatail rural areas named Modhho korna, Dowjani, Uttar para, Bunogram, Moghol para, and Silimpur villages. Kalihati and Ghatail areas were in Tangail district (Figure 4.2). Tangail district was located between Dhaka and Shirajgonj district. Shirajgonj was the biggest area in the country regarding raw milk production. Almost all the milk processors were collecting raw milk from this area and they did not have any concentration on the Tangail district for their raw milk collection. Because the dairy farming Tangail were in mixed farming system and mostly in small scale. Despite of the less attention of the milk processors in this area, Milk Vita had a raw milk chilling center and collection center in Tangail. This chilling center was established in 1975 with a a collection capacity at 10,000 liters per day. But, the activities of Milk Vita did not cover even 10% of the dairy farmers in Tangail due to the lack of collection capacity, infrastructure and transportation etc. There were 314,831



**Figure 4.2 Kalihati and Ghatail was as survey areas in Tangail**

dairy farm households in Tangail whereas the commercial dairy farming was only 327 dairy farm households rests of the dairy farmers were small and subsistence. However,

these dairy farmers were continuing their farming day to day. That is why; this area was selected as the survey area.

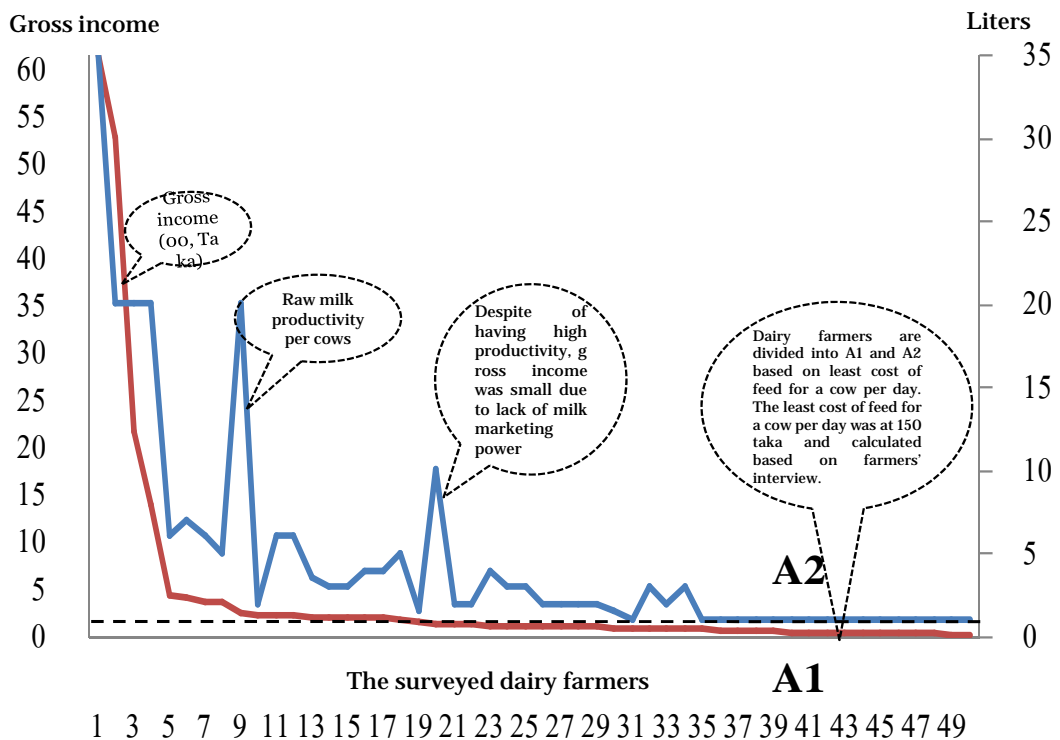
#### 4.2.2 Sampling and data collections

With the connection of the title of the study, 50 non-members' dairy farmers in Kalihati and Ghatal during October 2010 Data were collected through a semi structured questionnaire. Collected data analyzed by using the statistical software and descriptive statistical methods.

### 4.3 Results and discussion

#### 4.3.1 The conditions of dairy farmers' gross income from their farming

Figure 4.3 shows the gross income of the surveyed dairy farmers along with their raw milk productivity. Most of them had less than 150 Taka per day as gross income from



**Figure 4.3 Gross income and raw milk productivity of the surveyed dairy farmers**

Source: The field survey during August to October in 2010



farming excluding labor cost, house rent, lighting, and transportation cost etc. The reference line 150 taka was the minimum gross income for the farmers to feed the cow per day to continue their farming. Therefore, the surveyed dairy farmers were divided into two groups A1 and A2 based on their gross income per day. In the group A1, 31 dairy farmers who had less than 150 Taka as gross income per day and in group A2, 19 dairy farmers who had more than 150 Taka as gross income per day. The characteristics of these two groups' farmers were illustrated in the Table 4.1. In group A2, very few dairy farmers (38%) were in this group. They had on an average 67.7 liters raw milk production per day, average raw milk productivity 9.32 liters per cow, and averagely 5.5 numbers of cows. Some of these dairy farmers were procuring farm capital from Grameen Bank, Agricultural Bank and sometimes own savings. Besides, in group A1, most of the dairy farmers (62%) were in this group. They had on an average 7.8 liters raw milk production per day, average raw milk productivity 1.88 liters per cow, and averagely 3.7 numbers of cows. Most of these dairy farmers were procuring the farm capital from their own savings. The study clarified the farming system, raw milk marketing system of this two groups' farmers in the survey area.

**Table 4.1 The characteristics of the grouped dairy farmers in the survey area**

Particulars/grouped dairy farmers	A1	A2	Total
1) Number of dairy farmers	31	19	50
2) Average raw milk production (Liters per day)	7.8	67.7	30.59
3) Average raw milk productivity (Liters per cow)	1.88	9.32	4.71
4) Average number of cows	3.7	5.5	4.42
5) Procuring capital to develop their farming			
Loan from Grameen Bank	0	5	5
Loan from Govt. Agricultural Bank	3	0	3
Loan from other NGO	2	3	5
Using the own savings	26	6	32

Sources: The field survey during August to October, 2010

### 4.3.2 Adoption in the farming systems by the dairy farmers

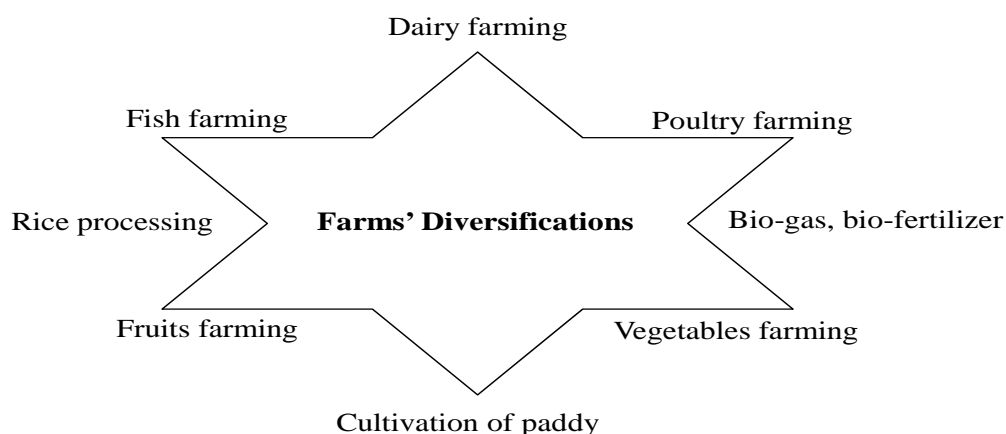


Table 4.2 shows the characteristics of the farming system adopted by the dairy farmers in the survey area. In group A2, most of the dairy farmers were the agricultural landless farmers (58%). They had only a home cum dairy farming and some free land around the home. By using the free land, they were planting some kinds of vegetables. About 21% of the dairy farmers had poultry farm. Moreover, very few family members in this

**Table 4.2 Characteristics of the farming system adopted by the dairy farmers**

Particulars	A1	A2	Total
1) Agricultural land less dairy farmers	2	11	13
2) Number of dairy farmers who had crops as a main agricultural activities	29	8	37
3) Number of dairy farmers who had poultry farm	11	4	15
4) Number of dairy farmers who had fisheries	4	0	4
5) Others services of the family members			
School teacher	2	1	3
Truck driver	1	0	1
Van drivers	3	0	3
Rickshaws pullers	6	0	6
Construction labor	3	0	3

Sources: The field survey during August to October, 2010

group had others job. Besides, in group A1, 93% of the dairy farmers had on an average 1 acre of agricultural land and cropping were their main agricultural activities. 35% of them had poultry farms containing 10 to 15 chickens, 4 to 5 pigeon. 13% of them had fisheries activities in their own ponds. Some of the family members also adopted others job such teaching, driving, construction labor etc.

