

**SOUTHERN NEW HAMPSHIRE UNIVERSITY**

**AND**

**THE OPEN UNIVERSITY OF TANZANIA**

**MASTER OF SCIENCE IN COMMUNITY ECONOMIC DEVELOPMENT**

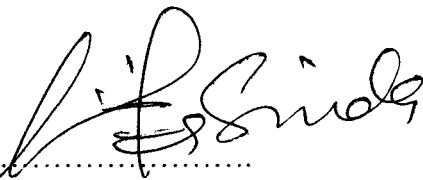
**(2007)**

**IMPROVING MILK HANDLING AND QUALITY CONTROL - A WAY  
FORWARD FOR INCREASING INCOME TO THE COMMUNITY: THE CASE  
OF SERENGETI DAIRY CO-OPERATIVE SOCIETY LTD IN  
BUNDA DISTRICT, TANZANIA**

**KULULETELA NYAMUTONDO MAJIGE**

### **SUPERVISOR CERTIFICATION**

The undersigned certifies and recommends this report titled “Improving Milk Handling and Quality Control – A way forward for increasing income to the community” for acceptance by The Southern New Hampshire University and The Open University of Tanzania in partial fulfillment of requirements for Master of Science in Community Economic Development.

Supervisor .....  
**Dr Sinda Hussein Sinda.**  
**1<sup>st</sup> July, 2007.**

## DECLARATION

I Kululetele N. Matlge declare that, this project report is my own original work and that it has not been submitted for the similar degree in any University.

### **COPYRIGHT.**

All rights reserved. No part of this work may be reproduced, stored in any retrieval system, or transmitted in any form by any means, electronic, manual, photocopying, recording or otherwise without prior written permission of the author or Community Economic Development Programme (CED) of The Southern New Hampshire University / The Open university of Tanzania in that behalf.



## **DEDICATION**

This work is dedicated to my;

Late father Majige Malima Masola who died in 2000

&

Late mother Victoria Nyamutondo Nyagonda who died in 1979

## **ABSTRACT**

The CBO has been dealing with milk business by trading the same products of the same quality, using the same tools and techniques for milk selling over 40 years. In brief the CBO were purchasing and selling milk direct to the customers in fresh, boiled or fermented without any further transformations. That mode of business operations did not attract upward mobility of the CBO business that is why over that long period of time the CBO was still on the same pace. So, this situation attracted the author to build an interest of conducting this study so that it can come out with causative factors and find alternatives, which can help the CBO to go forward. So far, milk handling and quality control was found to be one of the burning issues (problem) of the CBO.

To embark upon this situation, the CBO was assisted to develop and establish a project, which paved the way on how it can address the problem of milk handling and quality control. The project was developed after being acquainted with the goal, mission, overall and specific objectives of the CBO. Also developing and establishing of the CBO project came in hand after making a thorough study for the CBO business operations. Here the study analysed how the CBO conduct milk business, what are the strength and obstacles, which impede effectiveness of the entire business and upward mobility in terms business expansion and income enhancement.

So, the study comes out with a project of capacity building by empowering the target group with knowledge and skills of milk marketing, entrepreneurship and best practice of milk business operations and management.

## **EXECUTIVE SUMMARY**

The author has been engaged to work with Serengeti Dairy Co-operative Society, which is based in Bunda district, as one of the requirements for partial fulfilling for Master of Science in Community Economic Development at the Southern New Hampshire University. Serengeti dairy cooperative society is a community based organization, which is located in Bunda Township, Bunda ward, Serengeti division in Bunda district.

This survey is characterized by a combination of both participatory and non-participatory methods of data collection. Participatory methods in the sense that the members of the CBO participated in data collection and provided required information at various stages, and non-participatory in the sense that the survey made analyses according to data collected in hand. Each method was used at the most suited area and sometimes more than one method was used at a time (combined) to collect data. So far, this method involved both Probability and non-probability sampling. Simple random sampling and stratified random sampling were used in probability sampling and purposive sampling was used in non-probability sampling.

However, within 18<sup>th</sup> Months, the author managed to see and learn practically on how the CBO operate (run) milk business. Working with the CBO enabled the author to realize that, the CBO had problems and one of those problems was milk handling and quality control. Some of milk consignments were spoiled, which led the CBO to get loss. Further, the intervention comes out to realize and identify that, this problem was caused by the following reasons;

- Absence of entrepreneurship skills to the CBO made creativity, initiatives and innovative aspect of milk business operations to be at a minimum level; and
- Inadequate capacity of the CBO and milk vendors in terms of capital, knowledge and skills and equipments for purchasing and selling milk to customers was making milk business performance to be poor.

This scenario led the author to provide advice on Administration and Management to the CBO. Apart from that advice, the author also advised the CBO to establish a project which deals with capacity building to the CBO, milk vendors and milk consumers. The CBO agreed and by involving the target group, the author designed, developed and established a project, which dealt with capacity building to the target group. The project was designed and managed to provide training on milk marketing and entrepreneurship skills, the best practice of milk purchasing and selling and effective milk handling and quality control to the target groups.

**The goal of the project** is to improve milk handling and quality control in such a way that the CBO milk business becomes sustainable. And **the overall project objectives** is to provide knowledge and skills of milk handling and quality control to milk sellers, producers and consumers in Bunda Township and six villages, which supply milk in Bunda Township. However, **specific objectives of the project** include:

- To build capacity of the target group (the members, milk producers and milk vendors) on best practice of milk handling and quality control by March 2007;

- To build capacity of the CBO on the milk marketing and entrepreneurship skills by March 2007; and
- To build capacity of the CBO on preparation and execution of strategic plan, business operation plan, action plan and monitoring and evaluation by March 2007.

And activities that have been done by the project on capacity building were;

- Awareness creation campaign to the CBO members, milk producers and milk vendors on proper milk handling and hygienic control;
- Training on best practice on milk handling and quality control to the target group;
- Training on milk marketing and entrepreneurship skills to the target group;
- Training on the concept of 4 Ps (Product, Price, Promotion and Place) in relation to milk marketing to the CBO members, milk vendors and milk producers; and
- Training on effective ways of milk business operation with emphases of milk purchasing and selling.

Strategies used to implement this project include; preparation of training manual according to the needs of the target group, preparing training venue and training schedule and informing the target group on training. Contacting the district council (livestock officers) for getting assistance of collecting milk vendors at training venue and conducting training. Participants of this training were the CBO members, milk vendors, milk producers and milk customers where, the people of Bunda Township were beneficiaries the project.

However the task that remained was:

- Training the target group on monitoring and evaluation; and
- Training the target group on preparation and execution of business operation plan, action plan and strategic plan.

## ACKNOWLEDGEMENT

I would like to take this opportunity to extend my gratitude to the District Executive Director, Heads of departments and other staff of Bunda District Council who supported me to attend, study and accomplish the MSC(CED) Programme. This is good and deserves high appreciation.

Also I' am grateful to my supervisors Mr Mtenga, H. and Dr. Sinda, Hussein Sinda. for their guidance, encouragement and generous allocation of time towards the development of this project paper. I do greatly appreciate their supervisory skills and constructive criticisms.

A fare well appreciation as well should go to Mr. Michel Adjibodou and Felician Mutasa who did a good job of training and instructing the students on research methodologies, statistical data analysis and presentation.

Yet, my acknowledgement will never be credible without mentioning the package of fund support from CED Programme. I was one of the few students who were selected to get fund support for tuition fee from CED Programme. I know it was real difficult and not easy to get that fund, but it happened. This is nice, thanks a lot for what have been done, I take care.

My gratitude should be extended to the leaders and members of the Serengeti Dairy Co-operative Society, milk vendors, milk producers and milk customers who involved and participated fully to provide inputs for completion of this project.

However, I wish to convey my heart felt gratitude to my wife Mrs Bibiana Majige with my children who had to bear great patience of my absence when I was away from home for this study. Also I appreciate them for devoting much time tirelessly on advising, counseling and encouraging me to accomplish this study.

Nevertheless, I really know that, the task of acknowledging is long, big, space covering and time consuming. I therefore extend my thanks to all people who participated and engaged in one-way or another in accomplishing this project paper. If a particular name or title has not been mentioned here, he/she should understand that, his/her contribution has been appreciated and thanked comprehensively.

## **TABLE OF CONTENTS**

SUPERVISOR CERTIFICATION	i
DECLARATION	ii
COPYRIGHT.	iii
DEDICATION	iv
ABSTRACT	v
EXECUTIVE SUMMARY	vi
ACKNOWLEDGEMENT	ix
TABLE OF CONTENTS	xi
CHAPTER ONE: COMMUNITY NEEDS ASSESSMENT	1
1.1 COMMUNITY PROFILE	1
1.1.1 GEOGRAPHICAL LOCATION	1
1.1.2 AREA	1
1.1.3 POPULATION:	1
1.1.4 ADMINISTRATIVE STRUCTURE:	2
1.1.5 ECONOMIC ACTIVITIES:	2
1.1.5.1 Agriculture:	2
1.1.5.2 Livestock keeping:	3
1.1.5.3 Fishing:	3
1.1.6 SOCIAL SERVICES:	4
1.1.6.1 Education:	4
1.1.6.2 Health	5
1.1.6.3 Water:	5



1.2	THE CBO PROFILE	5
1.3	COMMUNITY NEEDS ASSESSMENT	5
1.3.1	RESEARCH QUESTIONS	6
1.3.2	METHODOLOGY	6
1.3.2.1	THE SURVEY METHOD	6
1.3.2.1.1	Survey Design	7
1.3.2.1.2	Sampling	7
1.3.2.1.3	Data collections in a survey method	9
1.3.2.1.4	Rationale of using semi-structured interview	10
1.3.2.1.5	Rationale of using observation method	10
1.3.2.1.6	Validity of the survey	12
1.3.2.1.7	Reliability of a Survey	15
1.3.2.1.8	Analyses and Results	18
1.3.2.2	Focus Group Discussions Method	22
1.3.2.2.1	Procedures of data collection and analyses through focus group discussion	22
	CHAPTER TWO: PROBLEM IDENTIFICATION	25
2.1	PROBLEM STATEMENT	25
2.2	PROBLEM IDENTIFICATION PROCESS	26
2.3	TARGET COMMUNITY AND STAKEHOLDERS ANALYSIS	27
2.4	POTENTIAL COLLABORATORS OR COMPETITORS	29
2.4.1	Nyakanga Solidarity Association	29
2.4.2	Mara Milk Company	30

2.5	PROJECT BROAD OBJECTIVE	33
	SPECIFIC OBJECTIVES OF THE PROJECT	33
2.7	THE ROLE OF THE AUTHOR AT THE PROJECT	33
	CHAPTER THREE: LITERATURE REVIEW	38
3.1	THEORETICAL LITERATURE	38
3.2	EMPIRICAL LITERATURE	46
3.2.1	The case of Serengeti Diary Co-operative Society Ltd (SDCS), Bunda district	46
3.2.2	The case of Mwakaleli Diary Co-operative Society (MDCS)	49
3.2.3	Milk market of small scale artisan cheese factories in selected livestock	51
3.3	Identified gap for milk marketing in respect with the CBO	57
3.4	POLICY REVIEW	58
3.5.1	Dairy development and marketing policies in KENYA	59
3.5.2	Dairy development and marketing policies the case of Tanzania	61
	CHAPTER FOUR: PROJECT IMPLEMENTATION	64
4.1	ACTIVITIES TO BE CARRIED OUT	64
4.2	PROJECT OUTPUTS AND PRODUCTS	64
4.3	Project implementation plan	68
4.4	INPUTS REQUIRED TO ACCOMPLISH PROJECT OBJECTIVES	69
4.6	PROJECTED FUND FLOW FOR ACCOMPLISHING PROJECT PLAN	71
4.7	IMPLEMENTATION PROCESS AND IMPLEMENTED ACTIVITIES	72
	CHAPTER FIVE: PROJECT MONITORING, EVALUATION AND SUSTAINABILITY	74

5.1	MONITORING	74
5.1.1	GUIDING QUESTIONS FOR MONITORING	80
5.1.2	METHODOLOGY	80
5.1.2.1	INTERVIEW	80
5.1.2.1.1	Rationale of Using of Interview	80
5.1.2.1.2	A Survey Design for Monitoring	81
5.1.2.1.3	Sampling and sample size	81
5.1.2.1.4	Number of questions executed in interview	83
5.1.2.1.5	Internal validity	84
5.1.2.1.6	Analyses and Results	85
5.1.2.1.6.1	Milk handling and quality control at the project	85
5.1.2.1.6.2	Milk Adulteration and Spoilage	85
5.1.2.2	OBSERVATIONS	87
5.1.2.2.1	Rationale of Using Observation Method	87
5.1.2.2.2	Results of Observation method	87
5.1.2.3	REVIEW OF DOCUMENTS (SECONDARY DATA)	88
5.1.2.3.1	Rationale of using secondary data	89
5.1.2.3.2	Analyses and Results	89
5.1.2.3.2.1	The General Meeting (minutes) Records and Board Meetings	89
5.1.2.3.2.2	The Books of Accounts of the Project	91
5.1.2.3.2.3	Physical Milk Perishability Report.	92
5.1.2.3.2.4	Milk Pricing	93
5.1.2.3.2.5	Income and Expenditure of the Project	95

5.2	EVALUATION	100
5.2.1	Research Questions	101
5.2.2	METHODOLOGY	101
5.2.2.1	FOCUS GROUP DISCUSSIONS	101
5.2.2.1.1	Rationale for Using Focused Group Discussions	101
5.2.2.1.2	Validity of Data Collection for Evaluation	102
5.2.2.1.3	Analyses and Results	102
5.2.2.1.3.1	Community Life Changes	102
5.2.2.1.3.2	Replica of the project	103
5.2.2.1.3.3	Milk adulteration	104
5.2.2.1.3.4	Project Objectives	105
5.2.2.1.3.5	Relevance of Trainings	105
	SECONDARY DATA	106
5.2.2.2.1	Rationale of using secondary data for evaluation	106
5.2.2.2.2	Analyses and Results	106
5.2.2.2.2.1	Project performance	106
5.2.2.2.2.2	Formative and Summative Evaluation Indicators	107
5.3	SUSTAINABILITY	111
5.3.1	Sustainability:	111
5.3.2	Technical aspect	111
5.3.2.1	Business competition	111
5.3.2.2	Product promotion	113
5.3.2.3	Customer taste and preferences	114

5.3.2.4 Marketing Information	115
5.3.2.5 Monitoring and Evaluation	116
5.3.3 Financial Aspect	116
5.3.3.1 Strategic Plan	117
5.3.3.2 Planning System	120
5.3.4 Political Aspect	120
CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS	122
6.1 CONCLUSIONS	122
6.2 RECOMMENDATIONS	124
BIBLIOGRAPHY	127
APPENDICIES	130

## **LIST OF TABLES**

Table 1 Administrative set up of Bunda District Council	2
Table 2 : Primary education facilities in the district (2004)	4
Table 3 : Stakeholders that may have stakes to the project	27
Table 4: Similarities of three milk marketing dealers to the project	31
Table 5: Differences of three milk marketing dealers to the project	31
Table 6: Annual milk production projections in Bunda District	46
Table 7: Product mix at SDCS milk collection	49
Table 8: What the project set to accomplish - expected out puts and products	65
Table 9 : Project implementation plan for 18 months	68
Table 10: Staffing plan and training needs	70
Table 11: Monitoring Schedule for Project Operations.	76
Table 12 : Sample size	83
Table 13: Milk Adulteration and Spoilage for January to December 2006	86
Table 14: CBO members participation at the general meeting	90
Table 15: Milk purchases before and after project intervention	92
Table 16: Revenues and expenditures of the project for January to December 2006	96
Table 17: Evaluation table summary.	109
Table 18: A 5 Years (2008 to 2012) Strategic Plan and Budget of the Project	118

## **LIST OF FIGURES**

Figure 1: Problem of respondents	19
Figure 2: Age of respondents	20
Figure 3: Sex of respondents	21
Figure 4: Community needs assessment through pair-wise ranking	24

## **ABBREVIATIONS**

SACCOS	Savings and Credit Co-operative Society
NGO	Non Governmental Organization
DED	District Executive Director
Edu	Education
Econ	Economics
Plan	Planning
N/R	Natural Resource
Env	Environment
HRD	Human Resource Development
Comm	Community
Dev	Development
I/A	Internal Auditor
Dpt	Department
Agri	Agriculture
Liv	Livestock
Coop	Co-operative
ILRI	International Livestock Research Institute.
KCC	Kenya Co-operative Creameries Limited
KDB	Kenya Dairy Board
DDE	Dairy Development Enterprise
ISCD	International Scheme for Coordination of Dairy Development



CSO	Civil Society Organization
CBO	Community Based Organization
CED	Community Economic Development
FMOA	The Federal Ministry of Agriculture
GRNC	Green Revolution National Committee
GVT	Government
FAO	Food and Agricultural Organization
SPSS	Statistical Package for Social Science
DCO	District Cooperative Officer
SDCS	Serengeti Dairy Co-operative Society
TDL	Tanzania Dairy Limited
MALD	Ministry of Agriculture and Livestock Development
MoAC	Ministry of Agriculture and Co-operative
SUA	Sokoine University of Agriculture
SME	Small Scale and Medium Enterprise
Lts	Litres
°C	Degree Centigrade
m.a.s.l.	Miles above Sea Level

## **CHAPTER ONE: COMMUNITY NEEDS ASSESSMENT**

This chapter focuses on two major topics, the community profile and community needs assessment. The first area covers and discusses in detail on community profile in order to provide actual perception to the leaders on the background of community. The second area shows how the facilitator-conducted community needs assessment, methods and tools used for data collection and analyses.

### **1.1 COMMUNITY PROFILE**

#### **1.1.1 GEOGRAPHICAL LOCATION**

Bunda District is one among five Local Authorities of Mara Region. The District lies between 33°39' to 34°05' Longitudes, East of Greenwich and 1°30' to 2°45' Latitudes South of the Equator. The District is bordered by Musoma Rural District in the North, Serengeti District in the East, Magu District (Mwanza Region) in the South and Ukerewe District (Mwanza Region) in the West. The District has annual rainfall which ranges from 900 mm – 1300 mm and temperature ranging from 17°C – 31°C.

#### **1.1.2 AREA**

The District has a total area of 3,088 km<sup>2</sup>, out of which 200 km<sup>2</sup> covered by water of Lake Victoria, and 2,888 km<sup>2</sup> is land of which 2,408 km<sup>2</sup> is arable land suitable for crop production and livestock keeping. The remaining 480 km<sup>2</sup> is occupied by Serengeti National Park.

#### **1.1.3 POPULATION**

According to 2002 Census, the District had a total population of 260,000 people, with a population growth rate of 2.9 per year. Out of that figure, male were 124,171 and 135,289 were females. The population density is high along the lakeshore with an average

population density of 109 people per km<sup>2</sup> and population density 65 per km<sup>2</sup> in the midland zone

#### **1.1.4 ADMINISTRATIVE STRUCTURE**

Bunda District is divided into two parliamentary electoral constituencies namely Bunda and Mwibara. The district has 4 divisions, 20 wards and 93 villages as shown by the table below.

**Table 1 Administrative set up of Bunda District Council**

<b>S/N</b>	<b>Division</b>	<b>Number of wards</b>	<b>Number of villages</b>
1	Nansimo	4	18
2	Kenkombyo	4	20
3	Serengeti	7	33
4	Chamriho	5	22
	<b>Total</b>	<b>20</b>	<b>93</b>

Source: Bunda District Council Planning Department

Apart from Divisions and Wards the District has 470 Sub Villages, which comprises of 42,623 households.

#### **1.1.5 ECONOMIC ACTIVITIES**

The main Economic activities in Bunda District include Agriculture, Fishing and Livestock keeping among others.

##### **1.1.5.1 Agriculture**

The District has 24,080 hectares of arable land, which is 83% of the total land area. Out of this only 30% - 40% of the arable land is cultivated. Individual Small-scale farmers cultivate an average of 1.6 - 2.5 hectares per year. Food crops grown include Cassava, Sorghum, Maize, Sweet potatoes, Paddy, Legumes, Finger millet and beans. Cotton is the

major cash crop, where chickpeas, sunflower and sim sim are also cultivated as cash crops in some areas of the district.

Food crop production to a large extent is geared toward domestic consumption. In the recent years production of both food and cash crop has been declining due to; unreliable rainfall, continuous use of traditional production methods, lack of agricultural inputs and implements, crop deceases and decline in soil fertility in some areas especially on the western part along Lake Victoria. Agriculture contributes 44.6% of the district GDP.

#### **1.1.5.2 Livestock keeping**

The District has 219,875 indigenous cattle of Zebu type, 107 hybrid diary cattle, 76,311 goats, 47,410 sheep, 182,265 chicken, 1,225 donkey, 306 pigs and 12,500 dogs (2005 data). There are 14 dips of which only 5 are functioning, 14 crashes, 10 charcoal dams, 6 livestock markets and 4 livestock development centers. Problems facing the livestock sector include; poor livestock husbandry, frequent diseases, water shortage and high cost of veterinary drugs.

Livestock accounts 28.5% of the District GDP

#### **1.1.5.3 Fishing**

Fishing is another economic activity, which is taking place in Bunda District. It is estimated that, within the district about 4,257 people are engaging in small-scale fishing. Party of caught fish is sold to processing factories based in Mwanza and Musoma and the rest is for domestic consumption.

Fishing sector is experiencing the following problems; illegal fishing, high prices of fishing gears and low level of community knowledge on modern fishing methods.

Fishing contributes 14.7% of the district GDP.

## **1.1.6 SOCIAL SERVICES**

Education, health delivery, water and communication are among social services, which are available in the district.

### **1.1.6.1 Education**

According to the 2005 data, the district has 154 primary schools. Out of them 151 are government schools and 3 are private owned. Enrolling at government schools were 79,526 pupils. Among them 40,795 were boys and 38,731 were girls. There were 1,266 teachers providing services to these schools in the district.

On primary education facilities, the boat is not navigating well. The table here below shows the real problem at this sector.

**Table 2 : Primary education facilities in the district (2004)**

<b>Item description</b>	<b>Requirement</b>	<b>Available</b>	<b>Deficit</b>
Permanent classrooms	1,333	590	734
Permanent teachers houses	1,706	239	1,467
Desks	33,602	13,046	20,556
Latrine stances	2,755	673	2,082

Source: Education department Bunda district council.

Other available education institutions in the district include 1 Teachers Training College, 1 Folk Development and 23 Government Secondary Schools and 3 private secondary schools.

#### **1.1.6.2 Health**

Health facilities in the district include 2 hospitals owned by Voluntary Agencies, 3 Rural Health Centers owned by the Government, 25 Dispensaries out of which 3 are private owned and the rest are own by the government.

#### **1.1.6.3 Water**

There are several water sources, which deliver water services to the Bunda District Community. These sources include: Lake Victoria, 5 charcoal dams, 10 medium deep wells, and 323 shallow wells. Also there are 191 traditional water sources and 2 gravity schemes.

### **1.2 SERENGETI DAIRY CO-OPERATIVE SOCIETY**

This area articulates in detail the background of Serengeti dairy co-operative society and engagement of the community in milk business operation. Also, it shows strength and weaknesses of the CBO in relation to milk business operations in Bunda. Please, refer appendix 1 for detail reading.

### **1.3 COMMUNITY NEEDS ASSESSMENT**

Under this section the following process were undertaken. First community needs assessment was made through survey method, and focus group discussion. Second in a survey method data were analysed through SPSS and in focus group discussion data were analysed through pair wise ranking. The whole process is explained in detail in this section. However, before starting a survey, the letter of appendix 2 raised intention of making a survey to the community. The community (CBO) accepted that request by a letter of October 10, 2006 as appended with appendix 3. The same correspondence was made to

leaders of milk vendors, milk producers and milk customers. The leaders of those groups agreed and invited the researcher to work with them. This climate enabled the researcher to make intervention to the entire groups.

### **1.3.1 RESEARCH QUESTIONS**

The leading research questions were;

- (i) Do low knowledge and skills of milk marketing lead to poor milk handling and quality control?
- (ii) Do poor milk handling and quality control lead to high perishability of milk?
- (iii) What are the leading factors of mixing water with milk before reaching to final consumers?

### **1.3.2 METHODOLOGY**

The process of conducting community needs assessment involved two methods; the survey method and focus group discussion.

#### **1.3.2.1 THE SURVEY METHOD**

The survey method used in community needs assessment was characterized by a combination of both participatory and non-participatory methods of data collection. Participatory methods by the sense that the members of the CBO participated in data collection and provided required information at various stages, and non-participatory by the sense that the survey made analyses according to data collected in hand.

Each method was used at the most suited area and sometimes more than one method was used at a time (combined) to collect data. For example, person interviews were conducted simultaneously with observation, where by the facilitator was observing how the

respondents were behaving and the way things were being done to the entire population. Prudent of observations were for cross checking the reliability and accuracy of information given by respondents.

So far, the survey method was suitable and been carried out in order to identify and address the real interest, wishes and expectation of the entire community / group. Also the method was ideal to conduct community needs assessment as it enabled to collect detail information at the time.

#### **1.3.2.1.1 SURVEY DESIGN**

Due to the time factor, Cross-sectional design is the survey designs, which opted to be used by the survey method. With Cross-sectional design, data were collected at a single point in time. Through this method data were direct collected and recoded from respondents in a single point in time. On top of that, cross-sectional design describes things as they are (preference) so that people can plan. If things are good or bad the cross-sectional survey reveals this situation as it is. That is why it is commonly used in survey method. Also Cross-sectional survey design was used since it is relatively easy to do. However the simple random sampling and purposive sampling were used to select a sample of the population for cross sectional survey.

#### **1.3.2.1.2 SAMPLING**

A sample is a proportion or subject of a larger group called a population. A good sample is a little version of the population of which it is part- just like it, only smaller (Arlene Fink, 1985). However the sample space, which was used in a survey, was selected from the CBO members and at outside population (milk vendors, milk customers and milk producers). The CBO members' intervention was inevitable since, they are the one who are directly



affected with undesirable performance of milk business operation. On the other hand, the external (outside) population sample was vital to be involved so as to get neutral responses to the survey. Neutrality and autonomous of the external population enabled the survey to get delicious information for perfect results.

So far, out of the total population of 255, the survey selected a sample of 25 respondents who were selected through simple random sampling. Representative sample involved different age groups and sex and the survey was conducted for three days. The first day was used for orientation and the real survey was conducted for two days.

### **WHY SAMPLING?**

The survey opted to use a sample as opposed to population since, the entire population was too big and somehow it was impossible to be covered over period of time. In line to that point, it was too costly and unaffordable to test the population

### **WHY SIMPLE RANDOM SAMPLING?**

A simple random sample is one in which each person has an equal chance of being selected for participation in a survey ( Arlene Fink , 1985). Therefore the survey method decided to use simple random sampling since, all subject or elements had equal probability of being selected. So, this method in the context of this survey was applied to get a representatives sample from each sub-set of the population. This was done deliberately so as to test the validity and answer develop research question in its broader context.

#### **1.3.2.1.3**

#### **DATA COLLECTIONS IN A SURVEY METHOD**

Under survey method primary data were collected through semi-structured interview and direct observations. Fourteen questions (refer appendix 4) depending on community needs and convenience were administered to the entire respondents.

The survey applied semi structured interview to collect data at meetings, where by two meetings discussed various issues concerning on the CBO milk marketing business operations. The respondents were selected and interviewed in small groups of at least four people where participatory discussion over the causal and effect relationships of the variables tested was made to confirm their validity. (Arlene Fink and Jacqueline Kosecoff, 1985, p.56). Through those meetings the facilitator managed to come out with 5 basic questions, which were used to collect appetizing information from individuals for the project study. Form individuals, data were collected from respondents through semi-structured interview, which is a face-to-face interview.

The facilitator visited and collected data through in-personal interview from different individuals whom some of them interviewed in the CBO office and others at their premises or place of work. The survey decided to use this method since; it permitted face-to-face contact with respondents, which provided opportunity to explore topics in depth. This process allowed the interviewer to be flexible in administering interview to individuals in particular circumstances. Also it allowed the interviewer and respondents to explain and clarify questions and other issues that were not clear.

However, in order to get inner individual feelings, questionnaires were distributed to the audience and every one asked was responding a question while he/she has it in hand. After getting response, the survey analyzed them by SPSS method.

#### **1.3.2.1.4 Rationale of using semi-structured interview**

This tool allowed the interviewer to be flexible in administering interview to individuals in particular circumstances. For instance, it allowed the interviewer and respondents to explain and clarify questions and other issues that were not clear.

Also this tool allowed participation of respondents to be high since every member/respondents had equal chance and free to ask or provide answer of any concern to the facilitator. So, respondents participated fully in data collection since, interventions was anonymity during individual data collection and discussions.

### **OBSERVATIONS**

This method complimented semi-structured interview to collect data. The author engaged at the target group and observes physically what was going on without direct doing or participating on the business. This method helped the author to inter into a community and understand the situation/context of the CBO milk business operations.

#### **1.3.2.1.5 Rationale of using observation method**

The author decided to use this method in order;

- To manage to get and provide real information about behavior of individuals and groups of the entire community;
- To provide good opportunities for identifying unanticipated outcome; and
- To see and concretize the set in mind on what exists in natural, unstructured and flexible setting.

#### **Characteristics of survey administrators (education and experience)**

To accomplish the project three research assistants were recruited by a survey from the area of the study. However, criteria and conditions adhered for recruiting survey assistants were;

- Among the qualifying factor for a research assistant to be recruited was based on how one knows the study area and culture of the people so as to be able to control cheating responses.
- To be familiar with local language so as to be able to tape discussions, which aimed to spoil the validity and accuracy of information.
- Those who were fluent in speaking and writing Kiswahili so as to be trainable on methodologies of data collection through interview and questionnaire.
- A committed and motivated person who was ready to work under minimum supervision. To ensure that motivation was in place the researcher gave them allowance of Tshs 20,000 for each one for the entire exercise.
- Preferences were given to those who had participated to work as research assistants before, at other type(s) of rural communities research or any other study in Tanzania.

However before starting the survey, the researcher (the coordinator) conducted a three days training to research assistants. Training of research assistants was for the purpose of making them to be aware, know and be conversant with what kind of data were to be collected, how to collect them and when to accomplish the survey. Also training focused on how to administer the questionnaire objectively without intervening biases that can reduce reliability and validity of gathered responses. Another important aspect to be considered is clarity and common understanding of questions in terms of meaning and type of information expected from a single response.

This was important because reliability and validity of data depends on the knowledge and ability of the researcher and research assistants to collect valid data and its correct use and

effective administration. To make sound generalized conclusions of results is a function of validity and reliability of data collected that have to answer exactly the survey questions, which usually are a reflection of the survey objectives. Meeting of those conditions makes easy process of data presentation, analysis and interpretation and therefore arriving to a sound generalized conclusion.

#### **1.3.2.1.6                      Validity of the survey**

Before intervention, the survey took necessary precautions in order to get valid results. Specifically attention was paid at the following areas:

- Use of simple, straight, and a standard / clear language for data collection from respondents. Also the researcher was tuned to be familiar with different new and old words/terminologies that were being used by the entire community.
- The researcher was sensitive, keen and full time he was checking and controlling his personal biases. He was avoiding being too personal and ensuring that mixed thoughts and ideas were accommodated during interview. In compilation a single thought in each question was considered and be used by the survey.
- To minimize ambiguities in this survey, all key terminologies applied/used were defined, as it is quite clear that a single word might have many meanings, which brings confusion. However own definitions of concepts were discarded as others can challenge the validity of data collected and made conclusions.

The research guided by research questions, which were tied up by well survey objectives and relevant Topic. Eventually this research entails and suffices qualities of this argument by the sense that, it has guided questions, well constructed questions, research topic and objectives, which lead the boat to entire destination.

### **Face Validity**

Face validity of a survey instrument refers to a causal review of how good an item or group of items appears. Usually people who had no technical know how of the subject matter assessed it. In this survey face validity have been established by composing a question and seek response from three groups of people each at different meetings. The procedure used involved; asking two different questions of the same meaning at two different days. The first day the question was “is low knowledge and skills of milk marketing affects milk handling and quality control”? The answer was yes to all groups. The survey recorded it. Then after 5 days these groups re-asked the same question, which was, rephrased that; “is available skills and knowledge of milk handling and quality control sufficed to provide quality product at the market”? The answer was no, meaning that they were automatically supporting the first responses to the survey unknowingly. So in this way the survey assured existence of validity.

### **External validity of the survey**

The external population that used in a survey involved the sample space of a population, which is living within the area of CBO operation and that in one way or another was aware and be affected with milk business operations. Considering the importance of external information, the survey selected carefully the above-mentioned sample so that its' results represented the results of the community and the group of the people which is surveyed. To cater out the purpose, probability and non-probability sampling were used in sample selection.

Still the validity of external results was assured by the survey through careful administering of data collection. In semi structured interview the interviewer was time to time posing

questions to interviewee for crosschecking the previous response. Likewise, questionnaires was structured in such a way that, the flow of questions was logical and providing a room of crosschecking validity of information, which were provided by respondents in the previous questions. In this respect, results of external respondents became able to reflect and apply to the community and the group of the people, which was surveyed.

### **Internal validity of the survey**

The members of the CBO were responsible for internal validity of the survey as they were responsible for providing information, which were reliable and not biased. So, the task of the survey was to make sure that it collects valid data, which were free from nonrandom error.

To accomplish this task successfully, the survey identified the members of the CBO, leaders and staff. Then select a sample from these three clusters through random sampling. The size of population determined the sample space and the sample size for the CBO members was bigger than the rest of other clusters due to its size.

However, semi structured interview and direct observations were tools that applied in data collection. Like external validity, internal validity survey was assured through careful administering of data collection. In a survey for example, always the interviewer was posing questions to respondents that reflect the previous questions and answers. This technique enabled to crosscheck the validity of responses, which were provided in previous questions. Likewise, questions were structured in such a way that, its flow was logical and provide a room of crosschecking validity of information, which were provided by respondents in the previous questions. Direct observations of action, movements and the

way of behaving for respondents were complimenting the survey to determine the internal validity to be free from nonrandom error/biases.

### **Who were eligible to participate in a survey?**

To maintain validity the survey involved the members of the CBO and outside people who in one way or another get direct or indirect service from the CBO were the respondents who participated in a survey. The respondents of the CBO include; members, Leaders, and staff while people from outside of the CBO involved, milk customers, milk vendors, milk producers, influential persons within the CBO operating area.

The CBO members and outsiders were eligible to provide data for milk marketing operations, specifically on milk handling, quality control and customer satisfactions.

#### **1.3.2.1.7 Reliability of a Survey**

Reliability is a statistical measure of the reproducibility or stability of the data gathered by the survey instrument. In a Survey research errors comprise two components; random error and measurement error. Random error is the unpredictable error that occurs in all research and measurement error refers to how well or poorly a particular instrument performs in a given population. ( Adjibodou & Mutasa, not manuscript 2006).

In order to ensure reliability of the questionnaire/ tools used in the information collection, the survey tested reliability by asking questions 12 CBO members individually. After a week the same questions were asked to the same people (group of 12 members of the CBO) individually, good enough the survey managed to experience a similar responses, then we concluded that there is reliability of data as “Reliability refers to the precision, and accuracy of information offered by the questionnaire or interview” (Arlene Fink and Jacqueline Kosecoff 1985 page 21).



However, nominal rating scale was used in the context of this survey to test existing relationship between inadequate knowledge of milk handling and quality control to the CBO members and educational level of the community. Example one of the questions asked to CBO members was; what is your highest education level achieved?

**( Circle one)**

Standard seven.....	1
Form four .....	2
Form six .....	3
Above form .....	4
Non literate.....	5

The results from the above test disclosed that, 25 CBO members out of 30 (a sample space) equivalent to 83.3% rated number 1. One member rated two with a comment that, he ended form Two and 4 members equal to 1.3% rated five. However according to environment and location of the project (Bunda district) the education level of the CBO members is not too bad. But when we came out to observe education with milk marketing skill at the CBO level, to the same respondents, the survey revealed that:

**( Circle one)**

Standard seven with milk marketing skills/knowledge.....	1
Form four with milk marketing skills/knowledge .....	2
Form six with milk marketing skills/knowledge.....	3
Above form six level with milk marketing skills/knowledge.....	4
Non literate.....	5
No knowledge and skills of milk marketing and entrepreneurship.....	6

The new results from the above test revealed that, 2 CBO members out of 30 (a sample space) equivalent to 6.6% rated number 1 with a comment that they have just little knowledge on milk marketing. The rest of the members (28 members) equals to 93.3% circled 6. This alone justifies that, the CBO could not operate the business in effective in t competitive business, which is dominated by market economy (free market economy) where entrepreneurship ability accounts much higher in combining the available factors of production in a profitable way. Since majority of the CBO members do not have knowledge and skills on milk marketing and entrepreneurship, then it is difficult for them to accommodate and handle effectively marketing functions, such as milk handling and quality control and others.

By using an Ordinal Scale, the survey requested respondents to write agree, disagree or strongly disagree among of one area of the alternative questions given to them. These questions were asked to milk customers.

- Inadequate knowledge on milk handling and quality control cause perishability of milk product to be a severe problem to the community..... 1
- Mixing milk with water is a common phenomenon to milk vendors.....2
- Improper cleaning of milk tools and equipments leads at fast perishability of milk product. ....3
- Using of poor tools and equipments for milk handling and transportation causes high perishability of milk stuff.....4
- Lack of entrepreneurship abilities among CBO members contribute to the problem of improper and poor milk handling and quality control .....5

35 customers who were the targeted sample of respondents *wrote agree* at all of the above asked questions. So the result shows clear that there is a problem.

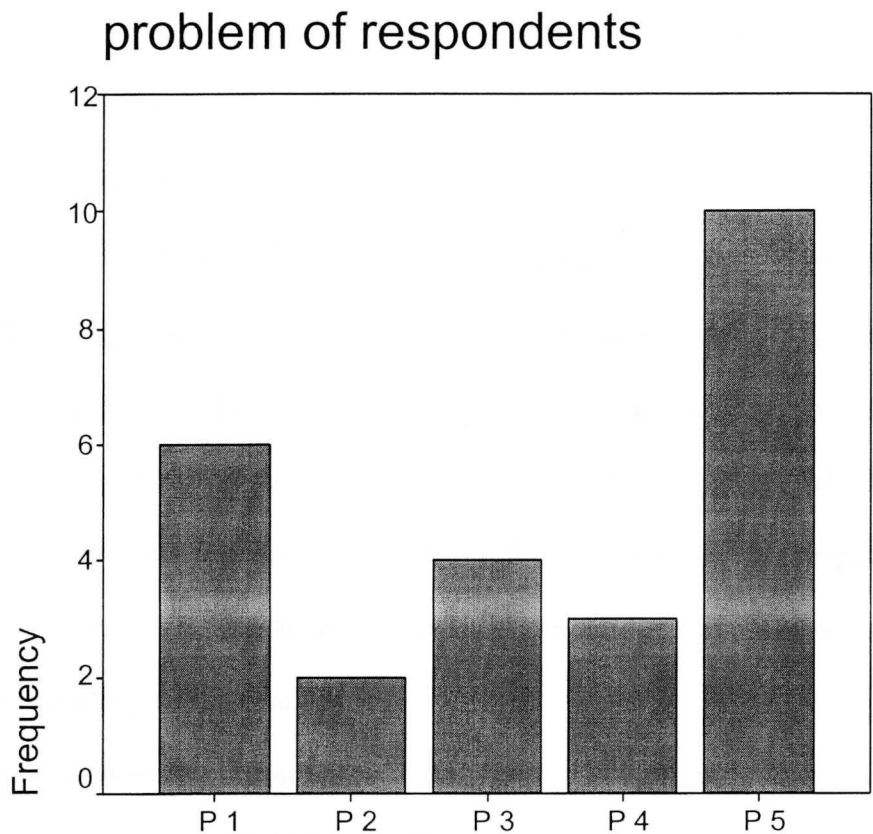
#### **1.3.2.1.8 Analyses and Results**

Statistical tool - SPSS was used to make data analyses in a survey method. The analyses of data, which was collected from 25 respondents through survey method and analysed by SPSS indicated that;

- 6 members (24%) raised their voice on inadequate capital for business operations. So this was a priority need for them.
- 2 respondents (8%) raised their voice on unfair competition provided by street unlicensed milk traders. This was a priority need to these members as well.
- 4 respondents (16%) raised their voice on Seasonal milk business operations. Like others, this was a priority need to these members.
- 3 respondents (12%) raised their voice on Lack of modern tools and equipments for business operations. Following their priority, this became their priority need.
- 10 respondents (40%) raised their voice on inadequate knowledge and skills on milk marketing and business operations. Like others, this group favoured this one to be their priority needs.

The overleaf bar chart present the findings of the above results and it is supported by statistical data with frequency distribution at appendix 5.

**Figure 1: Problem of respondents**



problem of respondents

Where:

P1 = Inadequate capital for business operations.

P2 = Unfair competition provided by street unlicensed milk traders.

P3 = Seasonal milk business operations.

P4 = Lack of modern tools and equipments for business operations.

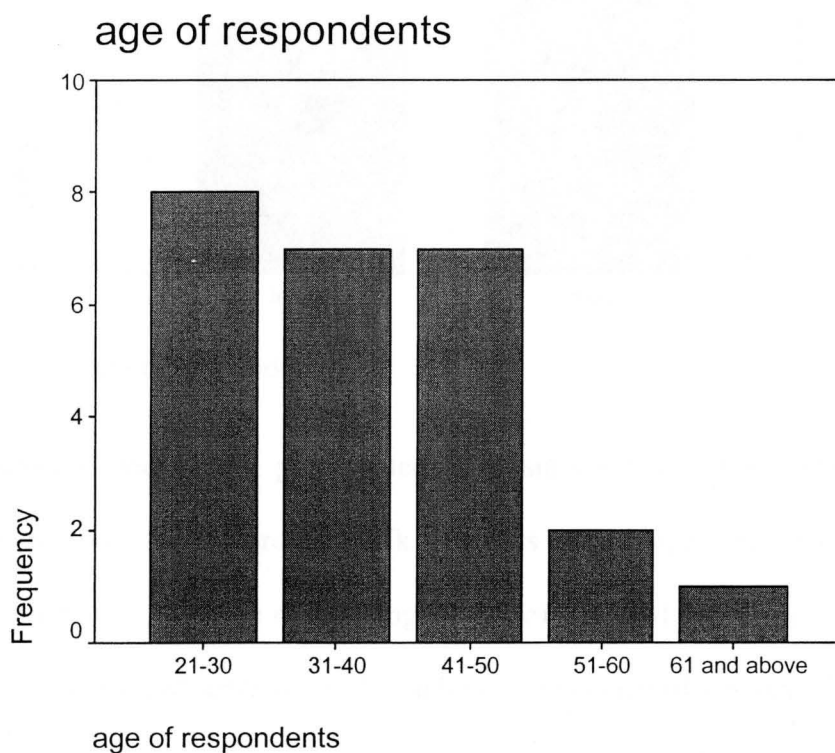
P5 = Inadequate knowledge and skills on milk marketing and entrepreneurship.