#### 4.3.3 Adoption in raw milk marketing system by the dairy farmers

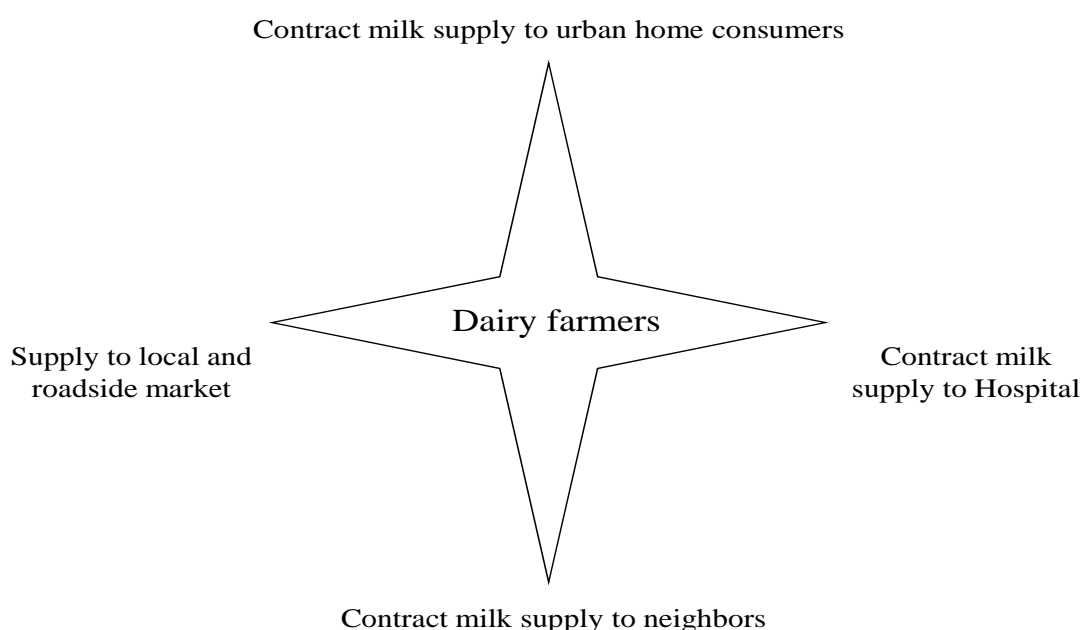


Table 4.3 shows the characteristics of the raw milk marketing system adopted by the

**Table 4.3 The characteristics of milk marketing system adopted by dairy farmers**

Particulars	A1	A2	Total
1) Number of dairy farmers who were selling raw milk to urban home consumers on monthly contract	2	11	13
2) Number of dairy farmers who were selling raw milk to neighbors monthly contract	3	4	7
3) Number of dairy farmers who were selling raw milk to near hospital on monthly contract	0	2	2
4) Number of dairy farmers who were selling raw milk to local market, roadside market	26	2	28

Sources: The field survey during August to October, 2010

surveyed dairy farmers in the survey area. In group A2, 58% of the dairy farmers were selling their raw milk to the urban home consumers on monthly contract at 50 taka per liter. They developed their goodwill by regular supplying raw milk to urban area where many officials live and have a high demand of the raw milk. 21% of them were selling their raw milk to near government hospital on monthly contract for the patients. 10% of them were selling to neighbors and 10% of them were selling to local market and roadside market. Besides, in group A1, only 0.06% of the dairy farmers were selling to urban home consumers. Almost 1% of them were selling raw milk to neighbors, and most of them (84%) were selling to local market.

Moreover, in group A2, 11% of the dairy farmers complained on the market price given by the Ghosh in the local market. Besides, in group A1, 81% of the dairy farmers complained on the market price given by the ghosh in the local market. The government veterinary treatment was also not sufficient for the dairy farmers. All most veterinary doctors live in the urban areas and they do not response quickly. 42% of the surveyed dairy farmers complained for the government treatment services.

#### 4.4 Conclusions and considerations

The study evaluated sustainable conditions of small scale dairy farmers who were 70% of the total dairy farmers in the country. The study examined their conditions under the liberalized market and the rising of imported powder milk. The study found some results are as follows: 1) 62% of the surveyed dairy farmers were small scale and got little and marginal income from farming. Despite of getting very little income, they were still continuing their farming along with other agricultural activities. 94% of them adopted diversified farming system which was their main agricultural activities. 2) 44% of the surveyed farmers practiced contract marketing to sell raw milk at reasonable

price. They had goodwill by supplying raw milk to urban home consumers and hospital with contract base. 3) Most of the surveyed dairy farmers needed an economical organ instead of the Ghosh and middleman in the local market.

The agriculture in Bangladesh is under pressure by the growing of population and the growing of urbanization. The landless dairy farmers were increasing in the agriculture sector in the country while the agricultural land was decreasing by 1% per year. As a result, the number of diversified dairy farmers will decrease in near future. Besides, under the liberalized market consumers' behaviors will be change and contract marketing for raw milk will decrease with the change of consumers' behaviors. Therefore, landless and small scale dairy farmers will face very difficult situation in near future. It will be only one solution for these landless and small scale dairy farmers to organize a cooperative as their sustainable development condition under the global competitions.

## CHAPTER FIVE

### Impact of the Private Processors' Competitions on the Dairy Cooperative in Bangladesh: A study on the dairy cooperative Milk Vita and its members in Srinagar in Munshiganj district

#### 5.1 Introduction

The livestock sector has played an important role in the economy of Bangladesh since 1971. The share of the livestock sector in the agricultural gross income increased from 7.6% in 1973 to 12.9% in 1999 and is projected to increase up to 19.9% in 2020. In particular, raw milk production increased from 1.29 million tons in 1988 to 2.27 million tons in 2007. The dairy farmers hold a vital share of their agricultural gross income due to the support of the Bangladesh Milk Producers' Co-operative Union Limited (Milk Vita). Milk Vita has played a major role in the development of dairy farming since 1973. This organization has ensured that its members not only have access to the marketing of raw milk but also to free services for breeding, such as veterinary treatment, micro credit and technical guidance. As a result of these services, the raw milk productivity of members has gradually increased.

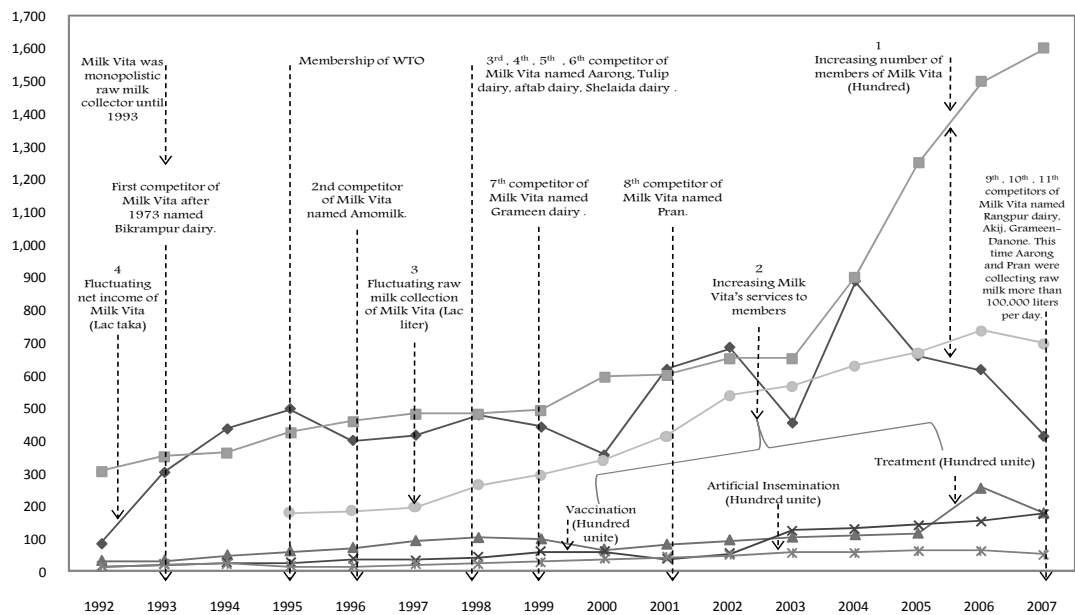
Although the government and Milk Vita worked to develop the dairy farming, the raw milk supply was inadequate to meet domestic demand. Therefore, the government allowed the importation of agricultural products, including milk products, by adopting an agricultural import policy in 1990. Powdered milk has since been imported to feed the increasing number of growing children and the demands of an increasing

population affect imports. The annual per capita milk consumption increased from 16 kg in 1981 to 32 kg in 2005. The consumer' milk price also increased from 25 Taka per liter in 1993 to 35 Taka per liter in 2005 (BSH, 2005). Moreover, Bangladesh became a member of the WTO in 1995, and then, the number of private processors increased to 11 in 2007. As a result, the competitions in the milk market among the processors increased more than ever in the country (Figure 5.1).