According to the above results, inadequate knowledge and skills on milk marketing and entrepreneurship become a most priority area of the community as it accounted 40% of the responses. In this case, the whole process needs to pay attention on what the community

decided upon, where inadequate knowledge and skills on milk marketing and entrepreneurship has to be addressed and treated first among of others. So priority need of the community concluded to be capacity building on effective way of milk business operations with emphasis of milk marketing and entrepreneurship skills.

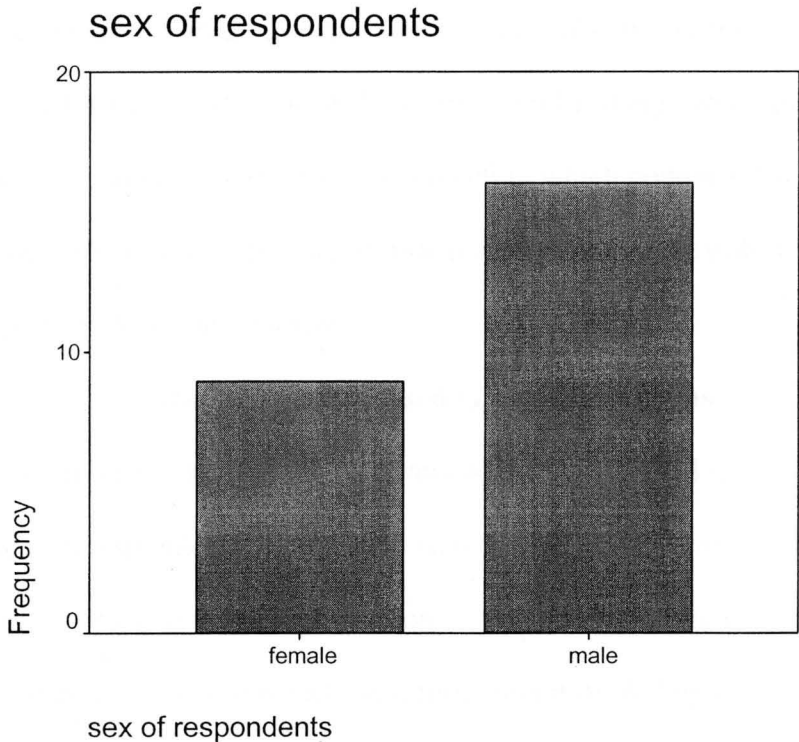
Eventually, statistical analyses involved 22 people with age group of 21 – 50 who comprise 88% of respondents. This age group was involved in a survey since it is the age, which is active for milk marketing. However, 12% with the age of 51 years and above were inevitable to be involved in a survey since, this is the age group, which owns cattle. They are the final decision maker whether to sell milk or not. The bar charts below shows the age group distribution pattern and appendix 5 presents the frequency distribution of the age group participated in a survey.

**Figure 2: Age of respondents**



The survey considered gender for the success of the project since, men and women were involved in all stages of data collection and analyses. In this case the process of data analyses involved 16 men (56%) and 11 women who were equals to (44%) because; all of them had stakes and they were affected in one way or another with milk business operations. The bar charts below show men and women respondents where appendix 5 presents the frequency distribution of gender.

**Figure 3: Sex of respondents**



However, more men participated in a survey since, the number of men who were participating to the project milk business was bigger than women. If we take CBO members women were comprising 33.7% of the total members of the CBO who are 154. Also when we observe on milk vendors, the average of women who were sending milk to the CBO were about 41% of the total milk vendors. So these were among of the reasons, which led the number of men to be bigger than that of women.

### **1.3.2.2**

### **FOCUS GROUP DISCUSSIONS METHOD**

The facilitator went further in order to test the validity of the results by using qualitative methods of data analyses where pair wise raking were used to analyse data. The same 5 basic questions in data collection and analyses through statistical approach (SPSS) were re-asked to new respondents who were 30 people.

The group of 30 people was deliberately selected through purposive sampling and it involved; 10 representatives of milk customers (final milk consumers), 8 representatives of milk vendors, 6 leaders of the CBO and 6 milk producers. Active and effectiveness of a person for participating in milk business undertakings were among of the criteria used to select an individual. The two days meeting which conducted with respondents were based on the relevance and the role of milk marketing in poverty alleviation and what is needed to improve milk business operation.

#### **Rationale of Focused Group Discussions**

The main factor that led the facilitator to use this method is its ability to control biases since, all respondents were free to respond and make comparison of issues at the meeting. So it was easy to make triangulation of questioning and to cross check cheatings among the respondents. Due to this fact the information provided by respondents through this method have a highest degree of accuracy. Also it was easy to use this method since, data were collected and analysed on the sport.

#### **1.3.2.2.1 Procedures of data collection and analyses through focus group discussion**

To start with, two meetings and discussions were conducted between the facilitator and respondents. The main issues were based on the most pressing needs according to priorities

of the community, which is a stumbling block to the development and sustainability of milk business operations in the case of study area.

On the first day, discussion was bitter when the proceeding touched on the question of how the business is carried out and required needs for effective milk marketing. Time to time the facilitator was keen to put additional questions for clarifications. This exercise helped to identify and clarify the community needs and soften the coming exercise of the succeeding day. The second day was the day for making pair wise ranking. Through identified needs in the previous day, the respondents were guided to make pair wise ranking according to their priorities. Here there were 5 problems which were used by the participants for making pair wise ranking as follows: Problem one was reflecting inadequate capital for business operations. Problem two was concerning on unfair business competition provided by street unlicensed milk traders. Problem three was concerning on seasonal milk business operations. Problem four was looking at lack of modern tools and equipments for business operations. Problem five was looking at inadequate knowledge and skills for milk marketing and entrepreneurship.

The exercise of pair wise ranking was done successfully since, each member participated freely by arguing and making decision according to his/her wishes. Frequently the exercise was pausing for waiting consensus of the audience on comparative of two issues. Better enough all 5 pairs of question were compared each other successfully and enabled to provide results as referred here below;



**Figure 4: Community needs assessment through pair-wise ranking**

	P1	P2	P3	P4	P5	SCORE	RANK
P1		P1	P1	P1	P5	3	2
P2			P3	P4	P5	0	5
P3				P3	P5	2	3
P4					P5	1	4
P5						4	1

P1 = Inadequate capital for business operations.

P2 = Unfair business competition provided by street unlicensed milk traders.

P3 = Seasonal milk business operations.

P4 = Lack of modern tools and equipments for business operations.

P5 = Inadequate knowledge and skills for milk marketing and entrepreneurships

P5 = Inadequate knowledge and skills for milk marketing and entrepreneurships got high score and hence rank as a first priority of respondents. For that matter the survey took this case as a priority area of the community. This result entailed capacity building on effective way of milk business operations with emphasis of milk marketing and entrepreneurship skills to be a priority need of the community.

## **CHAPTER TWO: PROBLEM IDENTIFICATION**

Serengenti Dairy Co-operative Society is an organization, which deals with milk marketing in Bunda Township. The organization collects milk from Livestock keepers (members and non-member) of the organization. The milk business graph tends to rise to the pick (maximum) during rain season, which occurs in October to May, and fall up to a minimum level in dry season, which appear in July to September. This situation influences the milk business at the cooperative organization. In rain season for example the abundance of milk production makes the cooperative organization to have high business turn over and in dry season the business shrinks due to dropping of milk production. Together with enjoying abundance of milk stuff, in rain season the organization faces a problem of high perishability and spoilage of milk stuff.

### **2.1 PROBLEM STATEMENT**

Ineffective of milk business operation to the CBO is a problem statement, which needs to be analysed critically for future prosperity of the business. Poor milk handling and quality control was said to be among of other factors, which was contributing to ineffective of milk business operation. Other factors, which considered on attributing at that problem include:

- Low knowledge of milk management and milk economics.
- Lack of technology and capacity of milk processing.

So far, the CBO, milk vendors and final milk consumers are the victims of this circumstance. The CBO and milk vendors get loss due to milk spoilage and final consumers are affected by getting milk of low quality in terms nutrition. Also watery milk may cause outbreak of contaminated diseases to the community. Now what need to be changed is to improve milk handling and quality control.

However the project will never cover the whole mentioned regions, instead it will concentrate on the question of lack of the knowledge and skills of milk marketing and entrepreneurship to CBO members and other milk dealers as a causative of poor milk handling and quality control.

In Brief, the cooperative organization collects / purchase milk from members and other milk dealers and sell it direct to the customers without further transformation. What they do is just fermentation and boiling them for sell. There is no processing or further transformation to get new products at all.

## **2.2 PROBLEM IDENTIFICATION PROCESS**

The process of problem identification involved various stages. In the first stage, the study made situational analysis. Situational analysis was vital to be conducted since; through this process the survey got general idea of the problem and concisely situation that is to be addressed. Also qualify the problem and state who and what is affected. Stakeholders (participation) analysis was the second stage. This was vital to be done since, the project is not implemented in space (vacuum), it is implemented within environment of living. In this way, people and other living things are affected positively or negatively for implementing the entire project. For that matter, groups, institutions, interested group, vulnerable groups and individuals who are victims or beneficiaries to the project were identified.

Thereafter the survey conducted problem analysis. We got a priority need and the foremost problem to be addressed through SPSS statistical tool of analyses and pair-wise ranking.

## 2.3 TARGET COMMUNITY AND STAKEHOLDERS ANALYSIS

The target community involves final milk consumers and milk dealers who are the CBO, milk vendors and milk producers.

**Table 3 Stakeholders that may have stakes in the project**

Stake holders	Roles and participation	Evaluation	Impact of Participation	Rate	Plan
Local Government	Advice, Promote, Capacity building provision of license and make inspection of cooperative organization business operations	High	Positive	+	Want to maintain them
Central Government	Creation of good environment for business operations through provision of tax capacity building, peace and tranquility	High	Positive	+	Want to maintain them
Community (Customers)	Community of Bunda Township are the customers for milk of Serengeti – dairy co-operative society business	High	Positive	+	Want to maintain them
Members of a co-operative	They are the owner of co-operative	High	Positive	+	Want to maintain

<b>Stake holders</b>	<b>Roles and participation</b>	<b>Evaluation</b>	<b>Impact of Participation</b>	<b>Rate</b>	<b>Plan</b>
organization	organization				them
The leaders of the co-operative organization	Administration and management of co-operative affairs/business operation	Medium	A bit positive	+	Need changes for some members
Staff of co-operative society	To manage and maintain daily operations of the co-operative	Medium	A bit positive	+	Want to maintain them
Livestock keepers (non-members of the co-operative organization)	Sell milk to the co-operative organization	Medium	A bit positive	+	Want to maintain them
Individual milk traders (sellers)	Seldom sells milk to a cooperative organization specifically during the boom period of milk production	Low	Negative	-	Want to do away with them
Individual milk traders (buyers)	Sell milk to the co-operative organization	Medium	A bit positive	+	Want to maintain but with training
The National Micro finance Bank (NMB)	Keep and deliver finance to the co-operative organization	High	Positive	+	Want to maintain

<b>Stake holders</b>	<b>Roles and participation</b>	<b>Evaluation</b>	<b>Impact of Participation</b>	<b>Rate</b>	<b>Plan</b>
Bunda branch					them
CDO-Bunda ward Bank	Serengeti diary cooperative organization is a shareholder of the ward bank	High	Positive	+	Want to maintain them
Workshops	Make regular maintenance for the motor vehicle of the organization	Low	Negative	-	Want to do away with them; vehicle, disposal is inevitable

## 2.4 POTENTIAL COLLABORATORS OR COMPETITORS

There are two main collaborators for milk business operations. Nyakanga Solidarity Association and Mara Milk Company.

### 2.4.1 Nyakanga Solidarity Association

Nyakanga Solidarity Association is situated in Nyakanga Musoma District about 69 kilometers from Bunda district. The association was established in 1998 and it deals with milk marketing. The association has 32 members and has a board of 12 members with a sub committee of 6 members. Also it has 12 employees. The association purchase milk from the members and milk traders whom get milk from livestock keepers of Musoma Rural district. The association got a loan of Tshs 18,000,000 from Astrol project for stating milk-marketing business. Gained credit had been used for acquisition of simple machines

for milk processing, finishing the building of the association and invested at initial capital for buying milk from livestock keepers. Usually the customers of the association include members and non-members of the association. So far the milk market for the association extended from Musoma Municipal Council, Bunda district to Mwanza City council.

#### **2.4.2 Mara Milk Company**

Mara Milk Company another collaborator. The Mara Milk is a registered private company with a registration number 48476 of 19<sup>th</sup> March 2004. The company is situated in Musoma Municipal Council about 76 kilometers from Bund district. The company deals with milk marketing since its establishment. The company is governed by the board of directors and it has 17 employees. The total value of capital of the company is about Tshs 243,000,000, which acquired through, Loan from NBC Tshs 38 million and Agricultural input supply Tshs 55 million and Tshs 150 million as own equity invested by two partners.

The company gets milk from four routes in four districts of Mara Region as follows;

- The Sirori Simba that collects milk from Serengeti and Musoma Rural Districts.
- The Kongoto route which collects milk from Musoma rural district
- The Buturi route which collects milk from Tarime district
- The Guta route which collects milk from Bunda district.

Musoma municipal Council, Bunda district, and Mwanza City council are the major markets of milk and milk products of the company.

However comparisons of three milk-marketing dealers (Serengeti Dairy Co-operative Society, Nyakanga Solidarity Association and Mara Milk Company) portrayed the following scenario:

**Table 4 Similarities of three milk marketing dealers to the project**

<b>Serengeti Dairy Co-operative society</b>	<b>Nyakanga Solidarity Association</b>	<b>Mara Milk Company</b>
Buys milk from Livestock Keepers (non members)	Buys milk from Livestock Keepers	Buys milk from Livestock Keepers
Sell milk in Bunda district	Sell milk in Bunda district	Sell milk in Bunda district
Sell fresh pasteurized milk	Sell fresh pasteurized milk	Sell fresh pasteurized milk

**Table 5 Differences of three milk marketing dealers to the project**

<b>Serengeti Dairy Co-operative Society</b>	<b>Nyakanga Solidarity Association</b>	<b>Mara Milk Company</b>
Is a registered Co-operative Society	Is a registered Association	Is a registered Company
Use fire woods in milk pasteurization	Use fire woods in milk pasteurization	Use electrified boilers
Produce two products – Fresh pasteurized and coagulated milk	Produce two products – Fresh pasteurized and fermented milk	Produce four products – Fresh pasteurized milk, Fermented milk, Youghurt (vanilla and straw bell), and ghee.
No packaging	Make packaging for the products	Make packaging for the products
Do not have cooling facilities.	Use simple cooling system	Use a bit advanced cooling system
Use un – skilled labour	Posses semi skilled labour	Posses skilled labour
Manual Operations	Semi – Mechanized	Mechanized
Use local market – Bunda	Captured distant market	Captured distant market



Town Ship	(Bunda and Mwanza), but it has no selling depots.	(Bunda and Mwanza) with a number of selling depots
The cooperative organization members contributed capital base. No outside loan support	Capital base was supported by loan.	Capital base was supported by loan.

Disparities within the above-mentioned organization came out due to the following reasons:

- The CBO runs milk business operations through owned capital since it has limited capacity in terms knowledge and skills for making contact with external funding sources.
- The CBO depends on local market since her products are low in nature and won't be sustain at market more than 36 hours before spoiling. This scenario is in place because the CBO has inadequate capital and technology for establishing milk-processing industry.
- Likewise the CBO sells her products in low form since it has no cooling facilities, processing industry and packing knowledge.
- Apart from those reasons the survey came out to realize that, the CBO as a business organization has limited knowledge and skills on milk marketing and entrepreneurship. That why prosperity of her milk business is moving slow.
- Also the CBO was using unskilled labour for past 4 decade since the entire organization had no strategic plan for developing her staff and milk business operations.

## **2.5 PROJECT BROAD OBJECTIVE**

The main objective of this survey project is to improve milk handling and quality control in such a way that the CBO milk business becomes sustainable. As well it is to provide knowledge and skills of milk handling and quality control to milk sellers, producers and consumers in Bunda Township and six villages, which supply milk in Bunda Township.

## **2.6 SPECIFIC OBJECTIVES OF THE PROJECT**

Specific project objectives inter alia, include:

- To build capacity of the target group (the members, milk producers and milk vendors) on best practice of milk handling and quality control.
- To build capacity of the CBO on the milk marketing and entrepreneurship skills.
- To build capacity of the CBO on preparation and execution of strategic plan, business operation plan, action plan and monitoring and evaluation.

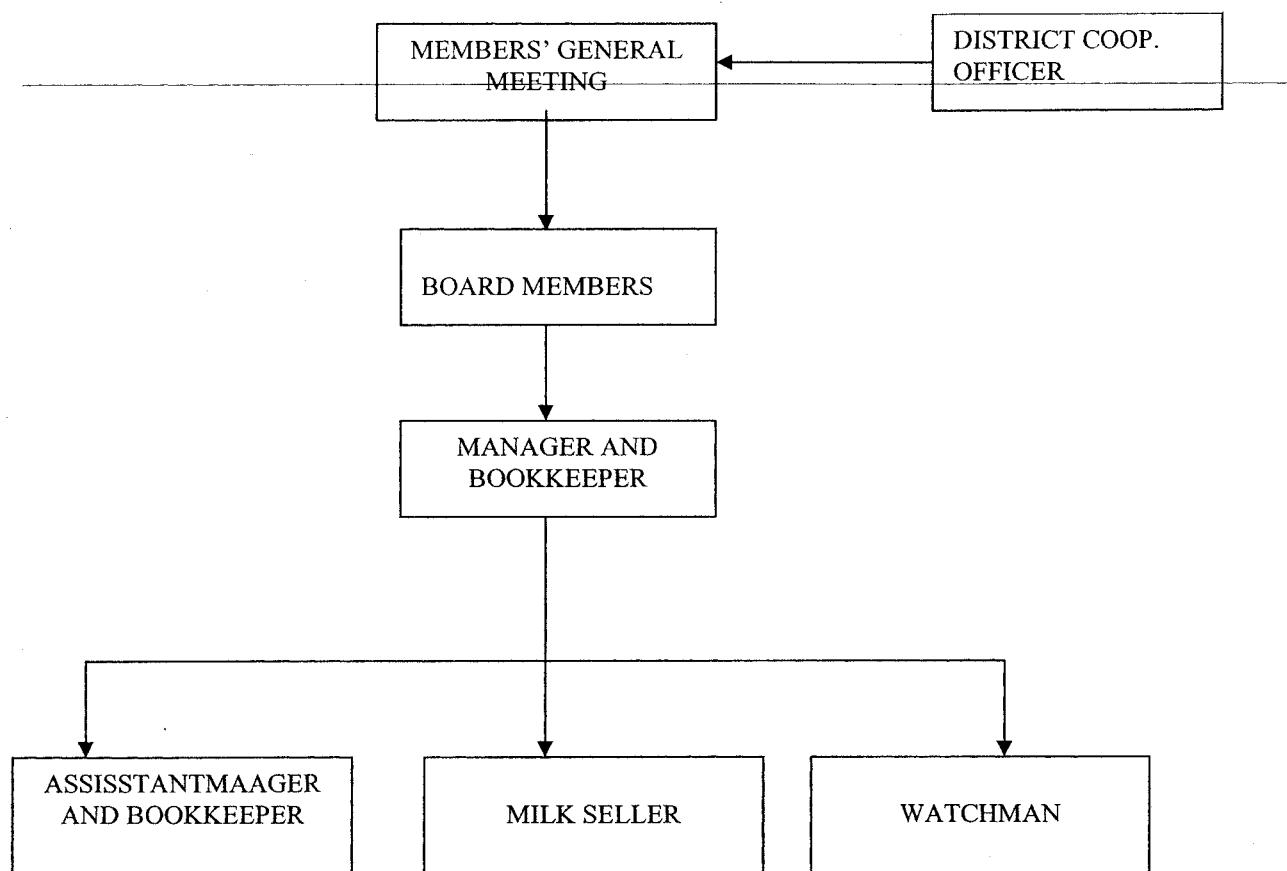
## **2.7 THE ROLE OF THE AUTHOR AT THE PROJECT**

The student who is the author is a District Co-operative Officer in Bunda District Council. He is a head of Co-operative unit, which is under Agriculture, Livestock and Co-operative Department in Bunda District Council. He is responsible for providing technical advice to the district council and at cooperative movements on cooperative and cooperative development knowledge. Refer appendix 6 for the location (position) of the author to the organization chart of Bunda district Council, the organization that he work upon.

On the other hand, the role and specific position of the author to the project is defined through the relationship of work of the author to the project. The author is an advisor of the

project and facilitates awareness creation, sensitization and training on proper methods and skills of running the project. Below is a pictorial diagram, which shows the position of the author to the project.

**Figure 5: The position of the District Co-operative Officer (the author) at the CBO**



Source: Bunda District Co-operative Office, 2006.

The author in collaboration with other players (actors) – the District Council, Central Government, NGOs, CSOs, and Donor Agencies will amplify and activate the effort of the Cooperative organization by putting in place improved milk marketing skills to the members, leaders and management staff of the cooperative society. Enhancing milk marketing for small producers is vital for the poor since, they use this opportunity to sell milk, which had been destroyed due to the lack of markets (buyers). ILRI (2003) insisted

support of informal milk marketing sector, specifically small dairy producers by putting forward that; “By supporting ‘informal’ dairy producers and sellers with policies better suited to their circumstances, develop advantage of the historic opportunity livestock now offer to lift millions out of poverty” ILRI (2003).