The number of Milk Vita's members gradually increased to 90,000 in 2004 but sharply increased to 160,000 in 2007. However, the net income of Milk Vita decreased from 886,03,000 Taka in 2004 to 412,33,000 Taka in 2007 rather than increased. Moreover, the raw milk collection quantity did not increase as per expectation, oppositely, raw milk collection decreased from 736,26,000 liters in 2006 to 697,62,000 liters in 2007 (Figure 5.1).

It assumed that the decrease in net income of Milk Vita due to an increase in services cost under the rising of member numbers. It also assumed that the decrease in net income of Milk Vita due to the decrease in raw milk collection as a new threat to Milk Vita. The decrease in raw milk collection may lead to a decrease in net income, services to the members in the near future. The decrease in services to the members may lead to a decrease in milk production of the dairy farmers.

Therefore, this study focused on the impact of private processors between 1993 to 2007 on the net income and raw milk collection of Milk Vita. This study examined the following points in order to identify the impact of private processors' competition on



**Figure 5.1 Trends of Milk Vita's raw milk collection, members, income and services to members**

Source: Milk Vita head office, FAO stats, and the field survey during February and March 2008.

Milk Vita and considered the development conditions of Milk Vita. (1) the raw distribution structure and Milk Vita's share in the country and the surveyed area, (2) the strategies of private processors which directing the members to be a free rider, (3) supply of raw milk from members to Milk Vita and members' characteristics, and (4) the relationship between Milk Vita and its members.

## 5.2 Material and methods

### 5.2.1 Survey subjects

The dairy cooperative Milk Vita was established with the recommendation of UNDP and FAO in 1973 at Shirajganj in the country. It started as the part of a poverty reduction program and dairy farmers' development by the government. In 2005, the government



shifted its share in the capital of Milk Vita from 50% to 98% to serve the dairy farmers and improve their life conditions. Milk Vita has expanded its work to 21 out of the 64 districts in the country. It has 160,000 dairy members, 1,600 primary milk producer societies and 24 branch offices with chilling plants. Milk Vita is governed by a managing committee consists of 12 members, of which 8 are elected from the members of primary milk producers' societies and the other 4 members are nominated by the government. The general manager is the chief of the organization assisted by 3 additional general managers, 6 deputy general managers, with other managers and professional executive and employees with total enrollment of more than 1,100.

#### 5.2.2 Present resources and future plan of Milk Vita

Milk Vita established a condensed milk plant at Baghabarighat, in 2006, UHT (ultra high temperature) treated milk plants at Mirpur in 2006, Powder milk plant at Baghabarighat in 1997, milk pasteurization plant at Mirpur in 1976, Takerhat in 1977, Shirajgonj in 1977, narsingdi in 2006, a poly-film production plant and cow breeding development plants among others. The future plan are to establish a cattle breed development through technology transfer, acquisition of bathan lan from the government for permanent use as grazing land by the milk producer farmers and establishment a cattle feed plant.

#### 5.2.3 Free services to the members

Milk Vita offers various free services that designed for the benefit of member farmers. These services are as following: (1) preventive and curative medical services for cows, including emergency services; (2) vaccination services against epidemic diseases; (3)

artificial insemination services for upgrading local breeds; (4) fodder extension consultancy services to ensure high yields; (5) extension services with knowledge and information about improved cattle husbandry practices; and (6) arrangement services with study tours to advance the knowledge of cattle rearing.

#### 5.2.4 Productions and distributions of dairy products by Milk Vita

To ensure the regular supply of fresh milk and milk products to the city dwellers at a reasonable price was one of the purposes of Milk Vita. Therefore, Milk Vita has been producing liquid packet milk, chocolate, condensed milk, cream, ice cream, rashmalai<sup>8</sup>, sweet less curd, sweet curd, butter, ghee<sup>9</sup>, UHT milk, powder milk etc. All kinds of products were marketing in the capital city Dhaka and others divisional cities through the own distributors of Milk Vita.

#### 5.2.5 Survey area selection criteria

The survey area of this study was Srinagar in the Munshiganj district of the suburban area of Dhaka. The suburban area of Dhaka was the largest out of 6 major cities. This area has a strong impact on the milk consumption in the capital city Dhaka. This area has been performing the important functions of supplying milk and dairy products. There were 0.93 million dairy farmers, out of a total of 4.75 million farmers (BBS, 2005), producing raw milk. In this area, Srinagar was the largest and most populous area in terms of commercial farm holdings. Competition takes place in Srinagar between Milk Vita and private processors such as the Bikrampur dairy and the sweet shop Ros. The Srinagar branch of Milk Vita was the largest supplier of raw milk to Milk Vita within the

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<sup>8</sup> Rashmalai is one kind of traditional food in Bangladesh

<sup>9</sup> Ghee is also one kind of traditional milk products

suburban area of Dhaka. The Srinagar branch accounted for 5% of the total raw milk supply of Milk Vita until 2007. Raw milk collection by Milk Vita from Srinagar today is decreasing drastically. This drastic reduction occurred in this area despite encouragement by Dhaka, the largest consumption area and an increase in dairy practice. Srinagar was therefore selected as a survey place.

The field survey covered the Srinagar branch of Milk Vita and its 60 members as well as the private processors of the Bikrampur dairy and the sweet shop Ros. Interviewees among the 60 members were randomly selected. The collected data were analyzed by the descriptive statistical methods and comparative way.

### 5.3 Results

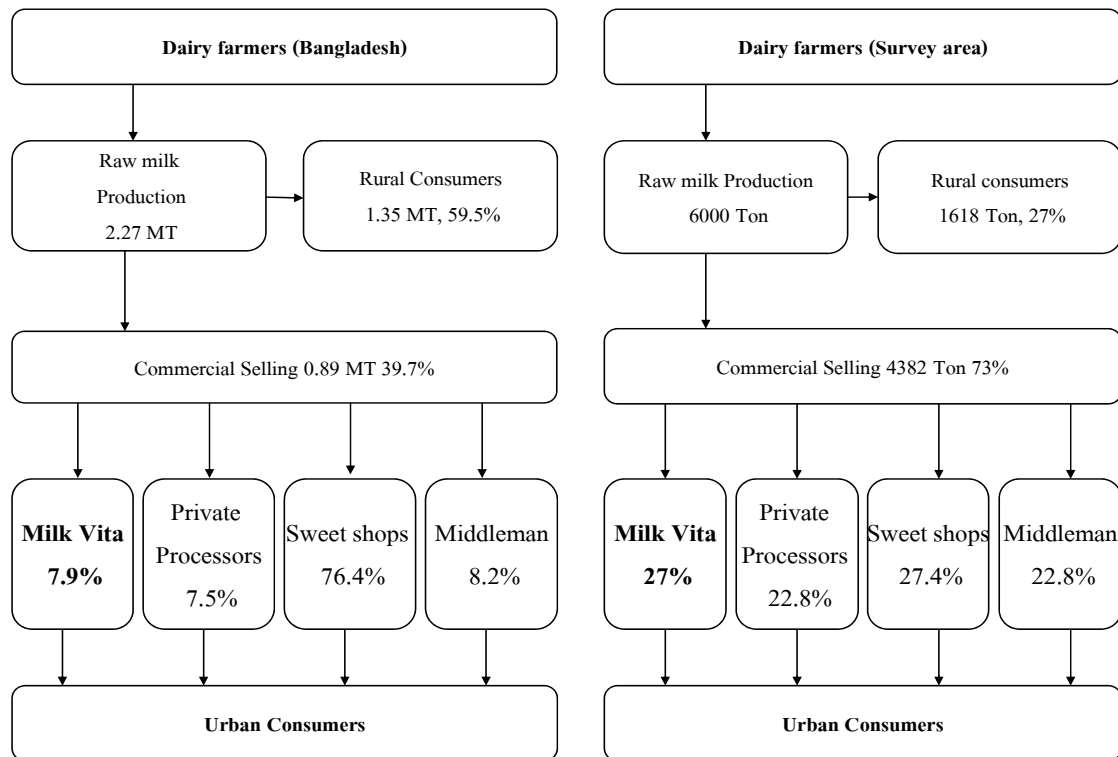
#### 5.3.1 The raw milk distribution structure and Milk Vita's share in the country and in the surveyed area