### **The role of the Co-operative Officer at the CBO**

The other is a district cooperative officer who is working in Bunda district. In this regard, the author is responsible to facilitate the following roles of to the CBO:

- Awareness creation to the CBO and community on importance and use cooperatives for community economic development;
- Sensitization and mobilization of the CBO and community on establishing and running effective CBOs for community economic development;
- Providing training on management and business operations to the CBO;
- Provide training on financial management to the CBO; and
- Provide advice and auditing to the CBO.

However the cornerstone of the long term expected achievements of the project is anticipated to be at alongside of effectiveness and efficient of the CBO on running the project. Progressive achievements will be observed in regard with:

- **Effective Milk Business Operation** – In the peak season, milk is abundant in such a way that, the co-operative organization fails to absorb available quantity of the product at the market. This problem anticipates to be mitigated when the CBO gets modern storage facilities and milk storage movable van. These items will be acquired through the cooperative organization itself and outside support. The cooperative organization will buy storage facilities including deep freezes,

installation of electricity at their building for net working cooling system. The outsides are expected to support on acquisition and installation of appropriate processing small-scale industry and milk cooling tank and acquisition of milk carriage movable van.

- **Increased income to the members** - The Cooperative Organization will be engaged in milk processing. The whole process of milk transformation, packaging, labelling, and storage tantamount to adding value of the product. Products with more added values get higher price, which leads to get higher earning and increased income as well. Still, milk processing leads to get new products (by products) such as yoghurt, ghee, cheese, batter and others. These products make the organization to enjoy variety of sells (income), which were not there before.
- **Availability of the product at the market throughout the year.** The new commodities have high capacity for staying at the market for a long span comparing to the former product. This makes the cooperative organization to be able to sell it and capture a distant market through out the year.
- **Using better practice for milk business operations** – using filter for milk selling instead of fetching milk direct from the jelly canes will enable them to be more hygienic, and hence get assurance of maintaining, sustaining and increasing more customers in hand.

- Establishing new marketing centres for milk. This will enable the CBO to capture more customers.

So far the impact, which is expected to be measured/achieved in a long run, is the level of income poverty to the members of the Serengeti Dairy Co-operative Society which is the host organization -and livestock keepers at the area of operation.

## **CHAPTER THREE: LITERATURE REVIEW**

This topic discuss theoretical, empirical and policy review literature. Theoretical literature refers to citations of other studies from books, professional journals, reports, etc which had been made in relation to the research topic. Empirical literature describes how similar projects (in local, national or international) are doing and how others have approached to embark on the similar projects. Narrative information, which provides empirical literature, were found and cited in books, articles, web sites, reports etc. Policy literature refers regional and national policies designed to provide a framework to the entire project. This is the area, which study and review how the current policies provide clear guidelines or promote community economic development initiatives in the area of project intervention.

### **3.1 THEORETICAL LITERATURE**

Marketing is the combination of activities by which agricultural products and raw materials are made ready for a capable of consumption and reach the final consumer in a suitable form at the time and in the place needed. In this regard the concept of marketing include assembling, transport, sorting, cleaning, grading, storage, packing, initial processing, looking for suppliers, looking outlets, financing, holding of produce between the time that the producer is paid and when it is bought by the consumer, taking the risk of holding the produce until an outlet is found, adopting it to consumers, tests, informing customers on availability of the product, presenting the right quantity and quality to the customer and other operations involving in bringing goods from the producer to the final consumer (FAO Publication ,1982 marketing of fruits and vegetables).

Dairy marketing in the traditional livestock production sub sector often involves small-scale producers and some local traders (usually pedlars). However, dairy marketing in the

modern sub sector usually involves the output of several producers, small-scale, large-scale, and marketing enterprises, ranging from small-scale individual traders or cooperative organizations to large-scale private and public organizations. A recent study by MoAC/SUA/ILRI (1998) showed that informal (small scale) milk marketing dominates the milk marketing chain whereby up to 60% of marketed milk passes directly from producers to consumers. Together with dominating significance marketing chain, small-scale milk producers and vendors experience difficulties in marketing their products. Uganda experience as well amplifies this issue after observing that; Since the 1960s one of the most critical problems facing dairy farmers in Uganda has been recognized as that of marketing their milk. This problem has been recognized in the overall context of the importance of marketing considerations not only in stimulating increased milk production but also in raising dairy farm incomes and living standards and improving the nutritional well being of the population in rural as well as urban areas, A.A. Okwenye (1985). However in Tanzania by the mid-1980s, it was realized that to transform the dairy sector, smallholder production had to be encouraged and promoted not only as a means of achieving national self-sufficiency in milk and milk products but also as a means of rural poverty alleviation” (MALD 1983).

Many livestock specialists believe that management is a major constraint to dairy development under both traditional and modern production and marketing systems in sub-Saharan Africa. Production in the traditional sub sector is based on extensive grazing systems, which generally exist under a communal land tenure system. The communal land tenure system has been favourable to transhumant pastoral livestock production systems in the past, but such systems are not conducive to modern dairy production in which



improvement in milking herd productivity is a major consideration. Improvements in milking herd productivity must entail investments in land improvements in order to raise fodder or feed production. Many traditional livestock production systems are seriously handicapped by feed shortage, yet communal grazing (under communal land tenure systems) only tends to worsen the feed supply problem. That is why milk production trend continues to be highly influenced by seasonal variation, and level of management since traditional sub-sector entirely depend on natural pasture as feeds and management level is substandard Rahma M. Mshangama and Suleiman O. Ali (1994) says.

However, Stephen G. Mbogoh (1984) says that, improvements of milk production system must call for complementary improvements in the marketing system in order to ensure that there are sufficient outlets for the producers' milk (and other milk products). Official producer prices (subject to government control) must also be fixed at levels that ensure remunerative returns to producers.

Stephen G. Mbogoh (1984) further argues that, relative efficiency of dairy marketing systems can be examined and evaluated in terms of several criteria, which include:

- (i) Reliability and stability of the services offered to consumers;
- (ii) Level of marketing costs;
- (iii) Convenience and responsiveness to consumer demand;
- (iv) Contribution to the improvement of the income of producers; and
- (v) Contribution to the achievement of certain goals, which may be prescribed

for the marketing system over a specified time period.

The ability of marketing systems to provide both an attractive producer price and a reasonably low consumer price simultaneously may be said to be an important criterion in the evaluation of the relative efficiency of marketing systems. So far according to E.N. Tambi (1989), the problem of fresh milk production and consumption in most developing countries remains acute. Low levels of production, the low purchasing power of most populations, low levels of education, differences in tastes and preferences for particular foods and in social and cultural values all combine to limit of milk marketing and consumption.

### **The Customers**

The range of customers in the local market is varied. There are individual customers in the rural areas. This category includes those who are not themselves producing milk as well as those who are in milk deficit areas. Secondly, there are individual customers in the rural trading centers and towns. These comprise mainly businessmen and wage earners who have regular income and, therefore, tend to have a higher milk consumption level. One can also group together individual customers in larger urban centers located in their areas, as they are basically similar in characteristics. In informal sector usually payments for milk are generally made on the basis of cash on delivery. However, seasonal variation in milk supply influence customers' consumption. Supply of milk is generally high during the rainy season when dairy feeds are adequate compared with the dry season when feeds are scarce. Demand for milk, especially sour milk, varies between the cool and hot seasons (Kurwijila et al. 1995). Milk demand and consumption is high in rain season and tend to fall during the time of milk shortage in dry season.

## **The Role of Milk Vendors**

Due to the unorganized milk collection system in the rural areas, Milk vendors play a very significant role, supplying in some cases (e.g. Shinyanga and Mwanza) nearly all the milk that is brought in towns come from outside the town boundaries (Sumberg 1996). Milk vendors take initiatives of collecting milk from production areas to the market centers as part of employment and means of earning life. In Zanzibar Rahma M. Mshangama and Suleiman O. Ali (1994) observed that, in the rural area milk vendors perform the door-to-door milk collection from the milk producers and deliver the milk to consumers. This cadre plays an important role for assisting the traditional (small scale) producers in marketing of fresh milk as well as accommodating special needs satisfaction (fresh milk) of the community.

However, according to Rahma M. Mshangama and Suleiman O. Ali (1994) milk vendors face several constraints in milk marketing, such as:

- Inadequate and inefficient transport and equipment. Due to the fact that most of the farmers are scattered and far from the urban centres where milk consumers are, the vendors have to travel long distances everyday to collect and deliver milk using bicycles on bad feeder roads.
- Frequent bicycle breakdowns, which make them, spend more money on spare.
- Seasonal availability of milk: During the rainy seasons there is plenty of milk to collect, but most of the roads are impassable and during the dry seasons there is shortage of milk for collection due to the non availability of feeds for cattle.

- Frequent milk spoilage: Due to humid weather conditions, the poor design of the milk tanks used to collect milk and perishability of the product cause frequent spoilage of milk before it reaches the consumers. As such great losses are experienced.

### **Bottlenecks in Disposal of Fresh Milk**

According to Rahma M. Mshangama and Suleiman O. Ali (1994) Fresh milk disposal in informal system is constrained by the following factors:

- a) Absence of milk collection/cooling system to facilitate collection from scattered milk producers in the rural areas to the urban consumers;
- b) The bad condition of the rural feeder roads, which limited accessibility of milk vendors to collect milk;
- c) Long distances from producers to consumers: Because of the perishability nature of the product the long distances and time taken by the milk vendor to collect and distribute milk to consumers results into high incidence of milk spoilage; and
- d) Poor handling and hygiene control of milk and milk products becomes a set back of milk disposal to formal and informal sector.

Experience from various studies reveals that traditional knowledge plays a major role in smallholder dairy industry. Indigenous knowledge is not enough dairy farmers in rural areas must have the technical knowledge and the productive resources and services to enable them to increase their incomes and improve their standard of living. There must

therefore be an equitable distribution of productive resources, successive collectivization of all economic activities to the advantage of the dairy sector, linkage of the sector with other rural development programmes (such as rural health and nutrition programmes), the provision of social services in rural areas, and the provision of a more favourable policy framework in terms of exchange rate and positive terms of trade for dairy products. (Tambi; 1989)

### **Creation of employment**

Even as its survival continues to be threatened, the informal dairy sector in Kenya remains one of the most dynamic sectors in the stagnation economy, creating more jobs than the formal dairy sector (Omondi, 2003). By supporting informal dairy producers and sellers with policies better suited to their circumstances, developing countries are taking advantage of the historical opportunity livestock now offer to lift millions out of poverty. With demand for foods of animal origin doubling over the next 20 years in developing countries, the dairy cow is one of the smartest investments a farmer can make. Small-scale African farmers are already doing a roaring trade in dairy products. Particularly in East African's three million dairy households, dairying acts as a cash crop, generating more regular household income and job for the unskilled than other enterprises. The dairy cows themselves, being highly valuable animals, serve as 'four-legged saving account' for small scale farmers and pastoralists" (ILRI, 2003a)

### **Designing and implementing a community dairy project**

If correctly conceived and implemented, community dairy project will satisfy the needs and goals of the community it serves. It should aim to increase milk production, produce milk

by-products (butter, cheese and yoghurt), increase rural employment and enhance rural economic growth. There may sometimes be significant conflicts between these goals and the project may face serious constraints in achieving even one of them. For example, severe difficulties may be encountered by small farmers, operating without appropriate inputs and techniques, in trying to produce sufficient milk for the community. As regards the extent to which a rural dairy project can produce enough milk and dairy products to meet the community's needs, it is important to ascertain the demand and relate it to total output of milk; determine the quantity and type of resources available for dairy production; determine farmers' ability, using available resources efficiently, to produce milk and milk products; and examine the potential of existing pastures and health facilities to support increased levels of milk production (Tambi 1989)

Tambi (1989) insists that; A community dairy project should focus to a certain extent on women as its prime target, in view of their general involvement and participation in dairying in most developing societies. In many rural communities, women play a principal role in all dairy-related activities - from milking to directing the sale and consumption of milk and milk products (Dupire, 1963). However, their economic contribution to society has generally been overlooked (Kerven, 1987; Oxby, 1983). It is thus important to determine the activities women undertake in all aspects of dairying (cattle feeding, milking, pasteurization, processing, distribution and marketing, conservation, consumption, etc.); determine the contributions they could make to planning a community dairy project; and assess women's special knowledge of the nutrition, health and breeding of dairy animals and their skills in processing and marketing dairy products

## 3.2 EMPIRICAL LITERATURE

### 3.2.1 The case of Serengeti Dairy Co-operative Society Ltd (SDCS), Bunda district

By R.L. Kurwijila, Dairy Technology Laboratory,

Department of Animal Science and Production, Sokoine University of Agriculture,

Morogoro, Tanzania.

The Serengeti Dairy Co-operative Society has not directed efforts towards modernizing milk production, concerning themselves instead with collecting milk from its members and non members alike. Thus, the milk production potential remains little developed to date.

#### **Milk production**

On the basis of the cattle population, the estimated milk production in 1984, 1992 and projections for the year 2000 are shown by the table herebelow.

**Table 6 Annual milk production projections in Bunda District**

Division	Milk Production		
	1984	1992	2000
Serengeti	2,775,200	1,867,500	2,315,700
Kenkombyo	401,640	747,000	1,120,500
Nansimo	317,269	560,520	747,000
Total	3,494,109	3,174,750	4,183,200

The estimated amount of milk produced in the District was about 3.2 million litres in 1992 or a per capita supply of 14 litres per annum for the district.

#### **SDCS Milk Marketing and Processing Activities**

Since its formation SDCS has bought milk for bulking and sale without any further processing. The only form of processing carried out is production of naturally fermented

milk, which is sold at the same price as the raw milk. The society carries out its activities in a rented building and has managed to buy a 7 ton Isuzu lorry on credit and repaid the credit on schedule. Table 3 shows the society's milk collection record during 1989/1990 for which data is available. The milk collection figures at Bunda also show a strong seasonal variation indicating feed availability as the single most important factor limiting milk production from the traditional zebu cattle.

### **Problems of SDCS**

Although the society has established an organised, self sustaining milk collection and marketing systems at Bunda, the society is facing strong competition from milk vendors, who are operating at Bunda in disregard of the societies by-laws, which prohibited such practice. Worse still most of the milk vendors allegedly, diluted milk with water and sold it to unsuspecting consumers. Although the society has lactometers to check for adulteration for milk brought by various milk supplies, the District Health Department lacked regular control of quality of milk sold by milk vendors in Bunda town.

The activities of the Serengeti Dairy Cooperative Society can be enhanced to serve more farmers by enabling it to:

- a) Widen its milk collection radius around Bunda town. Currently farmers bring milk on foot and by bicycles. Also some hawkers have been contracted to deliver milk to the society.
- b) Acquire milk cooling facilities in order to accumulate enough quantities for delivery to TDL/s Musoma dairy plant (if this is revived) or



c) Acquire milk cooling, and processing equipment for cream separation, ghee preparation, fermented milk manufacture and possibly milk pasteurization in bulk quantities.

However before 2000 the CBO was getting up to 132,000 litres of milk per annum (Table 9), which is 17% of the estimated marketable milk. The researcher said that, it could be possible for the society to capture at least 20% of the marketable milk if the following measures are adopted (pre-requisites).

(i) All milk vendors, whether supplying milk to the society or not, are subjected to a milk quality control inspection. At prescribed milk testing points placed strategically on all major routes entering Bunda.

(ii) The society sub-contracts individual milk vendors to supply milk by providing them with bicycles and 15 litres milk cans, which eventually become their property if they continuously render such service for a specified minimum period (eg. 4 years).

(iii) The society acquires a versatile 4WD pick-up vehicle for milk deliveries to Musoma milk plant. This will widen its milk collection radius beyond the 20 km limit in which milk vendors are likely to continue to operate.

### **The product mix**

Alternatively the CBO can continue to operate completely independent of any TDL operations, then a small-scale milk processing plant could be set up at Bunda. In view of the fluctuating milk supply the product mix will have to be changing according to availability of milk. The table below shows what could be done throughout the year.

**Table 7            Product mix at SDCS milk collection**

Month	Milk available		Product mix		
			Ghee %	Sour milk %	3.2% BF Fresh milk %
April	1664	-	24	6	70
May	1734	-	24	6	70
June	1920	-	24	6	70
July	991	-	24	6	90
August	256	-	30	0	70
September	128	-	30	0	70
October	128	-	30	0	70
November	372	-	30	0	70
December	1115	-	24	6	70
January	1920	-	24	6	70
February	1588	-	24	6	70
March	867	-	24	6	70

Also, the above product mix shows the quantity of milk to be used in the production of different products.

### **3.2.2 The case of Mwakaleli Dairy Co-operative Society (MDCS)**

By R.L. Kurwijila, Dairy Technology Laboratory,

Department of Animal Science and Production, Sokoine University of Agriculture,  
Morogoro, Tanzania.

The Mwakaleli Dairy Farmers Co-operative Society is situated the Mwakaleli Rift Valley in Rungwe District, 30 km from the district Headquarters, Tukuyu and about 300 km from Mbeya regional town. It lies at an altitude of 1400 - 1700 m.a.s.l with average annual rainfall of 1800 mm. Diurnal temperatures vary from 11.6 to 24.6 °C (Maganga and Matumla, 1992). The Society has about 70 members. Cattle population and milk production potential

Unlike Serengeti Dairy Co-operative, MDCS farmers own mostly purebred and cross bred dairy cattle. The first 22 head of cattle were introduced in 1978/79 through the Uyole Agricultural centre (Maganga and Matumla, 1992). Since then dairy cattle numbers and dairy farmers have increased to over 800 by 1992, thanks to assistance rendered by UAC, the Swiss Government assisted Small Scale Dairy Development Project (SSDDP) and the Danish Volunteer Service (DVS) and Kitulo (DAFCO) dairy farm (Kifaro, Personal communication). Table 11 shows the average amount of milk marketed through MDCS per day between 1987 and 1990.

### **MDCS Milk Marketing and Processing Activities**

Milk production in the Mwakaleli valley has steadily increased over the years with cows averaging about 9.7 litres per day (Kifaro, 1986). This in turn has caused problems in the disposal of surplus milk through and outside the society's marketing activities. The main activity of the society has been:

- a) Collection and marketing of milk from its members
- b) Purchase and selling of animal feeds to members
- c) Offering veterinary services to members

Through these activities the society has managed to construct a small building and purchase transport vehicles (i.e. a 1 ton pickup and a 3 ton light truck) for ferrying the milk and other inputs.

## **Problems of MDCS**

According to Maganga and Matumla (1992), the main problems facing MDCS was:

- a) Dependence on daily transport of milk to consumers in Tukuyu and Kyela (100 km)
- b) Lack of milk preservation facilities including cooling and milk processing facilities.

### **3.2.3 Milk market of small scale artisan cheese factories in selected livestock watersheds of Honduras and Nicaragua**

**Federico Holmann**

**International Center for Tropical Agriculture (CIAT) and International Livestock Research Institute (ILRI). P.O Box 6713, Cali, Colombia.**

The surveys were made of rural artisan cheese factories located in the region of Olancho, Catacamas, and Juticalpa in Honduras and in Esquipulas and Muy-Muy in Nicaragua. The objective was to analyze the milk market of small rural artisan cheese factories in livestock watersheds of Honduras and Nicaragua to determine if:

- There is a market for higher milk production.
- How much additional milk can the market absorb in each season of the year?
- There is a market for milk of higher hygienic quality.

The main buyer of the milk from small and medium scale farmers in Honduras and Nicaragua is the rural artisan cheese industry, which absorbs almost 80% of the milk produced in both countries. Total milk production during the rainy season is about twice

that during the dry season, causing an over-supply and scarcity of milk, respectively. The shortage of fluid milk during the dry season leads to an unsatisfied market. The artisan cheese factories in Honduras and Nicaragua would be willing to buy 76% and 55% more milk during the dry season, but this supply is not available due low milk productivity. In addition, rural artisan cheese factories in Honduras and Nicaragua, that consider the milk they collect is of bad quality, would be willing to pay a higher price if the option to collect milk of better hygienic quality exists. In Honduras this price would be about 9% higher during the dry season and 11% higher during the rainy season. In Nicaragua the cheese factories would be willing to pay a milk price which is 17% higher, but only during the rainy season. As a result, large incentives exist in both countries to increase milk production during the dry season and to improve the hygienic quality of milk in the studied areas.

### **Milk production**

The production of fresh milk in Central America is about 2 billion liters per year. Of this amount, Honduras produces about 26% and Nicaragua 12% (Umaña 1998). These figures indicate an annual per capita consumption of about 110 kg of milk in Honduras (16% imported) and 42 kg in Nicaragua (11% imported).

However milk production drops sharply in dry season compared to the rainy season when there is abundance of green pastures. Milk production during the dry season is about 40% lower compared to the rainy season in both countries (Argel, 1999a; 1999b).

## **Milk marketing**

The fresh milk that reaches the consumer in Honduras and Nicaragua comes from two broad sources:

The industrial circuit, and The artisan circuit. The industrial circuit collects and markets about 25% and 20% of the milk produced in Honduras and Nicaragua, respectively (Umaña 1998). There are 5 industrial milk plants in Honduras and 4 in Nicaragua. This circuit is also known as the “formal sector” because milk is pasteurized and dairy products are usually sold in packed form under reasonably good quality standards. In addition, industrial plants have accounting records and pay taxes.

Industrial plants usually buy milk from farmers who produce good quality milk. The milk price paid to these farmers by industrial plants is highest (about \$0.30/kg in both countries) and it is constant throughout the year. However, this price is obtained by less than 5% of dairy farms because plants require:

Milk to be cooled in order to obtain a product of higher hygienic quality and

Farms to be located along roads with easy access throughout the year (Argel, 1999a; 1999b).