In 2007, 2.27 million tons (MT) of raw milk was produced in Bangladesh and distributed through 2 channels. Firstly (Figure 5.2), rural consumers were consumed 1.35 MT (59.5%) as liquid milk and milk foods. Secondly, 0.89 MT (39.7%) was consumed as commercial milk by urban consumers and went to them through 4 channels; (a) 76.4% through sweet shops, (b) 8.2% through middleman, (c) 7.5% through private processors, and (d) 7.9% through Milk Vita. The share of Milk Vita in this year was equivalent to 52% of formal raw milk distribution<sup>10</sup>. However, Milk Vita's share in formal raw milk distribution was 60% in 2006 and 74% in 1998 (Haque S M A, 2007). In addition, urban consumers were directly consumed 0.03 MT (0.8%) in 2007. In the survey area, in 2007, 6,000 tons raw milk was produced and distributed through

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<sup>10</sup> Formal distribution means organized market such as Milk Vita, Arong, Akij, Bikrampur etc.

2 channels. Firstly (Figure 5.3), rural consumers were consumed 1,618 tons (27%). Secondly, 4,382 tons (73%) was consumed as commercial raw milk by urban consumers and went to them through 4 channels; (a) 27.4% through sweet shops, (b) 22.8% through middleman, (c) 22.8% through private processors, and (d) 27% through Milk Vita. The share of Milk Vita in this year was equivalent to 27% of formal raw milk distribution. However, Milk Vita's share in formal raw milk distribution was 60% in 2006 and 77% in 1998 (Haque S M A, 2007). In Bangladesh, 39.7% of raw milk was consumed by urban consumers and in the survey area, this consumption was 73%. Milk Vita's share in survey area was high at 27% compared with its share countrywide



**Figure 5.2 Raw milk distribution in Bangladesh**

**Figure 5.3 Raw milk distribution in Srinagar**

Sources: Milk Vita, Bikrampur dairy, Ros, Directorate of livestock sector, 2008.

(7.9%); however, this share was decreasing day by day. While Milk Vita's share was 27%,

the private processor (Bikrampur, 1993) and the sweet shop (Ros, 2007) received large shares of 22.8% and 27.4% respectively, despite starting their business operations later than Milk Vita. Before the establishment of private processors, Milk Vita received a larger share. In addition, 22.8% of raw milk went to small urban processors through middleman due to the development of communication and transportation facilities. As mentioned above, the raw milk market has become competitive for Milk Vita not only in the survey area but also throughout the country.

### 5.3.2 The strategies of private processors directing the members to be a free rider

It was observed throughout the country and within the survey area that 3 raw milk collection strategies have been adopted by milk processors. The processors have developed these strategies to attract dairy farmers with services, raw milk prices and collection systems. As shown in Table 5.1, some strategy differences between Milk Vita and private processors were observed. First, Milk Vita freely provided expensive services such as treatment, vaccination, artificial insemination and a supply of no-profit no-loss based feed. In contrast, the private processors did not offer these essential services to dairy farmers to keep cows and calves healthy. Milk Vita also provided a micro credit with 5% interest to its members. The private processors provided micro credit that required a mortgage and was without interest. Both took payments from the indebted farmers in the form of small charges from the sale of raw milk. Second, Milk Vita set raw milk price at 19.82 taka per liter based on a test standard of 2.5 SNF (Solid non-fat). In contrast, the private processors rarely tested water content and they set raw milk price at 30 Taka or more through bargaining. Third, Milk Vita collected raw milk

**Table 5.1 Raw milk collections strategies of milk processors in Bangladesh and Srinagar**

<b>Bangladesh</b>			
Particulars	Milk Vita	Private processors	Milk traders
Services	(1) Free treatment, vaccination, insemination (2) Loan with 5% interest (3) No profit no loss based feed supply	(1) n/a (2) Loan without interest with a necessity of mortgage (3) n/a	(1) n/a (2) Loan with or without interest with a necessity of mortgage. (3) n/a
Collection system	From 1,600 society points	From milk market, milk traders, farmers' house	From milk market and farmers' house
Testing	SNF, TSL	Contained water	No test
Pricing	It depends on SNF, low	Bargain, high	Bargain, high
<b>Srinagar</b>			
Particulars	Milk Vita	Private processors	Milk Traders
Services	Free treatment, vaccination, insemination Loan with 5% interest No profit no loss based feed supply	n/a Loan without interest with a necessity of mortgage n/a	n/a Loan without interest with a necessity of mortgage. n/a
Collection system	20 active society points	From milk market, milk traders, farmers' house	From milk market and farmers' house
Testing	SNF, TSL	Water, sometimes no test	No test
Pricing	It depends on SNF, low (19.82 taka per liter)	Bargain, 30 taka per liter	Bargain, 30 taka per liter

Source: The field survey during February-March 2008 and Milk Vita office.

Note: 1) SNF-Solid Non Fate, 2) TSL-Total Solid, 3) n/a-not available.

through its primary milk producers' society in each hamlet. Members carried milk to the

society's collection point themselves to sell. In contrast, most of the private processors collected directly from the selected farmers, traders and markets.

On the above discussion, it can be conclude that the private processors adopted the above mentioned strategies to maximize their profit. They did not offer expensive services to dairy farmers and rarely if ever checked water levels in raw milk. However, they bought a large quantity of raw milk from dairy farmer at a price 30 taka per liter. Oppositely, Milk Vita adopted strategies to develop the members' sustainable farm management practices. Milk Vita emphasized quality checks of collected raw milk to maintain a relationship of mutual trust between Milk Vita and consumers in the domestic market. Milk Vita has supplied consumers with packet milk and milk products that are safe and of high quality.

Milk Vita offered price 19.82 Taka per liter and private processors offered price 30 Taka per liter. If the services cost of Milk Vita at 12.16 taka <sup>11</sup> per liter add with the offered price of Milk Vita, then the total amount will be 31.98 taka per liter, which is higher than the private processors offered price. Again, the management cost or production cost for the Milk Vita's members was at 15 taka <sup>12</sup> per liter. By selling the raw milk to private processors at 30 taka per liter, members can make profit (30-15) 15 taka per liter. If Milk Vita stop the services to the free rider members, they have to pay the services cost at 12.16 taka or more per liter to the private doctors. Then, their profit will be (15-12.16)

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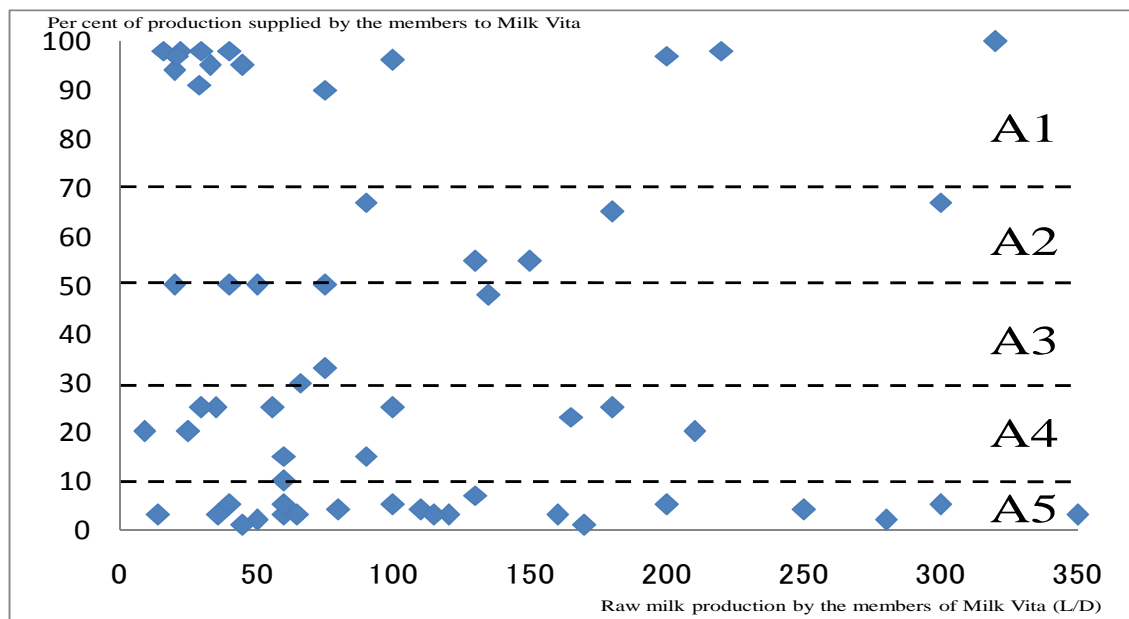
<sup>11</sup> The services cost was included doctor's fee, treatment, vaccination and artificial insemination cost.

<sup>12</sup> Production cost or management cost was calculated based on the average feed cost per day and raw milk productivity of the dairy farmers.

2.84 taka per liter and this profit is lower than that they get from Milk Vita at (19.82-15) 4.82 taka. Therefore, there were miss-match between Milk Vita and its members. However, Milk Vita took risks of the farming by giving free services to members. Non-members dairy farmers relied on government veterinary services, which were insufficient. Private veterinary doctors were limited and lived in urban areas rather than rural areas. If farmers called, the doctor could not respond quickly due to distances, the limited number of doctors and limited transportations. Often doctors arrived after the cows have died. Farmers also had to pay fees. The costs of other services provided by private doctors were also very high. Therefore, the strategies of private processors were miss- guiding the members of Milk Vita.

### 5.3.3 Supply of raw milk from members to Milk Vita and members' characteristics

Figure 5.4 shows how raw milk is supplied by members to Milk Vita. The surveyed



**Figure 5.4 Member's raw milk supply to Milk Vita per day**

Source: The field survey during February-March, 2008



members (60) were classified into five groups (A1, A2, A3, A4 and A5) based on the raw milk supplied per day by the members to Milk Vita. The members who supplied their raw milk to Milk Vita more than 70 per cent, 50 to 70 per cent, 30 to 50 per cent, 10 to 30 per cent and Not more than 10 per cent of their production were in group A1, A2, A3, A4, and A5 respectively. The characteristics of these groups were analyzed and illustrated in Table 5.2.

In group A5, the members were selling to private processors and making milk products from 90% of their produced raw milk or 110.66 liters per day averagely. Most of these members had large volume of raw milk productions, 78.2% of them had their own production of milk products and rest of the members were attracted by the private processors who rendered micro credit services without interest. In addition, this grouped farmer was not getting any micro credit services from Milk Vita. Therefore, Milk Vita was losing averagely 2639.71 taka per day only for its free services cost. Most of them were living far places from the collection center of Milk Vita and their family members were on average 8 persons.

In group A4, the members were selling to private processors and making milk products from 90% to 70% of their produced raw milk or 68.23 liters per day averagely. Most of these members also had large production, 18.1% of them had their own production of milk products and rests of them were attracted by the private processors who rendered micro credit services without interest and with an easy installment system. In addition, this grouped farmer was not getting any micro credit from Milk Vita. Therefore, Milk Vita was losing averagely 959.97 taka per day only for its free services cost. Most of them also were living in far places from the collection center of Milk Vita. In group A3, the members were selling to private processors from 70% to 50% of their produced raw milk or 56 liters per day averagely. All of them had large production but nobody had

**Table 5.2 Some basic characteristics of grouped members of Milk Vita**

Particulars/groups	A1	A2	A3	A4	A5	Total
1) Number of farmers	14	9	3	11	23	60
2) Average raw milk production by the grouped farmers (liter per day)	84	115	92	87.2	114.7	0
3) No. of farmers who had more than 60 liter production per day	5	6	3	6	17	37
4) No. of farmers who had 50 to 60 liter production per day	0	1	0	1	1	3
5) No. of farmers who had 40 to 50 liter production per day	2	1	0	0	2	5
6) No. of farmers who had 30 to 40 liter production per day	2	0	0	2	2	6
7) No. of farmers who had 20 to 30 liter production per day	4	1	0	1	0	6
8) No. of farmers who had less than 20 liters production per day	1	0	0	1	1	3
9) Members supplied raw milk quantity on average of grouped farmers (liter per day)	<b>2</b>	<b>46</b>	<b>56</b>	<b>68.2</b> <b>3</b>	<b>110.</b> <b>66</b>	<b>64.31</b>
10) Milk Vita was losing income only for the services cost (Taka per day)	<b>1176</b>	<b>1035</b>	<b>276</b>	<b>959.</b> <b>97</b>	<b>263</b> <b>9.71</b>	<b>782.</b> <b>01</b>
11) Members were producing milk products (per cent of grouped farmers)	<b>0</b>	<b>0</b>	<b>0</b>	<b>18.1</b>	<b>78.2</b> %	<b>33.3</b> %
12) Members were getting micro credit from Milk Vita (per cent of grouped farmers)	<b>78.5</b> <b>7%</b>	<b>88.8</b> <b>9%</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>31.6</b> %
13) Members were experienced in farming more than 30 years	<b>0.14</b> %	<b>22.2</b> %	<b>0</b>	<b>18.1</b> %	<b>82.6</b> %	<b>40%</b>
14) Others agricultural activities <sup>13</sup>	P	n/a	n/a	CFP	CDS	
15) Family members depends on income of the family on average per group (persons)	6	6	7	7	8	6.88
16) Members were living around 1 kilometer (per cent of grouped farmers)	100 %	100 %	33.3 %	18.1 %	0	43.3%

Source: The field survey during February-March 2008.

Note: 1) The services cost of Milk Vita was at 12.16 taka per liter including doctors' fee, treatment, vaccination, and AI.

<sup>13</sup> CFP- Crops, Fisheries and Poultry. CDS- Crops, Dairy and other services.

their own production of milk products. Most of them were newly established commercial farmers who did not get any micro credit services from Milk Vita. Moreover, they did not have others agricultural activities. The number of family members was on average 7 persons. Therefore, Milk Vita was losing averagely 276 taka per day.

In group A2, the members were selling to private processors from 50% to 30% of their produced raw milk or 46 liters per day averagely. Most of them had large production of raw milk. They were living in short distance from the Milk Vita's collection center and had started dairy farming newly. They did not have others agricultural activities by which can make attention to private processors. In addition, 88.89% of these farmers were getting micro credit from Milk Vita for their average milk supply to it. In addition, Milk Vita was losing averagely 1035 taka per day.

In group A1, the members were selling to private processors from 30% to 20% of their produced raw milk or 2 liters per day averagely. Most of them had small production of raw milk and landless dairy farmers. They were living in short distance from the Milk Vita's collection center and had started dairy farming newly. They did not have others agricultural activities by which can make attention to private processors. In addition, 78.57% of these farmers were getting micro credit from Milk Vita for their average milk supply to it. In addition, Milk Vita was losing averagely 1176 taka per day.

#### 5.3.4 The relationship between Milk Vita and its members

The survey examined the legal relationship between Milk Vita and its members. As members of Milk Vita, farmers must be a dairy farmer with one or two cows and supply a minimum of either 1 liter of raw milk per day or 100 liters per year. Milk Vita rendered

various free services to members, such as free veterinary treatment, vaccinations, artificial insemination, loans with 5% interest, and guidance. All of these services constitute Milk Vita's functions, and its members have the right to access those services. In exchange, Milk Vita has the right to access raw milk produced by the members. Milk Vita had an oral, not written, contract with its members regarding the raw milk supply. In this situation, the members sold only the minimum amount of produced raw milk to Milk Vita to fulfill the requirements for free services and sold most of their production to private processors. It was revealed that there were no obligations for members who supplied raw milk less than the minimum amount of raw milk to Milk Vita. The amount of raw milk supplied to Milk Vita was therefore small.