The remaining 75% to 80% of the milk produced in both countries is marketed by the artisan circuit, mainly constituted by small-scale rural cheese factories, which do not pasteurize milk and are located within the various milk watersheds. This circuit is also known as the “informal sector” because these small family-type of enterprises do not pay taxes.

Generally, these rural artisan cheese factories require a health permit to operate, which is given by the Ministry of Health in each country. However, the operating conditions of

most artisan cheese factories are deficient and no formal accounting records are kept. Most have dirt floors and use instruments to make cheese that are made out of wood or cement instead of stainless steel. The use of chlorine solutions to clean and disinfect the equipment is nil (De Franco, et. Al. 1995; Garcia, 1996). Quality control is non-existent.

These artisan cheese factories transform milk into fresh, popular cheeses with a shelf life shorter than 10 days (De Franco, et. Al. 1995). It is estimated that in Honduras there are about 600 artisan cheese factories (Argel, 1999a). As a result, the artisan cheese industry in both countries is the principal buyer of milk produced by small and medium scale producers, which does not fulfill the requirements of industrial milk plants.

The milk price paid to farmers in the informal sector is generally about 20% lower than the price paid by the formal sector because it is collected raw (ie, not cooled) and thus, its quality is lower (i.e. shorter shelf life).

#### The Problem

The price paid to producers by artisan cheese factories depends on the supply and demand for milk, which is seasonal with abundance during the rainy season and scarcity in the dry season. This fluctuation in the milk supply is directly related to the rainfall pattern which, in turn, influences the availability and quality of forage on offer, the main feed source of livestock farms in tropical Latin America.

This situation leads to serious difficulties in allocating the surplus milk produced during the rainy season because both countries lack an efficient industrialization and marketing system to absorb it (e.g. a milk powder plant). Thus, the only alternative for the artisan circuit to market the excess supply of milk during the rainy season is by reducing the milk price to both producers and consumers. Thus, the fluctuation in milk price between

seasons is large, with differences of up to 50% between the price during the dry season and that of the rainy season (De Franco et al, 1995; Cajina, 1994).

This problem is of less importance in dairy farms supplying milk to the industrial circuit because the amount of milk produced during the dry season is not significantly different from that produced during the rainy season. This is because these farms have more intensive production systems as a result of the adoption of improved forages and in many cases have irrigation infrastructure (BID, 1990).

In addition to this seasonal problem, most milk collected by artisan cheese factories during the rainy season is of poor quality with bacterial counts close to 1,000,000/ml. The pasteurization process, if there is any, does not correct this problem for raw milk with bacterial counts higher than 500,000 bacteria/ml. This is due to the fact that the pasteurization process only guarantees the elimination of pathogenic bacteria, remaining alive many others, which affect the quality of cheeses (De Franco et al, 1996).

It is not possible to make cheese of acceptable quality with this type of milk, a situation determined by the sanitary conditions during milking and the transport of milk to the cheese factories. The majority of milk producers in Honduras and Nicaragua do not have milking sheds nor running water. Milking is carried out in open corrals, by hand, with open buckets, and often surrounded by sludge. The milk cans are washed with any type of common detergent and chlorine is not always used to disinfect them (De Franco et al, 1996). On the other hand, milk produced under these conditions during the dry season is of higher quality since there is no humidity in the corrals, the udders of cows are cleaner, and the arrival time to the rural cheese factories is reduced since country roads, for the most part of ballast, are in better condition due to the lack of rains (García, 1996). As a



result, due to the problems of over-supply and poor milk quality during the rainy season, it is more attractive to produce higher milk volumes during the dry season since it benefits the producer, via better price, as well as the artisan cheese factories, via better milk quality.

### **Potential Market and Milk Quality**

The potential growth of the cheese market is large and unsatisfied. The artisan cheese factories interviewed in Honduras could purchase up to 55% more milk during the dry season but this supply is not available. In Nicaragua the potential is still greater since artisan factories are willing to purchase up to 76% more milk than is currently being collected during the dry season.

This situation is not the same during the rainy season, where the potential for growth is null in both countries due to an excess supply of milk in the market. As a result, the artisan factories in both countries would be willing to purchase more milk only during the dry season, which has significant implications in the type of technologies to promote to producers in both regions.

On the other hand, 90% of artisan factories interviewed in Honduras consider milk collected during the rainy season to be of low hygienic quality, this figure being only 10% during the dry season. Thus, there is a direct relationship between low hygienic quality of the milk and the rainy season, which agrees with the conclusion of De Franco et al (1996). In Nicaragua, 30% of artisan factories consider milk during the rainy season to be of low hygienic quality.

Artisan factories in Honduras and Nicaragua that consider milk collected as being

of low hygienic quality would be willing to pay a higher price if they had the option. In Honduras this price would be 9.4% higher during the dry season and 11.2% higher during the rainy season. In Nicaragua the artisan factories would be willing to offer a 17% higher price, but only during the rainy season.

### **3.3 Identified gap for milk marketing in respect with the CBO**

According to the cited literatures, hygiene is a major problem of quality control. For example, artisan factories in Honduras and Nicaragua consider milk collected as being of low hygienic quality, they want to collect milk of higher hygienic quality, especially during the rainy season and would be willing to pay a higher price if they could have that option, but they don't have that option. The low hygienic quality not only lead to low price of the staff, but also it attributes to high rate of milk perishability and spoilage. This problem as well exists at Serengeti Dairy Cooperative Society in milk marketing, where quality control of the staff (hygiene quality of milk) is low. Quality control is affected by poor milk handling referred from production point (milking), transportation storage at a final point (at a CBO). In most cases milk tends to be affected by perishability and other quantity is spoiled over a short period. So far, the author/the project didn't mention what should be done to alleviate this problem.

Basing on these findings, the study noticed that, this problem persists to the small-scale milk marketing economy due to the low knowledge of improved milk marketing and entrepreneurship skills. The target group has inadequate technical skills and knowledge of milk handling and hygienic quality control. So existing gap has to be dealt with by

providing training on milk marketing knowledge and entrepreneurship skills to the target group (livestock milk producers, vendors/hawkers, and the CBO).

### **3.4 POLICY REVIEW**

Few countries in sub-Saharan Africa appear to have well documented national dairy development and marketing policies, let alone an account of the national food policy. The term "policy" in general can mean almost anything, depending on the context. For analytical purposes, however, the term "policy" will be defined simply as a set of government decisions, often embodied in legislation, taken at a national level and which usually apply to a country as a whole rather than to one part of it. Marketing policies will refer to any government decisions that affect one or more of the main marketing functions, where a marketing function is defined as any specialized activity that is undertaken to ensure that a particular product flows in an orderly manner from the initial point of production to the ultimate consumers.

“ ILCA Livestock Policy Unit Programme Review and Protocols for 1984 (Addis Ababa, 1983).”

However, while there are few generalisations about dairy policies, which apply precisely and uniformly to all sub-Saharan African countries, useful - lessons can be learnt from experiences in different countries. For example a review of the overall national dairy development policies in Kenya, and Tanzania that the major objectives that are often associated with dairy marketing policies include the following:

- (i) To provide higher prices to producers;
- (ii) To provide more stable prices to producers;
- (iii) To secure reliable milk supplies for urban areas at reasonable prices;

- (iv) To reduce marketing costs;
- (v) To improve hygiene and quality of products;
- (vi) To ensure minimum nutrition levels to certain sectors of the population by ensuring that they get easy and cheap access to milk;
- (vii) To raise and channel investment funds into dairy production by using profits made from the resale of materials obtained as concessional imports or food aid, and
- (viii) To provide consumers with convenient services at prices they can afford (or are willing to pay) - an indicator of economic efficiency

The available literature suggests that most countries in sub-Saharan Africa have dairy marketing systems that comprise both a government-controlled channel, which will be referred to as the formal marketing subsystem, and a non-government (i.e. private) marketing channel, which will be referred to as the informal marketing subsystem.

and marketing systems in some other selected countries in sub-Saharan Africa.

### **3.5.1 Dairy development and marketing policies in KENYA**

The development of the modern dairy industry in Kenya dates back to the late 1920s when the European settlers in the Kenya Highlands introduced exotic dairy cows into the country. The virtually monopolistic and monopolistic dairy processing and marketing organisation in Kenya, the Kenya Cooperative Creameries Limited (the KCC), was established in the late 1920s to serve the marketing interests of these early European commercial dairy farmers in Kenya. Legally, the dairy industry in Kenya is now regulated through the Dairy Industry Act of Kenya. Under this Act, the Kenya Dairy Board (KDB) was set up "to organize, regulate, and develop efficient production, marketing, distribution and supply of dairy produce in Kenya, while taking into account" the various types of dairy

produce that are required by different" classes of consumers" (Chapter 336, Laws of Kenya).

Kenya's latest dairy development and marketing policies are embedded in the Session Paper No. 4 of 1981 on Kenya's National Food Policy, whose broad objectives are:

- (i) To maintain a position of broad self-sufficiency in basic food stuffs;
- (ii) To ensure a reasonable degree of food security in all parts (regions) of the country
- (iii) To ensure that every citizen has a reasonable degree of access to a nutritionally balanced diet, through improvements in the marketing infrastructure and the distributive process, and through some social welfare programmes.

These objectives apply to the general agricultural sector in the country. However, since smallholder dairy farmers produce about 90% of total milk production in Kenya, the *specific milk marketing policies* expected to be achieved through a combination of:

- (a) The promotion of increased rural production of milk, and
- (b) Improvements in the dairy marketing system.

**Through a pricing policy**, dairy producers are guaranteed a regular price review (once a year) to ensure that the prices they get for their dairy products reflect changing cost structures and that they remain remunerative enough to enhance increased dairy production. Consumer prices for milk and milk products are usually adjusted simultaneously to reflect changes in milk producer price, which ensures economic viability of the milk processing and marketing institutions. Failure to reconcile the two prices can have damaging effects. For instance, a 6-month delay in the adjustment of dairy produce consumer prices after the milk producer price had been increased at one time in the mid-1970s adversely affected the operations and profitability of KCC. The Government of

Kenya also encourages the development of regional cooperative dairies, which are expected to enhance improvements in dairy marketing. Promotion of stall-feeding (zero-grazing) systems in high potential, high population density areas (where most of the Kenyan population is found) is also seen as a means of sustaining the growth in dairy production.

### **3.5.2 Dairy development and marketing policies the case of Tanzania**

Within the context of the agricultural sub sector, the overall goals will be the exploitation of available resources for commercialisation and market orientation of cattle keeping to raise income of smallholder farmers and improve living standards in rural areas through dairying (Melewas 1996). Following the 1998 dairy development conference involving dairy industry stakeholders, there was a resolution to elaborate a new dairy industry policy within the context of the Agriculture and Livestock Policy of 1997.

According to a draft of dairy industry development policy currently under discussion by stakeholders, the overall objectives of the dairy industry will be to:

- Improve food security of the nation by increasing output, quality and availability of milk and milk products;
- Keep pace with increasing demand, milk production will have to grow at the rate of  $\geq 8\%$  per annum through the combined effect of dairy herd expansion and improved productivity of both the zebu and dairy herd;
- Improve standard of living in rural areas through increased income generation from milk production, processing and marketing;
- Develop and introduce new technologies, which increase the productivity of labour and land;

- Promote integrated and sustainable use and management of natural resources such as land, soil, water, vegetation and the use of alternative energy sources (e.g. biogas to conserve the environment); and
- Encourage equal opportunities for men and women in terms of access to and control over land, animals and their products, as well as access to education and information necessary for dairy development.

Already in Tanzania, since 1998, a task force is working towards formation of an autonomous, democratic National Dairy Board, independent from the government to be funded and controlled by the industry/stakeholders. The specific roles of the proposed dairy board will include the following:

- Dairy industry quality assurance
- Overall development of the dairy industry
- In collaboration with the MoAC (Ministry of Agriculture and Co-operatives), initiate dairy industry reviews
- In collaboration with MoAC, manage dairy industry information systems
- Monitoring of import and export of milk and milk products
- Support dairy industry development through positive interventions, such as offering training when and if necessary
- Ensure the observance of hygiene in the entire dairy industry chain
- Initiate and co-ordinate dairy industry research
- Contribute to milk consumption promotion, through generic advertisement etc.

- Disseminate information
- Lobby interest for the dairy industry
- Support research, education and training at all levels of dairy industry.



## **CHAPTER FOUR: PROJECT IMPLEMENTATION**

Here the document describes what was supposed to be done according to the plan, what have been done and report what was accomplished. The topic describes in detail the project, which was to be implemented, it shows planning schedule and activities that had to be implemented. It itemise expected and actual products and outputs and staffing pattern. Go through this topic for detail readings.

### **4.1 ACTIVITIES TO BE CARRIED OUT**

- To conduct awareness creation campaign to the CBO members, milk producers and milk vendors on proper milk handling and hygienic control.
- To conduct training on best practice on milk handling and quality control to the target group.
- To conduct training on milk marketing and entrepreneurship skills to the target group.
- To conduct training on preparation and execution business operation plan, strategic and action plan to the CBO.
- To conduct training on monitoring and evaluation to the CBO.

### **4.2 PROJECT OUTPUTS AND PRODUCTS**

What have to been done and accomplished to generate out puts and products according to the specific objectives of the CBO include: – Refer overleaf.

**Table 8      What the project set to accomplish - expected out puts and products**

Specific objectives	Outputs	Strategies	Activities	Products	Indicators.
To build capacity of the target group on best practice of milk handling and quality control by March 2007.	<p><b><u>Output I</u></b></p> <p>Effective use of best practice for milk handling and quality control.</p> <p><b><u>Output II</u></b></p> <p>Hygiene and genuine milk.</p>	<p>(i) Identification of the target group.</p> <p>(ii) Conduct awareness creation campaign to the target group on best practice of milk handling and quality control.</p> <p>(iii) Preparing training materials.</p> <p>(iv) Preparing training venue and informing the target group.</p> <p>(v) Conducting training to the target group.</p>	<p>(i) To train the target group on milk hygiene</p> <p>(ii) To train the target group on better ways of milk collection and preservations.</p> <p>(iii) To train the target group on improved way of milk selling</p> <p>(iv) To train the target group on methods of improved way of milking.</p>	<p>Products (milk) of high quality disseminated at the market.</p> <p>Products stay much longer at the CBO before perishing.</p>	<p>(i) Number of people trained</p> <p>(ii) The extent of milk hygiene.</p> <p>(iii) The rate or quantity of adulterated milk at the market.</p> <p>(iv) Methods used in milk selling.</p>
To build capacity of the CBO on the milk marketing and entrepreneurship skills by March 2007	<p><b><u>Output I</u></b></p> <p>Increased sell</p>	<p>(i) Identification of the target group.</p> <p>(ii) Identification of required resources for training.</p> <p>(iii) Preparing</p>	<p>(i) To conduct training on marketing concepts - The concept of 4 Ps (Product, Price, Promotion and Place) in</p>	<p>Embarked on improved milk business practices (operations).</p>	<p>(i) Methods of milk purchasing and selling.</p> <p>(ii) The rate of milk perishability.</p>

	<b><u>Output 2</u></b> Innovative and initiative attitudes.	training materials. (iv) Preparing training venue, informing the target group and conducting training to the target group.	relation to milk marketing (ii) To train the CBO to be customer and business oriented (iii) To train the target group on the concept of entrepreneurship. (iv) To train the target group on basic principles and practice of entrepreneurship.	Innovative, initiatives, aggressiveness will be in place.	(iii) The quantity of milk sold at the CBO. (iv) The number of customers attended at the CBO. (v) Presence of innovative initiatives at the CBO. (vi) The extent of market shock absorption
To build capacity of the CBO on preparation and execution of strategic plan, business operation plan, action plan.	<b><u>Output I</u></b> Meet planned objectives	(i) Identification of trainee. (ii) Identification of required resources for training. (iii) Preparing training materials. (iv) Preparing training venue and informing the target group. (v) Conducting	(i) To explain to the CBO what is strategic plan, business operation plan, action plan. (ii) To make the CBO to be aware on preparing strategic plan, business operation plan, action plan. (iii) To train the CBO on preparation and execution of strategic	Improved business operations – the project run milk business according to the plan.	(i) Prepared and implemented strategic plan. (ii) Prepared and implemented business operation plan. (iii) Prepared and implemented action

		training to the target group.	plan, business operation plan, action plan.		plan.
To train the target group on monitoring and evaluation by March 2007		(i) Preparing training materials. (iv) Informing the target group and conducting training to the target group.	(i) Training the target group on monitoring and evaluation (ii) Training to develop performance indicators.	Effectiveness and efficiency of the project.	(i) Prepared and implemented monitoring and evaluation schedule. (i) Prepared indicators.

### 4.3 Project implementation plan

**Table 9 Project implementation plan for 18 months**

ACTIVITY	IMPLEMENTATION PERIOD													BUDJET
	JAN2006-JAN 2007													
	J	F	M	A	M	J	J	A	S	O	N	D	J	
Identification of training needs.														0
Preparation of training manual														100,000
Identification of resources														0
Identifying training venues.														0
Identifying the target group														10,000
Acquiring required training resources														100,000
Target group leaders meeting to compromise and confirm training schedule														10,000
Making training on effective milk marketing and entrepreneurship skills to CBO members.														50,000
Making training on effective milk marketing and entrepreneurship skills to milk vendors and customers.														70,000
Training the target groups on the concept of 4 Ps														60,000
Training the CBO members on														65,000



**Table 10      Staffing plan and training needs**

<b>No</b>	<b>Position.</b>	<b>Supervisory role</b>	<b>Training needs.</b>
1	Manager	<ul style="list-style-type: none"> <li>• Top executive office of the CBO</li> <li>• Overall supervisor of the CBO activities.</li> </ul>	(i) Leadership and management of the CBO. (ii) Knowledge and skills of milk marketing. (iii) Knowledge and skills of entrepreneurship. (iv) Preparation of CBO plan of operations – strategic plan, business operation plan and action plan. (v) Bookkeeping (vi) The concept of 4 Ps (vi) Monitoring and evaluation.
2	Bookkeeper	<ul style="list-style-type: none"> <li>• Keeps the books of accounts of the CBO</li> <li>• Prepare and present financial reports to the CBO.</li> </ul>	(i) Bookkeeping (ii) Preparation of CBO plan of operations – strategic plan, business operation plan and action plan. (iii) Monitoring and evaluation.
3	Milk collector	<ul style="list-style-type: none"> <li>• Purchase milk from milk sellers.</li> </ul>	(i) Best practice of milk purchasing and selling. (ii) Milk handling and quality control.
4	Milk seller	<ul style="list-style-type: none"> <li>• Sells milk to customers.</li> </ul>	(i) Best practice of milk purchasing and selling. (ii) Milk handling and quality control.

On top of that, job description of each staff had been prepared as indicated in appendix 8.

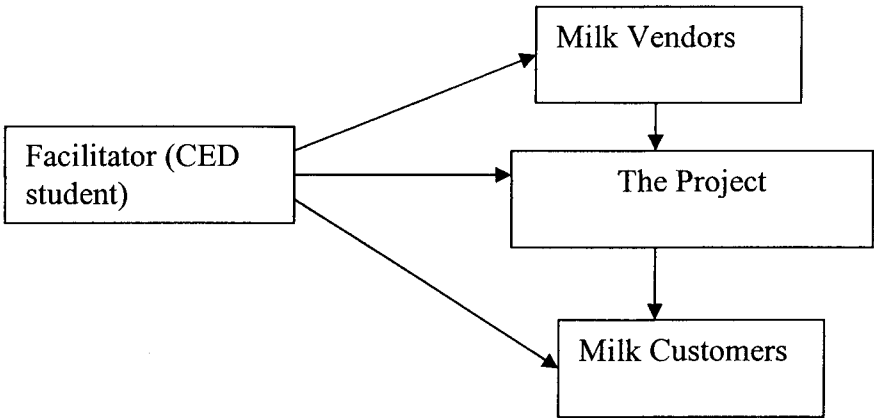
4.6 PROJECTED FUND FLOW FOR ACCOMPLISHING PROJECT PLAN

According to the annual project plan of the CBO, the projected revenues of the project was 26,224,000 while expected costs was 21,854,000 and expected annual surplus was 4,370,000 as referred by the cash flow at appendix 9.

Eventually budgeted fund for project implementation was realized from different sources. The internal source (the CBO) contributed 75% of the total project budgeted fund, and through fund mobilization, the facilitator (CED student) contributed 25%, which came from the following sources; Bunda district council contributed 20% and individuals persons contributed 5% of the raised fund. To manage to collect that fund, the facilitator got fund mobilization permit from the higher authority of the district and acceptance of the CBO to do the job. So far the whole process of fund mobilization involved the leaders of the CBO for 14 days consecutively.

This fund facilitated implementation of the project to be accomplished as planed. The facilitator was a big player for providing an advice to the project and the community as well. He was constantly keeping advice to the project to provide reputable milk product and services to the community and advising the community (milk vendors and milk customers) to be enthusiastic to the project as the depend each other.

Figure 6: Facilitation and milk delivery services





#### **4.7 IMPLEMENTATION PROCESS AND IMPLEMENTED ACTIVITIES**

Implementation process of the project was mainly based on planned activities. The process started with identifying the target group so as to train the right persons. Then training materials were prepared. This process was done in order to enable the target group to get the right dose. This process was followed by preparing participants handouts and make ready for training. Thereafter, training venues for each training were prepared. This was followed by conducting training to the target group. 8 training sessions were held, three for milk consumers, two for milk vendors, two for CBO members, and one for milk producers. Then 6 training sessions were held to leaders, four for CBO board members and employees, one for milk vendors' leaders and one for milk customers' leaders.

However accomplished tasks in respect with implementation plan were:

- Training the target groups on the concept of 4 Ps (Product, Price, Promotion and Place) in relation to milk marketing.
- Training the CBO members on being customer and business oriented. Since this is a gradual process, in future we anticipate the CBO to discharge quality and customer oriented products which are competitive to the market.
- Also the target groups were trained on effective ways of milk business operation with emphases of milk marketing and entrepreneurship skills. The question of proper milk handling and quality control was part of this training.

Then CBO was enlightened on business planning and plan of operation. The CBO learn to prepare strategic plan and prepare annual implementation plan. Trainings that were conducted by the facilitator (CED student) enlightened roughly the CBO members to prepare strategic plan and business operation plan. Training of this kind insisted to be conducted to the CBO members

regularly, until they manage to prepare strategic and business operation plan without external backstopping. So far, the CBO members participated effectively for implemented and executed project at all process and stages of planning, implementation, monitoring and evaluation. This was possible because of;

- Presence of the sense of project ownership. The members make decision and exercise their power of CBO affairs through general meetings, which convene twice a year. This scenery attributes the sense of ownership to be high.
- Transparency. The Members at any time have rights to ask and get economic and financial affairs of the project. Also members have right to summon special general meeting when they feel that things are not going well for the project. This situation leads he management to operate the project in open bases.
- Presence of members whom empowered by knowledge of participation, self-confidence, co-operation, responsibility and commitment.
- Effective and authentic participation and involvement of the members at economic activities of the project. Members become effective after being empowered by knowledge of the fore mentioned elements.

## **CHAPTER FIVE: PROJECT MONITORING, EVALUATION AND SUSTAINABILITY**

Monitoring and evaluation is important to be in place as it facilitates effective service delivery and sustainability of the entire organization. So, the CBO had monitoring and evaluation tool (schedule) in order to make the project to provide equitable services to the community. However, this topic describes in detail why making monitoring and evaluation, who is responsible and how doing monitoring and evaluation. Also it indicates methods and tools, which were used for data collection and analyses in monitoring and evaluation. Again, the topic shows monitoring and evaluation indicators. On top of that, this area discuss in detail on sustainability of the project. It depicts strategies that could be used for project sustainability. Please go through this chapter for detail purposes.

### **5.1 MONITORING**

Monitoring involves the whole process of routine data gathering on project implementation.

Monitoring is executed continuously throughout project implementation life. Project management gets information for monitoring through weekly and Monthly project reports, review of production and service delivery, and Management Information System (MIS).

Monitoring information is vital at all stages of project planning, as they show the trend and measure the progress of project implementation. These facts motivated monitoring to be conducted through out of project implementation and the process involved participatory monitoring.

However, The area of interest and parameters involved in monitoring include:

- Involvement and participation of CBO members' in project implementation,
- Project performance,
- Community participation in project implementations,

- Changes in respect with project implementation, and
- If delivery skills were friendly for community economic development.

Table 11

## Monitoring Schedule for Project Operations.

Work plan activities	Monitoring Objective	Objective Verifiable Indicators	Why important?	Responsible	How gathering monitoring information	Planned delivery time
Identification of training needs.	To know training needs of the target group.	Conducted trainings. Groups attended trainings	Know the gape and train what is real needed by the target group	Facilitator, CBO members and leaders	Training needs assessment report.	7 <sup>th</sup> - 14 <sup>th</sup> Jan 2006
Preparation of training manual	To get training manual which is used and guide trainings.	Developed and completed training manual.	Having a tool of training and being consistence in training.	Facilitator.	Training report Physical prepared training manual.	14 <sup>th</sup> - 30 <sup>th</sup> Jan 2006
Identification of resources	To know and get the right material and human resources.	Acquired resources.	To have valuable resources for implementation of the project.	Facilitator, CBO members and leaders	Human and material resource report. Staff and material audit report.	1 <sup>st</sup> - 5 <sup>th</sup> Feb. 2006
Identifying training venues.	To have venue for training.	Acquired venue for training.	To avoid inconveniences	Facilitator, CBO leaders &Members	Visiting training venue. CBO correspondences	6 <sup>th</sup> - 8 <sup>th</sup> Feb 2006

<b>Work plan activities</b>	<b>Monitoring Objective</b>	<b>Objective Verifiable Indicators</b>	<b>Why important?</b>	<b>Responsible</b>	<b>How gathering monitoring information</b>	<b>Planned delivery time</b>
Identifying the target group	To get the target group and number of participants.	Participants attended training.	To know exactly who to be trained.	Facilitator	Visiting the target group.	6 <sup>th</sup> - 8 <sup>th</sup> Feb 2006
Acquiring required training resources	To acquire training materials.	Acquired training materials.	To be well organized before starting trainings.	Facilitator.	Training resources report.	9 <sup>th</sup> - 15 <sup>th</sup> Feb. 2006
Target group leaders meeting to compromise and confirm training schedule	Acquitting group leader the intention of trainings	Conducted group leaders meeting.	To make training move smoothly and as planed.	Facilitator.	Visiting the target group leaders.  Target group leaders meeting minutes.	20 <sup>th</sup> - 22 <sup>nd</sup> Feb.2006

Making training on effective milk marketing and entrepreneurship skills to CBO members.	To provide knowledge and skills to the target group.	Number of participants attended trainings.	Target group acquire knowledge and skills.	Facilitator.	Training report. Relevance of training materials. Turn up at training for participants	1 <sup>st</sup> March -30 <sup>th</sup> April 2006
Making training on effective milk marketing and entrepreneurship skills to milk vendors and customers.	To provide knowledge and skills to the target group.	Number of participants attended trainings.	Target group acquire knowledge and skills.	Facilitator.	Training report. Relevance of training materials. Turn up at training for participants	1 <sup>st</sup> May - 31 <sup>st</sup> July 2006
Training the target groups on the concept of 4 Ps	To provide knowledge and skills to the target group.	Number of participants attended trainings.	Target group acquire knowledge and skills.	Facilitator.	Training report. Relevance of training materials. Turn up at training for participants	1 <sup>st</sup> Aug – 31 <sup>st</sup> Nov, 2006

Training the CBO members on being customer and business oriented	To provide knowledge and skills to the target group.	Number of participants attended trainings.	Target group acquire knowledge and skills.	Facilitator.	Training report. Relevance of training materials. Turn up at training for participants	1 <sup>st</sup> Dec 2006 - 15 <sup>th</sup> Jan 2007
Training the CBO on business planning and plan of operation.	To provide knowledge and skills to the target group.	Number of participants attended.	Target group acquire knowledge and skills.	Facilitator.	Training report. Relevance of training materials. Turn up at training for participants	15 <sup>th</sup> Jun - 15 <sup>th</sup> Aug 2006
Monitoring, follow up and evaluation.	To know status of project implementation.	Number of field visits, written reports.	Enable things to move as planned.	Facilitator, CBO leaders &Members	Monitoring and follow up report. Making site visit.	7 <sup>th</sup> Jan 2006 - 15 <sup>th</sup> Jan 2007



### **5.1.1 GUIDING QUESTIONS FOR MONITORING**

The leading research questions were;

- i. Does the project operate in respect to planned objectives?
- ii. Does the project address identified problems?
- iii. Could the project achieve the community needs?

### **5.1.2 METHODOLOGY**

Methods used for data collection in monitoring were; interview, direct observations and review of secondary data.

#### **5.1.2.1 INTERVIEW**

Interview method facilitated to collect data of project performance for monitoring. The facilitator collected data from 160 respondents who were the key players of the project. The members of the CBO, milk customers, milk vendors and milk producers within the area of study were the key players who were participated fully in this exercise. Monitoring schedule had been guiding the methods and procedures for collecting data in monitoring. However to be accurate and reliable a sample of 160 respondents against the population of 2,890 were involved in monitoring process.

##### **5.1.2.1.1 Rationale of Using of Interview**

This method allowed the facilitator to be flexible in administering interview to individuals in particular circumstances. The facilitator and respondents were free to explain and clarify questions, area of interest and other issues, which were not clear. Additional questions and answers were being provided by each case at the whole process of intervention. By this sense, participation of respondents was highly received full time of interview process.

#### **5.1.2.1.2 A Survey Design for Monitoring**

Cross-sectional survey design was used in data collection.

##### **Cross-sectional design.**

Due to the time factor and financial constraints, Cross-sectional design is one of the survey designs, which opted to be used for data collection in monitoring. This method was relevant since; with Cross-sectional design, data were collected at a single point in time for analyses. Through this method data were direct collected and recoded from respondents in a single point in time, which provided an opportunity to the facilitator to make analyse immediately. On top of that, cross-sectional design depicts and articulates things as they are (preference) so that people can make plan easily. For example, if things are good or bad the cross-sectional survey reveals this situation as it is, that is why it is commonly used for determining voters' preference in one-month time before election. Also Cross-sectional survey design is relatively easy to do. However, participatory monitoring approach was used in monitoring process. Here key stakeholders of the project were involved and they had all rights and opportunities to assess the project performance over the period during monitoring process.

#### **5.1.2.1.3 Sampling and sample size**

A sample is a proportion or subject of a larger group called a population. A good sample is a little version of the population of which it is part- just like it, only smaller. A simple random sample is one in which each person has an equal chance of being selected for participation in a survey (Arlene Fink, 1985).

The interview opted to use a sample as opposed population of 2,890 since this population was too big and somehow it was impossible to be covered over available period of time. In line to that

point, it was too costly and unaffordable to test the entire population. Never the less, testing the entire population often produces error, as it is impossible to cover the whole population.

### **How sample size was selected**

The sample size used was selected from the CBO members and at the outside population. This was done deliberately in order to check internal and external validity. To select a sample size, first the population was divided into four strata as follows;

- CBO members who are also milk producers. The CBO members are the major milk sellers to the CBO.
- Milk vendors - not members of the CBO.
- Milk final consumers (customers).
- Milk producers not members of the CBO.

After getting those strata, the second step was to select a sample size through simple random and purposive sampling. The membership register was used to select a sample size from the CBO members, where the every fifth member was picked and be selected to represent CBO members. For customers and milk vendors, a list of names, which was available to the CBO, was used to select a sample. Here every 24<sup>th</sup> person was selected to represent milk customers and every 6<sup>th</sup> person was selected to represent milk vendor.

Finally, the combination of sampling methods and procedures enabled to choose a sample size of 228 people, which fall under the following fold;

- 30 members out of 154 CBO members were selected as a sample space.
- A sample of 90 people from milk customers who were estimated to be about 2,500 were selected.

- Out of an average of 120 milk vendors 20 people (milk vendors) were selected as a sample space.
- 20 Milk producers were selected from 116 people as a sample space.

However, out of 228 of pre-determined sample the actual respondents were 160 respondents, which was equal to 70% as indicated below.

**Table 12** **Sample size**

SAMPLE DESIGN	TOTAL POPULATION	PREDETERMINEN SAMPLE SIZE	ACTUAL RESPONDETS	% OF RESPONDETS PARTICIPATED
CBO members	154	40	30	75%
Milk customers	2,500	140	90	65%
Milk vendors	120	25	20	80%
Milk producers	116	23	20	87%
<b>TOTAL</b>	<b>2,890</b>	<b>228</b>	<b>160</b>	<b>70%</b>

This means that 70% were respondents who participated in a whole process of monitoring intervention.

#### **5.1.2.1.4** **Number of questions executed in interview**

A total number of 37 (thirty seven) questions were compiled, disseminated and been executed for data collection for monitoring – refer appendix 10. To achieve the intended yardstick the interview question scale had divided into two folds; questions, which collected information on milk handling and that, the aspect of look at the quality control. So far, to get more reliable and specific information the questions were further subdivided into three main areas including;

- Questions, which were administered to the CBO members. Here the facilitator got information relating on how at the final distributing point milk is handled and how quality is controlled and maintained by the project.
- Questions, which were sent to the customers who managed to tell the real story for what is happening on milk handling and quality control to the project
- Questions focused to milk producers. These questions revealed information on how and at what extent milk adulteration is being done by milk vendors and producers and what is the position after establishing the project.
- The last batch of questions were administered to milk vendors whom tell difficulties, which they face in milk business. Also, they explained how they handle and transport milk to the final consumers.

#### **5.1.2.1.5**

#### **Internal validity**

The members of the CBO were responsible for internal validity by providing information, which were reliable, not biased and free from nonrandom error for monitoring purposes. The size of the sample was depending on the number of population of each cluster. The sample size of milk customers, for example, was bigger than the rest of other clusters due to its size. Interview, direct observations and secondary data were methods, which applied in data collection. Internal validity was assured through careful administering of data collection. During intervention for example, the facilitator was frequently posing questions to respondents, which were reflecting the previous questions and answers respectively. This technique was used for crosschecking the validity of responses, which were provided in previous questions. Direct observations of actions, movements and the way respondents behaved were complimenting responses and determined the internal validity to be free from nonrandom error/biases.

#### **5.1.2.1.6**

### **Analyses and Results**

#### **5.1.2.1.6.1 Milk handling and quality control at the project**

According to collected data by interview, milk handling and quality control had been improving gradually at the project. To start with, the project established the new milk purchasing system as an entry point of addressing milk handling and quality control. From a new system, all jerry cans were cleaned by hot water a day before, closed with lids and be kept at a safe place ready for purchasing milk the following day. To be consistent and systematic, milk vendors were asked to use insulated materials when sending milk to the CBO. According to the results of interview, about 85% of milk vendors acknowledged and brought milk by using recommended tools. 15% were using normal tools (plastics of four and twenty liters) for selling their milk. Together with what listened from respondents, the facilitator managed to observe milk vendors when were selling milk at the CBO during monitoring process.

To control milk quality effectively, the project purchased a new lactometer, which was used to test milk before taking them. As usual the jerry cans were covered with white clothes and each milk vendor spilled milk into a jerry can covered with a white piece of cloth, which separate waste and pure milk. Purchasing process continues, after a jerry can becoming full it is taken to a special room with air conditions, which also purchased by a project to maintain proper milk handling.

This process enabled the project to ensure proper milk handling and maintain quality of milk to be in normal for 72 hours. This situation minimized milk spoilage to the average of 0.1% per day, which is a success to the project.

#### **5.1.2.1.6.2 Milk Adulteration and Spoilage**

Milk adulteration is a major problem, which was threatening the take off stage of the project life of the CBO. This was an interesting area and the facilitator was probing the position of milk

adulteration all the time during monitoring process. In interview 72% of respondents agreed that; education to the community enabled the rate of milk adulteration to decrease. They added that; the rate of decrease was increasing gradually and the trend of decrease will continue almost to zero point. Beside that; 86% of respondents appreciated and accepted on the validity training program and agree that, the quantity of milk spoilage was declining daily. They asked this training to be conducted regularly to the community. Generally the trend of decrease of milk adulteration and spoilage to the project at each quarter as observed and got from the books/documents of the project were;

**Table 13 Milk Adulteration and Spoilage for January to December 2006**

Quarters	Decrease in quantity of adulterated milk sent and observed by the project at the CBO (Lts)	Declining of milk spoilage at the CBO project (Lts)
First quarter	3,622	26
Second quarter	2,011	17
Third quarter	16	9
Fourth quarter	432	2
<b>Total</b>	<b>6,081</b>	<b>54</b>

Source: The project report of the CBO, 2006

The total amount of Adulterated milk sent to the CBO in 2005 was 12,067 Lts per annum, but in 2006 during the period of project interventions adulterated milk sent and detected by the project at the CBO decreased to 6,081, which is almost 50.4%. The decrease of milk adulteration justifies the significance and validity of training provided to the community and existence of the project. So

far the decline of milk spoilage (perishability) were attracting and calling for project growth and sustainability.

### **5.1.2.2 OBSERVATIONS**

So far, data collection by the interview method was complemented by observation method. The author engaged to the target group and observes physically what was going on without direct doing or participating on the business. This method helped the author to inter into a community and understand the situation/context of project performance. So through this method, answers of respondents of some cases were observed and verified physically by the facilitator when he was administering interview for monitoring activities.

#### **5.1.2.2.1 Rationale of Using Observation Method**

The author decided to use this method in order to get and provide real information about behavior of individuals and groups of the entire community in project implementation and performance. To see and concretize the set in mind on what exists in natural, unstructured and flexible setting and, therefore, draw a concrete and un doubtful conclusion.

#### **5.1.2.2.2 Results of Observation method**

##### **5.1.2.2.2.1 Community turn up and participation in trainings and other project activities**

Generally, out of 26 planed training sessions, the facilitator managed to conduct only 20 sessions. 6 sessions were not conducted due to the time factor and shortage of financial resources.

However, during implementation of community training, observed turn up and participation in training was good, the aggregate of 85% of the target group were attended trainings, which were provided by the facilitator. Participation in trainings was good as well, since majority of the participants were participating through asking questions, providing their opinions and experiences



during trainings. This scenario enabled the facilitator to be aware on justification of provided trainings to the community and continues to monitor trainings activities happily.

On the other hand, the rate of community participation on implementation of project activities was raised from 60% in January 2006 to 95% in December 2006. Those rates were obtained through final project report (December 2006 report), which were stating on the status of the community to the project implementation. According to that report, measurement of community participation in project implementation was determined by the contributions of every individual person on milk business operations as the project endeavor to facilitate growth and enhancement of that business.

#### **5.1.2.3 REVIEW OF DOCUMENTS (SECONDARY DATA)**

Normally to get relevance of information “the study reviews various literature/ documentary sources related on milk marketing within and outside of the CBO. A number of relevant textbooks, newsletters, journals and CBO records and reports were visited on which enriched the survey relevant information on the subject matter. However the wide reading assisted on clarification of the research problem, proof of hypothesis, and to highlight the way forward in respect to the future prosperity of the CBO and milk business as a whole. So far the best way to review literature is to scheme through published and unpublished materials, relevant chapters, articles, pages, paragraphs, documents, reports, conference proceedings, sect oral dissertations, Masters theses, government publications, financial statements, marketing reports, bibliographical indexes, on line data base; abstract data base or summary” ( Mary Ngechu, 1991). For that matter secondary documents provided much information and skills for monitoring project performance. So far, documentary sources used to accomplish monitoring process, which include; board and generally meeting (minutes) records, the books of accounts of the project, milk perishing report of the project and financial report of the project.

#### **5.1.2.3.1 Rationale of using secondary data**

The use of documentary sources was inevitable in monitoring since;

- The said sources helped to provide relevant information on historical trend or sequence and opportunity for study of trends over time for the project.
- Also it helped the facilitator to get a real picture and be conversant with project performance
- Provided experiences of the subject matter from other places of the world.
- However through documented literatures the survey managed to identify and establish an existing gap over project performance.

#### **5.1.2.3.2 Analyses and Results**

##### **5.1.2.3.2.1 The General Meeting (minutes) Records and Board Meetings**

When visited the records of the CBO, the facilitator examined the attendance reports and from that data established that, during project intervention the number of CBO members who were attending the general meetings were increasing. By the time of project intervention, five general meetings were convened for different purposes. Attendance of each meeting compared with last two meetings before project intervention were;

**Table 14 CBO members participation at the general meeting**

<b>Status of meeting</b>	<b>Meeting</b>	<b>Number of CBO members</b>	<b>Attended members at the meeting</b>	<b>Percentage of members attended</b>
CBO estimate approval	Convened before project intervention	154 members	70 members	46%
Leasing of CBO building	Convened before project intervention	154 members	71 members	46%
Community needs assessment and problem identification	Convened during project intervention	154 members	102 members	67%
Getting project implementation first quarter Jan-March 2006	Convened during project intervention	154 members	145 members	94%
Getting project implementation second quarter April-June 2006	Convened during project intervention	154 members	143 members	93%
Getting project implementation third quarter July-Sept 2006	Convened during project intervention	154 members	148 members	96%
Getting project implementation forth quarter Oct-Dec 2006	Convened during project intervention	154 members	149 members	97%

Source: The records of the CBO, 2006

The above data indicate the impact of the project to the CBO members. Before project intervention members' participation were below 50% at the last two meetings, but after project intervention, members' participation raised to more than 90%. The increase of members' participation implies that the project had brought impact to the community and it is a flyway of the project sustainability.

On the other hand, the Board meetings of the CBO become systematic and convene regularly with specific agenda. Even though the Board was convening monthly, before project intervention arrangements of matters of the meeting and writing of minute were not systematic. But after project intervention arrangement of matters of the meeting and minutes changed, they were improving to the better. Likewise attendance and participations of Board members to monthly board meeting were raised from 65% to 98% after project intervention.

#### **5.1.2.3.2.2                    The Books of Accounts of the Project**

Apart from doing planed basic trainings, also the project was trained on elementary bookkeeping. This was done in order to enable the project to keep its' records properly and provide implementation report. This measure enabled the project to produce final accounts. Here under is the project performance data, which was collected by the facilitator from the books of accounts during monitoring interventions.

**Table 15 Milk purchases before and after project intervention**

<b>Month</b>	<b>Milk purchases per month (Litres) before project interventions (2005)</b>	<b>Milk purchases per month (Litres) after project interventions (2006)</b>	<b>Increase of milk purchases after project interventions per month (%)</b>
January	14,213	15,411	8%
February	15,626	17,988	15%
March	16,714	18,219	9%
April	18,927	20,815	9.9%
May	18,982	20,417	7.5%
June	13,692	15,273	11.5%
July	921	1,004	9%
August	315	419	33%
September	164	258	57%
October	169	262	55%
November	218	489	124%
December	16,466	17,566	6.6%

Source: Serengeti Dairy Co-operative society office, 2007

According to those data, there was an increase of milk purchases in year 2006 after project interventions. The overall increase of milk purchases in January and December 2006 were 6.6% and 124%. This implies success of the project interventions.