#### 5.4 Conclusions and Considerations

Most of the dairy farmers in Bangladesh are in small scale in the mixed farming system. They need special care regarding services and reasonable price of raw milk to sustain their farming. Therefore, a special attention needed for Milk Vita that has played an important role by undertaking development programs for dairy farmers and, providing free services and information since its establishment. Recently, it faced the impact of the private processors' competition in the liberalized market that leads the dairy farmers to be a free rider, decrease in raw milk collection and net income. The net income of Milk Vita decreased while membership sharply increased and raw milk collection decreased. This is because, the cost of essential services provided by Milk Vita increased sharply under the increase in members and the market share of private processors had increased. The private processors have developed their strategies in raw milk collection that were making miss-match between Milk Vita and its members. As a

result, the members were miss-guided by the private processors and became free rider in the cooperative system which resulting the decrease in raw milk collection and net income of Milk Vita. It was also revealed that most of the members were selling their raw milk to private processors who were giving micro credit without interest, with an easy refunding system, collecting raw milk from members' house. It was also revealed that some of the members were not selling raw milk to Milk Vita for the living in long distance from the collection point of Milk Vita. Some of the members had their own production of milk products and they sell only minimum amount of raw milk to Milk Vita and rests they use to produce their products. It was also revealed that the legal relationship between Milk Vita and its members regarding the raw milk supply requirement was based on an oral contract, not a written contract.

Therefore, the development conditions of Milk Vita and its activities should be considered as the political, economic and competitive environment changes. Milk Vita must consider the following factors in its future development. 1) Milk Vita must think for the reasonable price for the members' raw milk or should inform the purposes of the free services to them. 2) Milk Vita should put in place a simpler micro credit system as well as a refund system so that members can easily take and return micro credit, 3) Milk Vita should develop advanced raw milk collection systems for the members, especially those who live in a long distance from the raw milk collection center, 4) Milk Vita ought to adopt some strategies for those members (Dairy farmers cum processors). Milk Vita can buy members' semi-produced products, add additional value, and sell the final products in the market under the Milk Vita brand. Milk Vita can create a joint business ventures and develop products through technical guidance. 5) Milk Vita must develop

deeper relationships with its members by increasing the raw milk supply requirement, converting the existing oral contract into a written one, and making it mandatory for members to supply a certain amount of milk.

## CHAPTER SIX

### Conclusions and considerations

#### 6.1 Conclusions

This study addresses a situation marked on BDS by the market liberalization whereas dairy farming is one of the most appropriate and viable alternative sources regarding foods in terms of milk, income earning and energy generation in terms of biogas at the household level. The objectives of this study were an inquiry into the sustainable conditions of dairy farming on local livelihood.

The objectives of this study were to:

- Examine the impact of imported powder on the dairy sector of Bangladesh
- Evaluate the sustainable conditions of small scale dairy farmers in the country
- Examine the impact of private processors' competitions on the dairy cooperative Milk Vita

In order to fulfill these objectives, we collected data through field surveys in the country's main dairy farming areas, Baghabari at Shirajganj district and Ghatail, Kalihati at Tangail district, Srinagar at Munshiganj district between 2008 and 2010. We also interviewed key informants such as government, local government and cooperative officials. The three main chapters in this study were based on the results of these surveys.

In the introduction, we explained the background, the objectives, methodology and

structure of this study. Through the review of the literature, we proved that this study is a new knowledge and different angle among other existed study. This study was also conducted to address this knowledge gap.

Chapter 3 analyzed the impact of imported powder milk that influenced on the change of raw milk marketing structure and the change of private processors' behaviors. The study found some results are as follows: 1) the sweet shops which were the biggest user of local raw milk, had a strong link with local dairy farmers through middle man or milk traders, have changed into using imported powder milk to produce their products, 2) most of the main dairy processing industries, except Milk Vita, have decreased raw milk collection from dairy farmers, 3) private processors have changed the SNF test standard from 2.5 to 4, decreased number of collection days 7 to 5 or 6 days per week, changed collection times 2 to 1 per day either in morning or in evening, decreased micro credit facilities more than ever and changed free treatment into payable to dairy farmers, 4) Milk Vita has bought raw milk from members and dairy farmers at fully level of capacity in order to protect dairy farmers but its produced powder milk could not compete with the cheap imported powder milk in the market, 5) dairy farmers lost their market except Milk Vita to sell raw milk. They have to sell their unsold raw milk at 10 taka per liter in the local market whereas the management cost per liter is 28 taka. This situation influenced the dairy farmers to change their job, stop their business and sell their cows to the meat market.

Chapter 4 analyzed the evaluation of the sustainable conditions of small scale dairy farmers who were 70% of the total dairy farmers in the country. The study examined their conditions under the market liberalized and the rising of imported powder milk.



The study found some results are as follows: 1) 62% of the dairy farmers were small and had little and marginal income from farming. Despite of having very little income, they were still continuing their farming along with other agricultural activities. 94% of them were in mixed farming system, means the farming system was diversified and cropping were their main agricultural activities. 2) 44% of the surveyed farmers practiced contract raw milk marketing to sell raw milk at reasonable price. They had goodwill by supplying raw milk to urban home consumers and hospital with contract base. 3) Most of the dairy farmers were dominating by the Ghosh and middleman in the local market.

Chapter 5 analyzed the impact of the private processors' competition on Milk Vita which was playing an important role in developing of dairy sector under the importing of powder milk. The study found some results are as follows: 1) the net income of Milk Vita decreased while the cost of essential services to dairy farmers increased sharply under the increase in its members and the increase in share of private processors in the raw milk market. 2) the private processors have developed their strategies in raw milk collection and made miss-match among the members of Milk Vita. As a result, the members were miss-guided by the private processors. They became free rider in the cooperative system and sold raw milk to private processors. 3) most of the members were selling their raw milk to private processors who were giving micro credit without interest, with an easy refunding system, collecting raw milk from members' house. 4) some of the members were not selling raw milk to Milk Vita for the living in long distance from the collection point. 5) some of the members had their own production of milk products and they sold only the minimum amount of raw milk to Milk Vita and rests they use to produce their products. 6) the legal relationship between Milk Vita and its members regarding the raw milk supply requirement was based on an oral contract,

not a written contract. There were no obligations for the free rider members in the activities of Milk Vita.

## 6.2 Considerations

Chapter 6 considered the sustainable conditions for the dairy farmers in the country under the global competition structure. For the support system to dairy sector, the government should consider the following: 1) the quality checking of imported powder milk strictly, limiting the quantity and increasing the tariff level on powder milk, 2) the permitting in a large volume of imported powder milk, the government has to take the responsibility to protect vulnerable dairy farmers by subsidizing them.

For the better performance of the dairy farmers under liberalized market, they need to adopt a diversified farming system, a contract marketing of their raw milk with urban consumers, while they avoided the ghosh or middleman in the local milk market, and procured small capital from various sources.

For the support system to the dairy sector, Milk Vita should consider the following: 1) the reasonable price for the members' raw milk and the communication of the purposes of the free services by it to them, 2) the setting a simpler micro credit system as well as a refund system so that members can easily take and return micro credit, 3) the developing an advanced raw milk collection systems for the members, 4) the adopting the joint business venture with members cum processors, 5) the expanding and developing a relationship with its members by increasing the raw milk supply requirement, converting the existing oral contract into a written one, and making it

mandatory for members to supply a certain amount of milk.

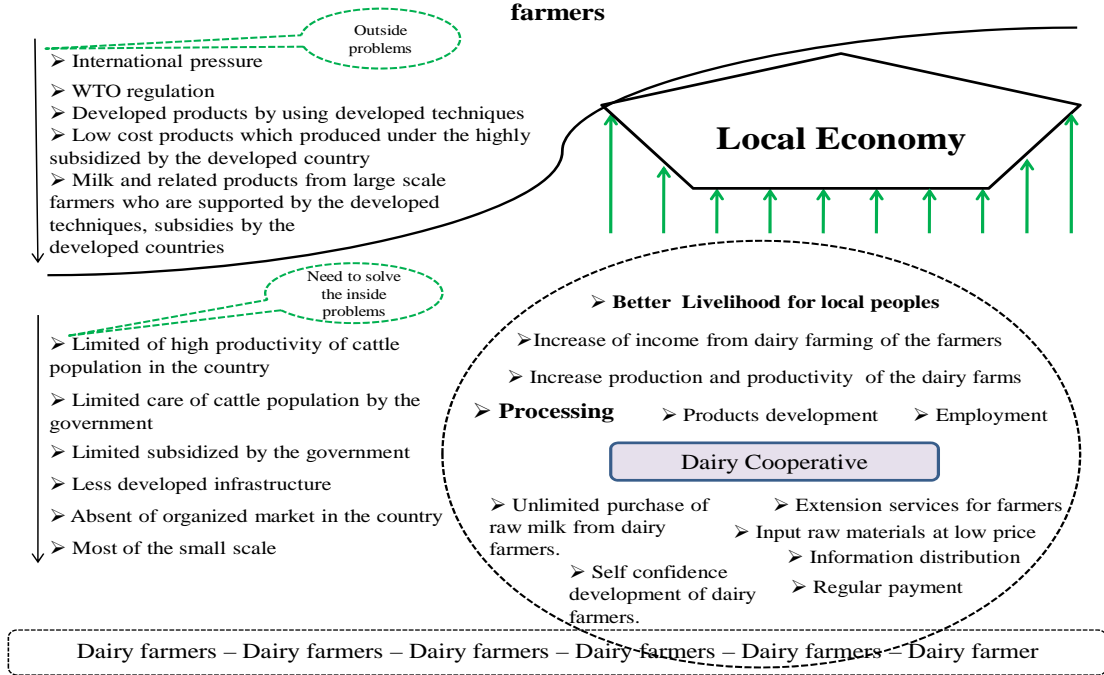
Moreover, for the support system to dairy sector, the dairy farmers should consider the following: 1) a diversified agriculture, 2) a contract marketing of raw milk with urban consumers, and 3) a following the cooperative system for avoiding the Ghosh or middleman in the local market.

### 6.3 Cooperative system as a method of sustainable development for the dairy farmers

In order to get a valuable, profitable and significance outcomes from the dairy sector of Bangladesh, a great emphasis should be given to intervention of cooperative as a rural dairy farmers' organization. Cooperative system can play an important role in development of dairy farmers by providing various services such as information, extension services like animal health services, infrastructure facilities, training facilities, raw milk market facilities, credit facilities etc. These altogether leads to higher milk production. Higher production leads to higher income earnings, more employment opportunities and improved self-consumption. This finally leads to better livelihood as shown in Figure 6.1.

Thus, the development in dairy sector could help to generate large amount of income for the small and medium scale dairy farmers, large number of employment, and large amount of livelihood for households.

**Figure 6.1: Cooperative system as a method of sustainable development for the dairy farmers**



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12. Sayef Nasir<sup>1</sup> & Bjorn Wille<sup>2</sup> Development of Dairy Hubs in Bangladesh, 1 Country Director, Tetra Pak Bangladesh Tel. +880 171 325 7350, E-mail: sayef.nasir@tetrapak.com
13. 2 Food for Development Director, Tetra Pak Indonesia Tel. +62 811 9918119, e-mail: bjorn.wille@tetrapak.com , *website www.tetrapak.com/ffdo*

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### **Questionnaire 3**

Field survey during February and March, 2008

Srinagar, Munshiganj, Bangladesh

1. General information of dairy farm households

Name of the household	
Age	
Education	
Number of family members	
Living years in this place	

2. Farming information

Number of cows at present	
Number of milking cows at present	
Number calves at present	
Number of family labor using in farm	
Number of hired labor using in farm	
Number of cow before 3/5 years ago	

**3. Milk production information**

Average milk per cow (Liter)	
Average production per day (Liter)	
Average milk consumption per day	
Average milk selling per day	
Average selling price per liter	

**4. Milk selling information**

Raw milk selling to Milk Vita (Liter)	
Raw milk selling to private processors (Liter)	
Raw milk selling to local market (Liter)	
Raw milk consumption in home (Liter)	
Total (Liter)	

5. Milk price information

Raw milk price given by Milk Vita	
Raw milk price given to private processors	
Raw milk price in the local market	
Comments on Milk Vita's price	
Comments on Milk Vita's services	

6. Milk selling system to different channels

Milk Vita	
Private processors	
Local market	
Distance from Milk Vita collection center	
Milk transporting system	

7. Services information

Micro credit from Milk Vita	
Micro credit from private processors	
Micro credit from others	
Veterinary treatment from Milk Vita	
Veterinary treatment from others	



**8. Relation with Milk Vita**

<b>Contract relation</b>	
<b>Oral relation</b>	
<b>Obligations</b>	
<b>Regular payment</b>	
<b>Participation in society meetings</b>	

**9. Complain to Milk Vita**

<b>Price</b>	
<b>Services</b>	
<b>Others</b>	

## Questionnaire 2

Field survey during August and October, 2010

Kalihati and Ghatal, Tangail, Bangladesh

### 1. General information of dairy farm households

Name of the household	
Age	
Education	
Number of family members	
Living years in this place	

### 2. Farming information

Number of cows at present	
Number of milking cows at present	
Number calves at present	
Number of family labor using in farm	
Number of hired labor using in farm	
Number of cow before 3/5 years ago	

3. Milk production information

Average milk per cow (Liter)	
Average production per day (Liter)	
Average milk consumption per day	
Average milk selling per day	
Average selling price per liter	

4. Milk selling information

Raw milk selling to Milk Vita (Liter)	
Raw milk selling to private processors (Liter)	
Raw milk selling to local market (Liter)	
Raw milk consumption in home (Liter)	
Total (Liter)	

5. Milk price information

Raw milk price given by Milk Vita	
Raw milk price given to private processors	
Raw milk price in the local market	
Comments on Milk Vita's price	
Comments on Milk Vita's services	

6. Milk selling system to different channels

Milk Vita	
Private processors	
Local market	
Distance from Milk Vita collection center	
Milk transporting system	

7. Services information

Micro credit from Milk Vita	
Micro credit from private processors	
Micro credit from others	
Veterinary treatment from Milk Vita	
Veterinary treatment from others	

8. Relation with Milk Vita

Contract relation	
Oral relation	
Obligations	
Regular payment	
Participation in society meetings	

**9. Complain to Milk Vita**

<b>Price</b>	
<b>Services</b>	
<b>Others</b>	

## Questionnaire 1

Field survey during June and July, 2009

Baghabari, Shirajgonj, Bangladesh

### 1. General information of dairy farm households

Name of the household	
Age	
Education	
Number of family members	
Living years in this place	

### 2. Farming information

Number of cows at present	
Number of milking cows at present	
Number calves at present	
Number of family labor using in farm	
Number of hired labor using in farm	
Number of cow before 3/5 years ago	

### 3. Milk production information

Average milk per cow (Liter)	
Average production per day (Liter)	
Average milk consumption per day	
Average milk selling per day	
Average selling price per liter	

### 4. Milk selling information

Raw milk selling to Milk Vita (Liter)	
Raw milk selling to private processors (Liter)	
Raw milk selling to local market (Liter)	
Raw milk consumption in home (Liter)	
Total (Liter)	

5. Milk price information

Raw milk price given by Milk Vita	
Raw milk price given to private processors	
Raw milk price in the local market	
Comments on Milk Vita's price	
Comments on Milk Vita's services	

6. Milk selling system to different channels

Milk Vita	
Private processors	
Local market	
Distance from Milk Vita collection center	
Milk transporting system	



**7. Services information**

<b>Micro credit from Milk Vita</b>	
<b>Micro credit from private processors</b>	
<b>Micro credit from others</b>	
<b>Veterinary treatment from Milk Vita</b>	
<b>Veterinary treatment from others</b>	