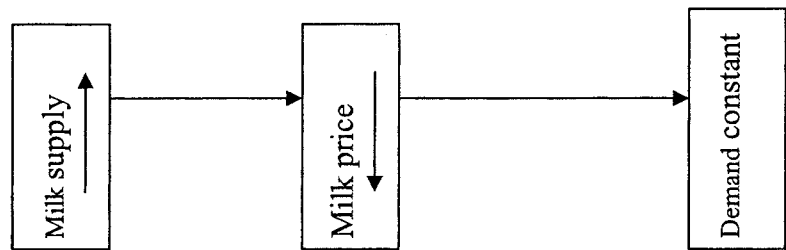
#### **5.1.2.3.2.3 Physical Milk Perishability Report.**

The quarterly physical project report, which frequently collected by the facilitator quarterly during monitoring process revealed that; milk perishability were decreasing gradually after project intervention. For instance, the average of milk perishability figurers for the year 2005 were 654 litres per annum, which makes an average of 54.5 litres per month and 1.8 litres per day. This situation changed after project intervention where, in 2006 milk perishability decreased to the average of 52 per annum, 4.3 litres per month and 0.1 litres per day. This scenario portrays the impact of the project to the community.

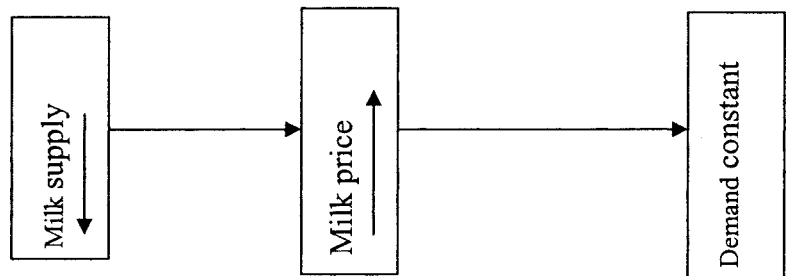
5.1.2.3.2.4                      **Milk Pricing**

Before free market economy, milk price was determined by the so-called, district price committee, which was under the chair ship of the district administrative officer. The district trade officer was the secretary and the committee had other four permanent members. After inception of free market economy, milk prices at the market, were determined by the force of demand and supply and, this was the prudent of pricing system, which governed project operations. Under this system the facilitator had had to observe milk prices and its effect to the project. According to observed results, milk prices were fluctuating between two seasons, in rain season milk price was a bit lower than in dry season. This was because; in rain season milk production was at optimal level, in which case, milk supply was defeating market demand. In this case milk price was forced to fall down in order to match with market demand. However, during the dry season milk price had a new shape, the price was much higher since, this period had a shortage of milk supply. The diagram below shows milk supply→→ price→→ demand relationship in rain (pick) and dry (slack) seasons

Milk supply, price and demand relationship in rain (pick) season.



Milk supply, price and demand relationship in dry (slack) season.



Availing milk price behavior also influences milk pricing to the project. So it was important to monitor carefully this area so that the influence of market price does not kill the project. Better enough market price didn't fluctuate in such a way of affecting project operations. Milk-pricing system under the force of demand and supply was determining milk price genuinely, there were no collusion or agreement from CBO competitors on milk pricing for killing the project.

This is justified by the following equation and facts. Assume that, under hypothetical circumstance the quantity of milk supplied in Bunda district at a given constant price should be equal to the market demand. Meaning that, the market consumes all produced commodity(s). i.e;

$$MD = SS \times P$$

Where:

MD = Market Demand

SS = Supply

P = Price.

Now by using that equation, price could be determined by;

$$P = \frac{MD}{SS}$$

But under normal circumstances, the project and Bunda market as a whole do not have capacity of consuming (absorbing) all milk products produced in the district, specifically during the pick

season. Like wise the market get short fall of milk product in dry seasons. All these settings determine price setting of milk product. Now the following expression puts clear how market price was determined under those scenarios in Bunda district.

$$AMD = \Delta SS \times \Delta P$$

Where:

AMD = Actual Market Demand.

$\Delta SS$  = Change of Market Supply.

$\Delta P$  = Change of price.

In this regard therefore, milk market price whether in rain or dry season in Bunda district is determined by the following setting:

$$\Delta P = \frac{AMD}{\Delta SS}$$

Meaning that, the actual market demand is there; when supply increase, (in rain season) the price of milk goes down, when supply decrease (in dry season) the price of milk goes up. This is what was happening to the project milk price.

#### **5.1.2.3.2.5 Income and Expenditure of the Project**

At this area the facilitator was keen for making follow up on what was coming in and going out to the project. The facilitator was frequently perusing the books of accounts of the project in order to see receipts and payments of the project. The books of accounts and monthly income and



expenditures of the project were kept and recorded by the Manager/Book keeper. He was responsible to produce and submit monthly report to the board of the CBO and annual report to the general meeting of the CBO. So the facilitator was responsible to monitor project documentations in such a way that, monthly and annual report has to be produced and submitted to respective authorities at the right time. To comply with this condition, which is legal binding, the manager produced and submitted 12 (equals to 100%) project implementation reports to the board of the CBO and annual project report to the general meeting of the CBO.

On the other hand, project monthly income and expenditures were doing well at the period of project implementation. Quarterly project performance figures were the base of performance for project progress in monitoring. Below are the project performance figures (sales and expenditures), which were collected by the facilitator during project monitoring.

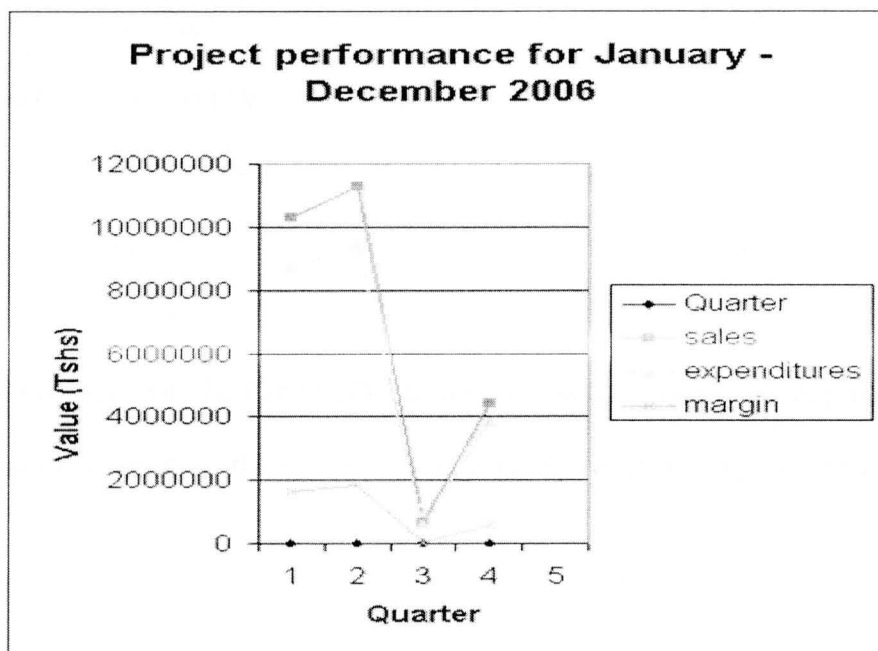
**Table 16 Revenues and expenditures of the project for January to December 2006**

<b>Quarter</b>	<b>Sales (Tshs)</b>	<b>Expenditures (Tshs)</b>	<b>Margin (Tshs)</b>
First	10,323,600	8,694,681	1,628,919
Second	11,301,000	9,475,833	1,825,167
Third	669,440	637,729	31,711
Fourth	4,396,080	3,822, 101	573,979
Total	26,690,120	22,630,344	4,059,776

Source: Serengeti Dairy Co-operative Society, 2006

The figure below indicates Quarterly performance and the trend of profit margin behaviour of the project for the period of January - December 2006

**Figure 7: Project performance**



However, the first and second quarter the total generated profit margins was 85.1%. This was because, the mentioned quarters fall under the pick season of milk production. The third and fourth quarter contributed 14.9% of profit margin since they fall under the slack season of milk production.

However to be more analytical it is much better to see the extent of profitability indices. The survey decided to be keen at this area because; it is the area which determines survival and sustenance (growth and development) of the CBO business.

Profitability index is defined as a percentage of the relationship between total revenue and total costs over a given period. In brief it is represented by the following expression;

$$\text{Profitability index} = \frac{\text{Total revenue}}{\text{Total costs}} \times 100$$

If profitability index = 100% —————>1.0 then the entire project/business is at break-even point.

If profitability index > 100% —————>1.0 then the entire project/business makes profit

If profitability index < 100% —————>1.0 then the entire project/business makes loses.

Referring our case therefore;

$$\begin{aligned} \text{Profitability index} &= \frac{26,690,120}{22,630,344} \times 100 \\ &= 117.9\% \\ &= 1.179 \end{aligned}$$

This analysis justifies that; the CBO milk business has been operating with profit. So far the result of this analyses reveals that, the CBO gets little profit margin compared to the volume of milk business.

However, profitability index become more clear and expressive when profit margin on sales are observed concurrently with that index.

Profit margin on sales is the percentage of relationship of total annual net income and annual total sales. Mathematically it is expressed as;

$$\text{Profit margin on sales} = \frac{\text{Annual Net Income}}{\text{Annual Total Sales}} \times 100$$

Thus the trend of profit margin on sales for four quarters in 2006 were:

$$\begin{aligned} \text{First: Profit margin on sales} &= \frac{1,628,918}{10,323,600} \times 100 \\ &= 15.7\% \end{aligned}$$

$$\begin{aligned}\text{Second: Profit margin on sales} &= \frac{1,825,167}{11,301,000} \times 100 \\ &= 16.2\%\end{aligned}$$

$$\begin{aligned}\text{Third: Profit margin on sales} &= \frac{31,711}{669,440} \times 100 \\ &= 4.7\%\end{aligned}$$

$$\begin{aligned}\text{Fourth: Profit margin on sales} &= \frac{573,979}{4,396,080} \times 100 \\ &= 13\%\end{aligned}$$

Even though profit margin on sales was good, but quarterly growth rate was not stable. The reasons, which contributed profit margin on sales to be good include;

- Long experiences of the CBO for operating at the same market.
- Presence of product differentiation at the market (ie. fresh milk, fermented milk and pasteurization milk).

On the other hand, instability and low growth of profit margin on sales was caused by;

- Seasonal milk production as well as stiff business competition provided by other private dealers, destabilized milk business operations.
- The management was not keen and cost conscious, as throughout the cost of operation were chasing revenue closely.

However, the CBO was advised to review existing weaknesses in order stabilize project business performance.

Evaluation measures progress of project implementation vis-à-vis planned objectives. It reveals how the project did and learns from experience how implementation can be improved. Evaluation of the project is going to be done periodically, in the mid and at the end of financial year of the project. The internal evaluation has to be done by project staff (Manager) and/or leaders, while donor(s), consultant or any other interested parties could carry out external evaluation. However for the project, evaluation agreed to be done at the following areas; Progress of work plan, Implementation of planed activities, Achievement of objectives, Efficiency and Effectiveness and Impact of the project. So the project has decided to make formative evaluation in the end of January 31, 2007 and summative evaluation in the end of December 2007. Formative evaluation indicators provide data, which lead to make decisions on modification, adjustment and improvement of project operations and summative evaluation indicators lead to make decision to continue or close the project.

Even though the project plan was to make formative evaluation in the end of January 31, 2007 and summative evaluation in the end of December 2007, the facilitator had forced to make formative evaluation in July 2006 and summative evaluations in January 2007 in order to get fair decisions and judgment on project progress. The impact and outcome of the project were observed through community life changes, replica and performance of the project.

However, specific area of interest and parameters involved in evaluation were:

- Project performance.
- Training area / knowledge and skills provided.
- Relevance of delivered materials.
- Changes, which were taking, place in respect with provided trainings.

### **5.2.1 Research Questions**

- i. Project implementation could achieve the planed objectives?
- ii. What is the relevance of trainings in regard with effectiveness and efficiency of the project?
- iii. What is the position and status of project performance?

### **5.2.2 METHODOLOGY**

Methods used to collect data in evaluations were; focus group discussion, and secondary data. These methods were complementing each other in evaluation process.

#### **5.2.2.1 FOCUS GROUP DISCUSSIONS**

Evaluation process was involving a focus group, which had 35 persons. Those people were selected from the population in respect with specific criteria. They were milk sellers and customers who were man or woman with the age between 30-45 years old. The second criteria, all of them were supposed to have stakes to the project. However, Twelve questions, which were appended at appendix 11, were used to conduct evaluation in the focus group discussion.

##### **5.2.2.1.1 Rationale for Using Focused Group Discussions**

The main factor, which led the facilitator to use focus group discussion was its ability to control biases which threatens the validity of information that are collected by some of the research methods. Biasness was controlled due to the fact that, all respondents had full autonomy on answering questions and providing opinions. Beside that, this method was easy as it was possible to allow all participants to participate without any extra costs. It is therefore a cost saving method of data collection for research.

### **5.2.2.1.2                      Validity of Data Collection for Evaluation**

In focus group discussions the facilitator administered questions and provided some of the answers were verified with direct observations. To get valid and reliable responses the facilitator was keen to administer questions respondents. He was posing the same questions with different settings to respondents in order to close check the validity of previous responses. Likewise, the flow of questions was logical and was providing a room of crosschecking validity of information, which were provided by respondents in the previous questions. Direct observations of action, movements and the way of behaving for respondents were complimenting focus group discussion method to collect data and determining the internal validity of data collection.

### **5.2.2.1.3                      Analyses and Results**

#### **5.2.2.1.3.1                      Community Life Changes**

Through focus group interventions, the facilitator managed to get information related community life changes. The Change of the community life is one of the areas where the facilitator administered summative evaluation in decision-making. At this area, the evaluator was interested to know specific changes that happened to the community after project interventions. This exercise was long and tedious, since it involved visiting premises of 30 families that had project stakes. On the way from location of one family to another, we conducted discussions, dialogues, and got opinions of the impact of the project of each family. Actually, results from respondents were very interesting and impressing as follows; out of 30 families, 65% were said that, the project was assisted them to increase milk selling from the average of 40 litres per day to the average of 75 liters per day. They added that, the increase of earnings led them to fulfill their outstanding obligations, which involved finishing of house 30% of respondents, paying school fees of secondary school students 15% of respondents and buying more cattle 20% of respondents. On top

of that, they appreciated with knowledge and skills, which were provided by the project to the community. With thankful they explained that, acquired knowledge and skills made them to change, they were using improved tools for milk handling, storage and transportation instead of the traditional one.

Yet, 35% of respondents also agreed that, the project has assisted them to increase milk sales and the increased income was used to offset outstanding obligations. The major sited areas were purchasing of farm implements and ox-drawn carts. They said farming was a problem to them, so they purchased those tools in order rationalize tiresome of farming activities.

#### **5.2.2.1.3.2                      Replica of the project**

This project is implemented by the CBO members and delivers services to the community of Bunda District. During trainings, the project involved members and non-members of the CBO. For example, some of milk customers, milk vendors and milk producers who were not members of the CBO were also involved in trainings. So, the combination of acquired trainings and project business operations had influenced replica of the project to the community. Within Bunda Township, up to January 2007, there were 3 more milk selling stations which were opened by the group of 5 to 10 people for each one. Those milk selling points were established in order to make the members to raise their income and deliver reputable services to the community. They were regularly seeking assistance of milk business operations from the project leaders at the CBO.

According to collected data in the site, the first group was established in June 2006, with initial capital of Tshs 5,000,000. The second one was established in September 2006, with initial capital of Tshs 4,000,000 and the last one was established in December 2006, with initial capital of Tshs 6,000,000. In order to control milk quality, purchasing process of this stuff at new milk business stations is similar with that of the project of the CBO.



#### **5.2.2.1.3.3 Milk adulteration**

The Focus group method involved 35 respondents. Respondents who involved to the target group were milk sellers and customers who were man or woman with the age between 30-45 years old. Further, all of them were supposed to have stakes to the project and the emphasis was on equal representations between men and women.

When we refer on data, which were collected by this method, they indicate and verify the existence of the problem of mixing water with milk and its magnitude. Majority of the people (35 people) verified that, milk sellers mix water with milk before the product reaches to final consumers in Town. Some respondents went into extreme by bitter saying that; “Some of milk sellers mix milk with water from ponds. That water is really not hygiene and safe. The question of health of consumers is not a priority to milk sellers, they mind on getting money and not health of human being”, one respondent said.

The above responses of respondents, led the facilitator to develop the idea that, milk product that were sold to customers, could endanger health and life of consumers. So he become interested to evaluate the level of this problem after project interventions.

According to data, which were collected by focus group discussion from the target group, 100% of respondents said that, the problem of mixing water with milk was decreasing after project intervention. Because this issue was crucial and interesting, the facilitator was motivated to go further and asks reasons. Without hesitating respondents responded that, it was because of conducted trainings. They added that, before training, there was a vacuum in mindset of milk business dealers, which led to low knowledge, and skills of milk handling and quality control. That situation, was influencing milk adulteration, which stress quality degradation, accentuate high

perishability and decay of milk stuff. This justifies that the project is suitable and properly the efforts of community economic development.

#### **5.2.2.1.3.4 Project Objectives**

The project had specific objectives, which had to be accomplished within 18<sup>th</sup> months. The first two objectives, which were capacity building of the target group on best practice of milk handling and quality control and capacity building of the CBO on the milk marketing and entrepreneurship skills were implemented successfully. But the last one, which was capacity building of the CBO on preparation and execution of strategic plan, business operation plan, action plan and monitoring and evaluation, was not implemented. So far, the facilitator was interested to know and evaluate the relevance of training, which was conducted to the community.

#### **5.2.2.1.3.5 Relevance of Trainings**

Here the facilitator went straightforward to the target group who participated in training. At last he conducted interview to the target group in order to get feed back for relevance of knowledge and skills, which was provided to the community. The result of the interview revealed that, 86% of respondents were appreciated and accepted trainings and the set of the course. They asked that program to be scheduled to the project plan so that, community training on milk marketing and entrepreneurship skills become a permanent program of the project. So far 14% of respondents were neutral, they didn't provide direct answers and reasons why they didn't have answers. Through those results we can conclude that; the offered trainings were motivating factors for project development and sustainability and delivered skills were friendly for community economic development.

But capacity building of the CBO on preparation and execution of strategic plan, business operation plan, action plan and monitoring and evaluation, which was not implemented, was left to

the CBO project. The project was advised to prepare a 5 years strategic plan, which incorporate accomplishments of areas that had not touched by the project within for the period of 18<sup>th</sup> months. Also, a five years strategic plan will entail and integrate implementation of previous and new projects.

#### **5.2.2.2 SECONDARY DATA**

When the facilitator went to the project for evaluation, he decided to peruse the books and files of the project thoroughly. From those documents, he took records and reports (financial and physical reports) of the project in order to get information, which depicts progress performance. That information led the facilitator to make analyses for evaluation of the project, where statistical and descriptive analyses were made.

##### **5.2.2.2.1 Rationale of using secondary data for evaluation**

Comprehensive review of secondary data is important in the sense that, it gives an opportunity to read relevance information, which leads discussion and conclusion in respect with actual facts thereon. Also the facilitator decided to use documentary sources in order to concretize primary data, which were received from other methods of data collection in project evaluation.

##### **5.2.2.2.2 Analyses and Results**

###### **5.2.2.2.2.1 Project performance**

Through secondary data it was found that, milk sells performance were increasing. This result were attained after making comparison between two years, January -December 2004 which was taken as a base year and January 2006 – December 2006 the period of project intervention and comparison year. In year 2004 the actual milk sales were Tshs 6,770,130, but in 2006 actual milk sells was raised to Tshs 26,690,120, which managed to meet projected sells of Tshs 26,224. Refer appendix 9 for the project milk sales projection. Those data shows that the performance of the

project was fine since, the project was managed to perform its obligations (collecting and selling milk as planned). On top of that, within the same year (2006), the project had high discipline of expenditures as it managed to get an actual profit of Tshs 4,059,776. This scenery certifies on effectiveness and efficiency of project performance. Apart from the increase of sells, milk perishability was decreasing to the average of 54.5 litres per month in 2005 to 4.3 litres per month in 2006. This scenery depicts the efficiency and effectiveness of the project.

#### **5.2.2.2.2.2 Formative and Summative Evaluation Indicators**

Overleaf is the summary of formative and summative evaluation indicators, which were used in evaluation, and they are indicating expected and actual outcomes of the project.

**Table 17**      **Evaluation table summary.**

<b>Project Objectives</b>	<b>Performance indicators</b>	<b>Expected outcomes</b>	<b>Actual outcomes</b>
To build capacity of the target group (the members, milk producers and milk vendors) on best practice of milk handling and quality control by March 2007.	Milk hygiene Milk sells turnover. Liters of milk spoiled.	Increase of sells turnover. Decrease of milk perishability. Genuine milk handling and delivering hygiene milk to customers.	Sells turnover were increasing gradually. Decrease of milk perishability was gradually seen at the CBO.
To build capacity of the CBO on the milk marketing and entrepreneurship skills by March 2007.	Milk sells turnover. Liters of milk spoiled. Number of customers. Competing to the market	Genuine milk handling and delivering hygiene milk to customers. Increase of sells turnover. Decrease of milk perishability Existence of innovative and self-initiated activities.	Sells turnover were increasing gradually. Decrease of milk perishability was gradually seen at the CBO.

<p>To build capacity of the CBO on preparation and execution of strategic plan, business operation plan, action plan and monitoring and evaluation by March 2007.</p>	<p>Business performance of the CBO. Performance of planed objectives.</p>	<p>Preparing and execute effectively strategic plan, business operation plan, action plan.  Develop and execute monitoring and evaluation accordingly.</p>	<p>The CBO had managed to prepare action plan for 2006 financial year, which starts March and action plan for a new year (2007).  Also the CBO out sourced the task of making strategic plan and business operation plan.</p>
---	---	--	---

### **5.3**

### **SUSTAINABILITY**

#### **5.3.1 SUSTAINABILITY:**

Project sustainability refers to the capacity of the project to continue functioning and delivering intended services, by being supported with its' own resources (Human, Material and Funds) even when external sources of funds ends. However, sustainability of this project (the CBOs' milk project) is expected to be in place since: The CBO Members' were involved and participated effectively to identify, design and implementing the project. So provided training met exactly the real and desired needs of the community for milk business operations in sustainable bases.

#### **5.3.2 TECHNICAL ASPECT**

Under this area the project should consider the following areas;

##### **5.3.2.1 Business competition**

The project had local and outside business competitors. Local business competitors were milk vendors who sell milk direct to the community; they don't have business contact with the project. Milk vendors provide horizontal competition to the project since; they sell the same product at the same market. On the other hand, there were outside competitors who sell milk in Bunda district. Competitors of that kind provide vertical competition to the project, as they bring processed products, which are new products to the market. So, in order to accommodate competition challenges, the project as a business entity, has to organize itself and prepare strategic document to harmonize this situation. For sure this could work since, the CBO members, Leaders and Staff were empowered and trained on technical aspect and better practice of milk marketing, entrepreneurship and good governance of milk business operations. They have knowledge and skills for making things to be in place and move diligently. On the other hand, effective business competition could be possible only when the project maintain effective milk marketing. However,

to be effective in milk marketing, there should be four interdependent variables. These elements are not mutually exclusive they work together. That is;

$$(ME) = M(s) + M(k\&e) + E(s) + C(a)$$

Where:

f(ME) = Milk Marketing Effectiveness.

M(s) = Skills of milk marketing.

M(k&e) = Milk marketing knowledge and Experiences.

E(s) = Entrepreneurship skills.

C(a) = Capital.

The argument is that, to be effective in milk marketing with Bunda district experience, the project should have;

- **Skills of milk marketing.** Milk marketing skills enable the project to have techniques, which enable to compete with other milk-marketing dealers and capture internal and external market. Also enables the project to run milk business in a modern and improved way of operation. By having marketing skills, the project runs milk business by using economic principles and improved marketing functions. Skills enable the CBO to tap and capture available internal and external opportunities, plan and speculate the future diligently. So, this is important to be in place to the CBO.
- **Milk marketing knowledge and experience** enable the CBO to be conversant with the business and to keep intact with local and foreign customers. Also enables the CBO to maintain reputation and confidence of delivering services to customers. Experience itself build aggressiveness, confidence, enthusiastic and authenticity of a particular business.



Knowledge helps the CBO to be conversant with what it is supposed to be done, when to do, who are the customers, where are they and what are their interests. This case checks business operation diversity, which the CBO might encounter.

- **Entrepreneurship skill** is important as it helps the CBO to manipulate milk businesses and capture existing opportunities. On top of that, entrepreneurship skills help them to make speculation and take care risks for the future development of the CBO. It however, helps the CBO to be creative, aggressive, optimistic, ambitious, and innovative for the better performance and faster development.
- **Capital** facilitates operations of the CBO in terms of working and investment capital. Capital enables the CBO to get fund for purchasing improved tools and equipment for milk collection, handling, storage and milk transportation van. Also it enables to establish milk processing and cooling system. On the same line, it provides working capital for running the business.

The above facts makes clear and important that, taking alone of working together, these elements should be in place for effectiveness milk business operations as each element has its role to play.

#### **5.3.2.2 Product promotion**

Regardless to the size and level of operations of the organization, the market situation constantly influences the mode of operation of any business. Today for instance, the current market in Bunda Township has a number of varieties of milk products, which is coming inside and outside of the district. This situation is quite different when we refer 20 years past, where the CBO was controlling and dominating the Bunda township milk market. The present competitions make the project to operate at embarrassing environment; it needs to design strategies that lead milk business operations to be sustainable. Product promotion is one of the strategies, which is

important to be considered thereof. Product promotion is vital since; it places in mind and makes the customers to be aware of the products. Also it makes the customers to know where and how to get the products. The project should not take for granted that, customers automatically would buy their products. They have to design promotion strategies for milk marketing, so that they can survive at the market. The market of milk is there and the project has opportunity of getting it since, the project drivers have knowledge and skills of marketing and entrepreneurship.

### **5.3.2.3 Customer taste and preferences**

However, we are speaking on changes so that, the CBO maintain present customers and get more. Together with external factors, the CBO must take care satisfaction of customers' need, which is determined by customer taste and preference, price and quantity demanded. This is briefly expressed by the following expression;

$$C(s) = C(t + pr) \times P \times Q$$

Where:

$C(s)$  = Customer Satisfaction.

$C(t + pr)$  = Customer taste and preference.

i.e.  $t$  = Taste and  $pr$  = Preference.

$P$  = price of a product.

$Q$  = Quantity demanded.

Further, we came out to realize that, in Buda district, customer satisfaction is direct related with customers' real income and quantity demanded. i.e. the real income drives to get quantity of product demanded. In this regard, satisfaction of the customers' need balances aspirations of two factors, the above expressed factor and the real income factor, which is, expressed that;

$$C(s) = C(i) \times Q$$

$$C(t + pr) = \frac{C(i) \times Q}{P \times Q}$$

But Real Income [C(i)] = Y x Q      Q = Quantity Demanded  
Y = income

$$C(t + pr) = \frac{Y \times Q}{P}$$

#### 5.3.2.4 Marketing Information

115

and sustainable, the project thought on establishing marketing information system (MIS). The Market Information System document declared to be designed and incorporated in a 5 years strategic plan of the project. The project had to contract a consultant who will design Marketing information system for the project. The terms of reference and basic questions of the document include; What should be produced and to whom it should be produced? What is the write time to produce a particular product? Where and at what particular place the particular product is needed? How the product has to be produced and handled to the customers? Which are the opinion and preference of customers.

#### **5.3.2.5 Monitoring and Evaluation**

Monitoring and evaluation challenges to the project were taken into consideration; it was not left ever to stay. The project has owners who thought on resolving this problem. With advice assistance from the facilitator, the project has decided to prepare monitoring and evaluation plan by getting a backstopping from co-operative office of Bunda District Council. Monitoring and evaluation plan is expected to complete as soon as possible in order to guide implementation of the annual project action plan and strategic plan.

#### **5.3.3 FINANCIAL ASPECT**

Investment and working capital is important for project growth and development. If there is a shortage of working capital the project won't meet operation costs and insufficient of investment capital draw back new or expansion of investment. This point shows that this is one of the sensitive areas of project development and sustainability. To address capital to the project, the CBO members decided to establish a new project of SACCOS. This project will enable the CBO to raise much internal and be access to external capital for milk business financing. Also it will generate capital funding to the sister project from internal revolving fund.

Under this system, the project will be sustainable in terms of working and investment capital.

This approach address both short term and long-term capital financing to the project.

On top of that, the CBO project needs to plan and establish addition project, which focus and address on project sustainability. Regardless its size milk processing is vital since it adds the value of milk product and, that is why the CBO resolved to make a 5 years strategic plan.

#### **5.3.3.1 Strategic Plan**

In free market economy, survival and development of any business entity depends on efficiency and effectiveness of business undertakings. Under free market economy, the market is open throughout to anyone to inter or leave away where capital plays a big role for existence to the market. This combination of effectiveness, efficiency and capital could be expressed as a golden rule for survival at free market economy and this is what led the project to consider designing planning process. Through this package, the project made a long-term (strategic) plan and implementational plan (annual work/action plan).

The long-term, which is a 5 years strategic plan of the project, was made with assistance of the facilitator (CED student) and it was accomplished in February 2007. According to the strategic plan, the project ironed out what projects has to be accomplished within 5 years and its budget. Overleaf is a five years strategic plan of the project.

**Table 18 A Five Years (2008 to 20012) Strategic Plan and Budget of the Project**

Strategic objective	Activities (projects) to be implemented	Estimated Budget “000”					Responsible Actors
		Year 2008	Year 2009	Year 2010	Year 2011	Year 2012	
		Tshs	Tshs	Tshs	Tshs	Tshs	
Operating the project business at sustainable bases	<ul style="list-style-type: none"> <li>• Trainings on preparation strategic plan and business operation plan</li> </ul>	1,000	1,200	1,200	-	-	Consultant
	<ul style="list-style-type: none"> <li>• Trainings on preparation of action plan</li> </ul>	800	800	800	-	-	Consultant
	<ul style="list-style-type: none"> <li>• Training on monitoring and evaluation</li> </ul>	2,000	2,200	2,400	2,600	2,800	Consultant
	<ul style="list-style-type: none"> <li>• Writing project proposal for project funding for construction of milk processing industry</li> </ul>	5,000	-	-	-	-	Consultant
	<ul style="list-style-type: none"> <li>• Construction of milk processing industry</li> </ul>	-	900,000	-	-	-	Contractor
	<ul style="list-style-type: none"> <li>• Trainings on designing and set up of better management information system</li> </ul>	3,000	-	-	3,200	-	Consultant

	in the project.						
	<ul style="list-style-type: none"> <li>• Trainings on effective and efficient of milk business operations</li> </ul>	3,500	4,000	4,500	5,000	5,500	Consultant
	<ul style="list-style-type: none"> <li>• Trainings on product development and sustainability</li> </ul>	4,200	4,400	4,600	4,800	5,000	Consultant
	<ul style="list-style-type: none"> <li>• Training on good governance and public relations</li> </ul>	1,000	1,000	1,000	1,000	1,000	Consultant
	<ul style="list-style-type: none"> <li>• Training project staff on milk technology</li> </ul>	15,000	15,000	15,000	18,000	18,000	Project members
	<ul style="list-style-type: none"> <li>• Acquisition of tools and equipments</li> </ul>	18,000	17,000	-	-	10,000	Project members
	<ul style="list-style-type: none"> <li>• Working capital to the project</li> </ul>	80,000	80,000	90,000	90,000	90,000	Project members
	<ul style="list-style-type: none"> <li>• Acquisition of milk transport van</li> </ul>	160,000	-	-	-	-	Project members
	<ul style="list-style-type: none"> <li>• Soliciting external funding for supporting project plan</li> </ul>	6,000	6,000	7,000	7,000	8,000	Project members and consultant
<b>Total</b>		<b>299,500</b>	<b>1,031,600</b>	<b>116,500</b>	<b>121,600</b>	<b>130,300</b>	

Source: the CBO project strategic plan, 2007

### **5.3.3.2**

### **Planning System**

The new project planning system is well organized and promise future development of the project business operations. The project has two ordinary general meetings annually, extraordinary or special general meeting can be convened any time when needed. The first ordinary general meeting is convened to receive and discuss the audit report of the project. Usually this meeting is held before making meeting of planning and budget of a new financial year. In this meeting the members annual performance of the project and discuss it thoroughly finally they make decisions in favour of project development. The second ordinary general meeting is for planning and budgeting. This meeting is held for making recurrent and capital expenditure of the project. Recurrent expenditures refers annul revenues against operation costs of the project and capital expenditure refers project investments over the period of planning. Here the project makes plan and estimates for the future development of the project. This system had established in order to make the project to be on line of long lasting in milk business.

### **5.3.4**

### **POLITICAL ASPECT**

The project objectives and implementation process does not conflict with the constitution of the country and ruling part manifestation. The project objectives focus on increasing income of the community and poverty alleviation, which is the National agenda of the country. By so doing, the project implement and promote the National interest to the community.

However, the fact of addressing milk quality and hygiene control provides an added advantage to the CBO to political leaders. The political leaders are part of the district community and they are interested to see that, the project is supplying good quality of milk stuff to the community and eventually, get success. So they support the project by mobilizing and



sensitizing the community during campaign of mass mobilization forums. Also, during mobilization campaign political leaders educate the community on the negative side effects of mixing water with milk.

## **CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS**

This chapter summarizes the project work, it shows what was intended to be done, what have been done, what was happening, the shortcoming and success of the project, the over all views of the author and provide recommendations on what should be done to improve the project in future. Also it is the area, which the author provides his experience to the readers in respect to the project. Read the chapter to get details.

### **6.1 CONCLUSIONS**

According to the cited literature, hygiene is a major problem of quality control. For example, 90% of artisan factories interviewed in Honduras consider milk collected during the rainy season to be of low hygienic quality, they want to collect milk of higher hygienic quality, especially during the rainy season and would be willing to pay a higher price if they could have that option, but they don't have that option. The low hygienic quality not only lead to low price of the milk staff, but also it attributes to high rate of milk perishability and spoilage. Federico Holmann (Livestock Research for rural Development (2001). This problem as well existed at the CBO. Quality control of milk staff (hygiene quality of milk) at a CBO was low specifically in rain season where there is abundance supply of milk staff. This is a common phenomenon since there is a direct relationship between low hygienic quality of the milk and the rainy season, which agrees with the conclusion of De Franco, et. Al. (1996). In Nicaragua for instance, 30% of artisan factories consider milk during the rainy season to be of low hygienic quality. Quality control is affected by milk handling referred from production point (milking), transportation and storage at the end point (at the CBO). In most cases milk tends to perish and be spoiled at production point, on transit or at the end point.

Project intervention was mainly addressing to fight against that adverse situation at the CBO. So the project had three specific objectives, which include:

- To build capacity of the target group (the members, milk producers and milk vendors) on best practice of milk handling and quality control;
- To build capacity of the CBO on the milk marketing and entrepreneurship skills; and
- To build capacity of the CBO on preparation and execution of strategic plan, business operation plan, action plan and monitoring and evaluation.

Among the objectives, there was no objective, which was attained/achieved 100%. If we start with capacity building to the target group on best practice of milk handling and quality control by March 2007 and to capacity building to the CBO on the milk marketing and entrepreneurship skills by March 2007, achievements were attained from;

- The increase of sales turnover. Sales turnover was increasing gradually, which is a sign of achievements.
- Decrease of milk perishability. Milk perishability at the CBO were decreasing, and by the time of January 2007 when I went to visit the CBO there were no milk that had perished.

Here the question of milk handling and delivering genuine and hygienic milk to customers was remaining as a problem. Adulterated milk was still found in a small rate at the CBO. This implies that, more trainings and awareness to the target group are needed. So this task was assigned to the project (CBO leaders) and it was planed to start on July 2007.

When we go to capacity building of the CBO on preparation and execution of strategic plan, business operation plan, action plan and monitoring and evaluation by March 2007. On this objective the CBO had managed to prepare action plan for 2006 financial year, which starts in March and action plan for a new year (2007). However, preparation of strategic plan and business

operation plan were to be outsourced. But, the job was not outsourced, the author in collaboration with the project members did it instead.

So far, those activities were not accomplished or attained 100% due to the time and fund constraints. The CED student had only 18 months to work with the CBO. The established project was limited to 18 months, but only 13 months were used for project implementation. Also the project had fund constraints. Funds to implement the project were not adequate. So far, the expected outcome if the project has successfully completed include:

- Genuine milk handling and delivering hygiene milk to customers,
- Increase of sells turnover,
- Decrease of milk perishability,
- Existence of innovative and self-initiated activities to the CBO,
- Preparing and execute effectively strategic plan, business operation plan, action plan,
- Develop and execute monitoring and evaluation accordingly.

## **6.2 RECOMMENDATIONS**

This project is good since it provides training to the target group at various areas such as;

- Knowledge and skills on milk marketing such as milk handling, quality control, price and pricing,
- Knowledge and skills of entrepreneurship,
- Milk management and milk economics,
- Participatory supervision, monitoring and evaluation,
- Preparation of strategic plan and action plan,
- Project design and planning of business operations, and

- Marketing functions. They should know about 4Ps, which are Product, Promotion, Price and Place.

So, I recommend other people or institutions to establish this kind project(s) to their organizations, since, through training the employee and board members gets knowledge and skills for running effective business. Also the entire organization become innovative and initiatives in such a way that, they can solve the problem of internal capital funding through establishing savings and credit project. Through this project, the community members raise their own capital by making regular savings and later provide credits among themselves for buying required tools and equipments for business (milk handling and transportation). Savings and Credit scheme could accommodate the problem of fund for purchasing required tools and equipments for milk marketing (milk handling, transportation and storage). So, appendix 12 shows possible internal and external sources of capital to the CBO, what matters is for the CBO to learn how to maneuver to get that fund. Apart from maneuvering, the CBO is supposed to get required knowledge and skills for attending this issue.

### **Helpful Strategies**

- i. The District Council and other collaborating institutions such as NGOs, CSOs, Donor agencies inside and outside of the district (eg Heifer International) should support the project interventions.
- ii. Also the council is required to provide backstopping to the project by providing training and technical advice
- iii. Donor agencies and credit institutions should consider supporting project operations by providing grant or advancing credit to the project.

- iv. The sense of ownership, control, and commitment is to be emphasised and trained to the project owners.
- v. Beside that, empowering of the project members on the project leadership and management is necessary to be in place as it the project operations will be managed in sustainable bases.
- vi. Business operations of the project should move with time. The project should produce the right product at the right time to the right people. By so doing the project becomes sustainable at the market.
- vii. The CBO should consider on adding value and selling more products from milk product. This could be possible by establishing milk-processing industry, which produce several products from milk. Refer appendix 13 for products that SME could generate from milk product. The CBO should struggle to mobilise internal and external funding to implement this project.

## **BIBLIOGRAPHY**

Co-operative Act Number 20 of 2003

Co-operative Policy of 2002

ILRI (2003) Enhancing milk markets vital to the poor

ILRI (2004) The small holder dairy projects: experiences in dairy policy influencing in Kenya

B. S. Nielsen and K. B. Quist (1990) Dairy and food research at the Royal Veterinary and Agricultural University.

Holger Grougorg (1990) Product development (packaging, time and consumption)

Gerhard Kunze et. al. (1997) The revival of the dairy industry in Mara – Region / Tanzania.

Getheru, C. et. al. State to reform dairy industry

ILRI(2003a) Enhancing milk markets vital to poor.

Muriuki, H.G. et.al. (2001) How small dairy systems in Kenya contribute to food security and poverty alleviation: Results of recent collaborative studies.

Peter Kjelstrup (1990) Restructuring of a product line is also a kind of development.

Raouro, O. (2004) Government the spills in dairy sector.

Staal, S.(2004c) Competitiveness of the smallholder dairy enterprise in Kenya.

Staal, S.(2004a) The demand of dairy products in Kenya.

Project design for program managers –The CEDPA Training Manual Series Volume II.

ILCA (Addis Ababa, 1983) Livestock Policy Unit Programme Review and Protocols for 1984.

FAO (March 1981, p. 41.) “International Scheme for Coordination of Dairy Development Mission Report on Ethiopia”

FAO (1980) an assessment of the development of the dairy industry in Burundi.

FAO/WFP (Rome, October 1980) "Interim Evaluation Summary Report on Dairy Development in Burundi".

Dairy Development Plan, as spelt out in the Third National Development Plan (Zambia), 1979-83, as summarized in ISCDD (FAO) Mission Draft Report, 1982.

The Federal Ministry of Agriculture (FMOA) and the Green Revolution National Committee (GRNC) Livestock Production Plan for Nigeria, 1981 - hereafter referred to as FMOA/GRNC, (1981)

Waters-Bayer, A. (1983). "Small-scale Dairy Production Among the Fulani Pastoralists in Nigeria." ILCA Internal Communication (ILCA Subhumid Programme, Kaduna Nigeria).

FAO/ISCDD Nigeria Country Mission Report of September 1975.

R.Chillier, K.N'dingo ( DAR ES SALAAM, JANUARY 2003. ) - MBEYA DAIRY MILK PROJECT

Federico Holmann (Livestock Research for rural Development (13) 1 2001) Milk market of small scale artisan cheese factories in selected livestock watersheds of Honduras and Nicaragua  
ILCA (Addis Ababa, 1983) Livestock Policy Unit Programme Review and Protocols for 1984.

FAO (March 1981, p. 41.) "International Scheme for Coordination of Dairy Development Mission Report on Ethiopia"

FAO (1980) an assessment of the development of the dairy industry in Burundi.

FAO/WFP (Rome, October 1980) "Interim Evaluation Summary Report on Dairy Development in Burundi".

Dairy Development Plan, as spelt out in the Third National Development Plan (Zambia), 1979-83, as summarized in ISCDD (FAO) Mission Draft Report, 1982.



The Federal Ministry of Agriculture (FMOA) and the Green Revolution National Committee (GRNC) Livestock Production Plan for Nigeria, 1981 - hereafter referred to as FMOA/GRNC, (1981)

Waters-Bayer, A. (1983). "Small-scale Dairy Production Among the Fulani Pastoralists in Nigeria." ILCA Internal Communication (ILCA Subhumid Programme, Kaduna Nigeria).  
FAO/ISCDD Nigeria Country Mission Report of September 1975.

R.Chillier, K.N'dingo ( DAR ES SALAAM, JANUARY 2003. ) - MBEYA DAIRY MILK PROJECT

Federico Holmann (Livestock Research for rural Development (13) 1 2001) Milk market of small scale artisan cheese factories in selected livestock watersheds of Honduras and Nicaragua

Lofland, J and Lofland, L.H. (1995) Analyzing social settings: A guide to qualitative observation and analysis. Belmont,CA: Wadsworth Publishing Company.

Fetterman, D.M. (1989). Ethnography: Step-by-Step. Applied social research method series. Volume 17. Newbury Park, Ca; Sage.

Arlene Fink and Jacqueline Kosecoff (1985). How to conduct surveys. A step-by-step guide. Sage Publications. Newbury Park.

Thomas W. Pavkov and Kent A. Pierce (2003), A Student Guide to SPSS 11.0 for Windows.