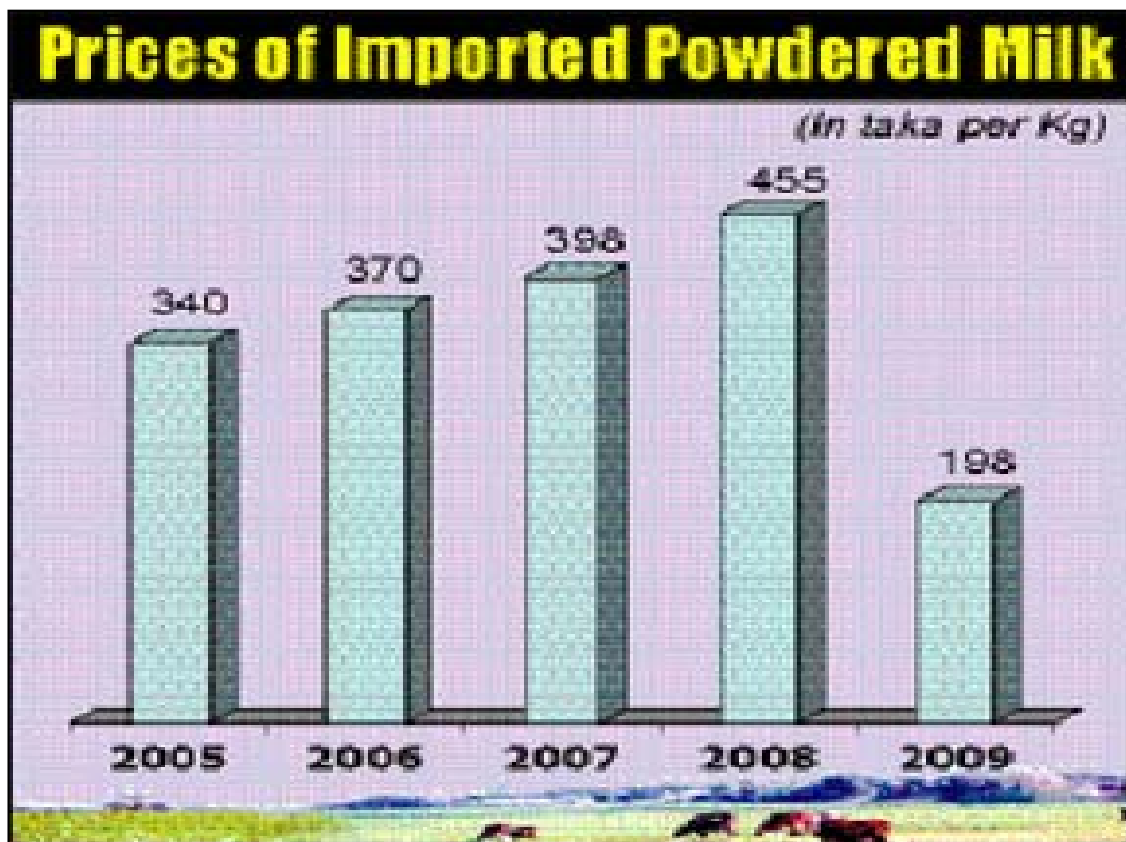
**8. Relation with Milk Vita**

<b>Contract relation</b>	
<b>Oral relation</b>	
<b>Obligations</b>	
<b>Regular payment</b>	
<b>Participation in society meetings</b>	

9. Complain to the government

Price	
Services	
Others	

## Appendices



# পানির দরে দুধ বেচতে বাধ্য হচ্ছেন খামারিরা

বরুণ রায়, বেড়া (পাবনা) ●

হরতাল এলেই চরম বিপাকে পড়েন পাবনা-সিরাজগঞ্জের দুধের খামারিরা। কারণ, এ সময় দুধ সংগ্রহকারী বেশির ভাগ প্রতিষ্ঠানই দুধ কেনা সম্পূর্ণভাবে বন্ধ করে দেয়। ফলে খামারিরা স্থানীয় বাজারে পানির দরে দুধ বেচতে বাধ্য হন। বেচতে না পেরে অনেক সময় আত্মীয় ও প্রতিবেশীদের মধ্যেও বিলিয়ে দিতে হয় দুধ।

পাবনার বেড়া, সাঁথিয়া, ফরিদপুর, ভাঙ্গুড়া এবং সিরাজগঞ্জের শাহজাদপুর ও উল্লাপাড়া উপজেলা নিয়ে গড়ে ওঠা দেশের প্রধান গরুর দুধ উৎপাদনকারী অঞ্চলের লক্ষাধিক খামারির আয়ের একমাত্র উৎস তাঁদের খামারে উৎপাদিত দুধ। প্রচুর দুধ উৎপাদিত হওয়ায় এ অঞ্চল থেকে মিল্ক ভিটা, আড়ং দুধ, প্রাণ, ফার্মফ্রেস, অ্যামোমিক্স, আফতাব, রংপুর ডেইরিসহ কয়েকটি দেশীয় প্রতিষ্ঠান প্রতিদিন সোয়া দুই লাখ লিটার তরল দুধ সংগ্রহ ও প্রক্রিয়াজাত করে সারা দেশে খোলাবাজারে বিক্রি করে থাকে।

খামারিদের অভিযোগ, হরতাল এলেই প্রতিষ্ঠানগুলো পরিবহন-ব্যবস্থা বন্ধ থাকার অজুহাত দেখিয়ে দুধ কেনা একেবারেই বন্ধ করে দিচ্ছে।

এ ব্যাপারে প্রাণ ডেইরি মিল্কের এলাকা ব্যবস্থাপক (বেড়া) রফিকুল ইসলাম বলেন, 'আমার আওতাধীন এলাকা থেকে প্রতিদিন ৪০ থেকে ৫০ হাজার লিটার দুধ সংগ্রহ করা হয়। হরতালের জন্য আজ (রোববার) আমরা কোনো দুধ সংগ্রহ করিনি। কারণ, দুধ সংগ্রহের পর তা

আমাদের প্রধান কারখানা ঢাকায় পাঠাতে হয়।' আড়ং দুধের (ব্র্যাক) এলাকা ব্যবস্থাপক (বেড়া-শাহজাদপুর) আবুল বাশার বলেন, 'অন্যান্য প্রতিষ্ঠান হরতালের কারণে দুধ সংগ্রহ বন্ধ রাখলেও আমরা বন্ধ রাখিনি। কারণ, আমাদের শীতলীকরণ কেন্দ্রের ধারণক্ষমতা সংগ্রহ করা দুধের পরিমাণের তুলনায় বেশি।'

এদিকে গতকাল বেড়া ও সাঁথিয়ার বিভিন্ন এলাকা ঘুরে দেখা গেছে, দুধ সংগ্রহকারী প্রতিষ্ঠানে দুধ বিক্রি করতে না পেরে খামারিরা বাজারে এনে তা বিক্রি করছেন। সাঁথিয়ার সোনাতলা বাজার, নন্দনপুর বাজার, বেড়ার হাটুরিয়া বাজারসহ বিভিন্ন স্থানে গতকাল ১৬ থেকে ২০ টাকা লিটার দরে দুধ বিক্রি হতে দেখা গেছে। কোনো কোনো স্থানে দুধ বিক্রি করতে না পেরে খামারিদের বাজার থেকে দুধ ফিরিয়ে নিতেও দেখা গেছে।

সাঁথিয়া উপজেলার সোনাতলা গ্রামের খামারি রফিকুল ইসলাম বলেন, 'আমার খামারে প্রতিদিন ১২০ লিটার দুধ হয়। প্রাণ কোম্পানিতে ৩০-৩১ টাকা লিটার দরে দুধ বেইচ্যা কুঁ রকমে পুষায়া যায়। কিন্তু হরতালের জন্যে ওই কোম্পানি দুধ না নেওয়ায় বাজারে ১৮ টাকা লিটার দরে দুধ বেচছি। তা-ও সব দুধ বেচবার পারি নাই। হরতালের জন্যে দৈনিক পরায় (প্রায়) দেড় হাজার টাকা কইর্যা লস হত্যাছে।'

এদিকে খামারি, দুধ ব্যবসায়ীসহ দুধশিল্পের সঙ্গে জড়িত ব্যক্তির দুধ পরিবহনকে হরতালের আওতাভুক্ত রাখতে হরতাল আহ্বানকারীদের প্রতি অনুরোধ জানিয়েছেন।

## হরতাল



পাবনা-বগুড়া মহাসড়কে দুধ ঢেলে গতকাল প্রতিবাদ জানান পাবনা ও সিরাজগঞ্জের খামারি ও দুধ সংগ্রহকারীরা। বিদেশ থেকে দুধ আমদানি বন্ধের দাবি এবং সরকারি-বেসরকারি প্রতিষ্ঠানগুলো দুধ কেনা কমিয়ে দেওয়ার কারণে তাঁদের এই প্রতিবাদ ● ছবি: বরুণ রায়