A STUDY OF THE SUSTAINABILITY OF THE CARITAS DAIRY CATTLE PROJECT IN MBEYA RURAL DISTRICT, TANZANIA

BY

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ABSTRACT

Poverty remains predominantly a rural phenomenon, although the number of the poor in urban areas, mainly the unemployed and those engaged in the informal sector, is growing fast. Since independence, the Government of Tanzania has had poverty eradication as one of its main goals. One of the interventions is the creation of an enabling environment for private investment in productive sectors including agriculture and livestock, mining and tourism among others. This study was done in Mbeya Rural District with the objective of assessing the sustainability of the CARITAS Dairy Cattle Project. The study used a cross-sectional design in which a sample of 112 household beneficiaries was interviewed using a structured questionnaire. The collected data were analyzed using Statistical Package for Social Sciences (SPSS) computer program. Results from this study revealed that more than 87% had a primary education which is sufficient for livestock keeping. The community was fully involved and participated during establishment of the project and thus, it is quite aware of the project details and its importance. About 53% had attended training on dairy cattle management while the rest received knowledge and skills through their colleagues. More than 56% of the beneficiaries earned their annual income ranging from Tshs 500 000.00 to Tshs 2 500 000.00 through milk production. Considering all the above, the project showed all signs of sustainability provided that beneficiaries are empowered through market opportunities for the livestock products mainly milk, involves other development partners and ensures higher coverage of training on dairy cattle management and product marketing in the area.

DECLARATION

I, NESIMAGE EDSON KUBETTA, do declare to the Senate of Sokoine University of Agriculture that this dissertation is my own original work and that it has neither been submitted nor being concurrently submitted for degree award in any other institution.

18/02/2011

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DEDICATION

This work is dedicated to my beloved mother Atusumege E. Mboka, my Brothers Faraja Kubetta and Acken Kubetta who had made me what I am.

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
HIT	Heifer In Trust
HPI	Heifer Project International
KALIDEP	Kagera Livestock Development Program
MDG	Millennium Development Goal
NGO	Non Governmental Organization
NPES	National Poverty Eradication Strategy
SACCOS	Savings and Credit Cooperative Society
SPSS	Statistical Package for the Social Sciences
SUA	Sokoine University of Agriculture
TDDP	Tanga Dairy Development Program
URT	United Republic of Tanzania

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Poverty remains predominantly a rural phenomenon, although the number of the poor in urban areas, mainly the unemployed and those engaged in the informal sector, is growing fast. In both rural and urban areas the poor typically lack human capital and assets; they are less educated, of ill health and have large families. The vulnerability of the poor is increased by the preponderance of disease, including the rapid spread of HIV/AIDS (URT, 2005).

Since independence in 1961, the Government of Tanzania has had poverty eradication as one of its main goals. One of the interventions is the introduction and implementation of social and economic policies which address the issue of poverty both at national and personal levels. This has necessitated the increased state intervention to create an enabling environment for private investment in productive sectors such as agriculture and livestock, mining and tourism among others (URT, 2005).

Tanzania is among the world's poorest countries, with a per-capita annual income of about US$280, with agriculture playing a dominant economic role, accounting for nearly three-quarters of merchandise, 45-50% of GDP and employing around 70% of the labour force, especially in rural areas (Kapunda, 2007). Agriculture is therefore a major driver for rural development. Livestock production makes up around 13% of GDP and 30% of agricultural GDP. Of the latter, about 40% is beef production, 30% milk production and 30% poultry and small stock production.

Keeping sustainable improved cattle can significantly contribute to alleviating poverty in the country. Dairy cattle can create both income and employment and can also provide food to involved households. Soils can be improved through manure. The government policy has put a lot of emphasis on development of the diary industry through empowering smallholder farmers. This policy has been supported by a number of donor funded projects in Tanga and Kagera and the Southern Highlands Regions of Mbeya and Iringa (Kapunda, 2007).

Development agencies and Non-Governmental Organisations (NGOs) have continued to be at the centre of people's development. For example CARITAS in Mbeya under the Diocese of Mbeya facilitates the people in Mbeya Rural District under the Agricultural and Rural Development Project to improve incomes and livelihoods through hard work and improved productivity to meet or fulfil their needs. Since 1995, CARITAS through Heifer Project International (HPI) has been supporting the creation of sustainable small-scale farm enterprises to improve nutrition and supplement incomes through providing livestock on loan. Farmers are given a loan in terms of a heifer, a goat, a fish pond or a hen and have to pass on two or more of the off-springs to another family in need within the project area as a loan as well as a gift (Wire, 2005).

The programme covered the whole ward of Santilya, a total of 383 beneficiaries benefited by the project. CARITAS and Heifer Programme International (HPI) supported beneficiaries, by provision of dairy cattle, veterinarian, medications and dairy cattle management training. Also frequency of monitoring and supervision

were performed by CARITAS staff which included technical advice concerning the project. Initially the HPI through CARITAS sensitized the community to formulate groups of ten people who would be eligible for receiving calves. The project further identified para-veterinarians within a ward to work under the government to provide technical support.

These people were mandated for dairy cattle management including drugs from the period a beneficiary receives a calf through when it develops to a cow and delivers a calf, which is passed on to another family. The second delivered calf is regarded as "capital" and is sent back to CARITAS. CARITAS used to provide support by its own cost through the second delivered calf, a process which takes about three years and later leaves beneficiaries to run the project on their own. The CARITAS's responsibility in terms of management cost, training, payment of para-veterinarians and medications shifted thereafter to a new beneficiary for the same process. The project aimed to promote self-reliance, which would build self-esteem and help families to lift themselves out of poverty

1.2 Problem Statement

Although farmers have greatly benefited from the dairy cattle project in the presence of CARITAS as the chief implementer of the project, the question of sustainability of the project among beneficiaries after phasing out of CARITAS is an issue of concern. A challenging situation for sustainability of this project includes dependence of farmers to CARITAS in terms of farming inputs, skills and expertise. For instance, farmers depend highly on CARITAS for things like seeds and

seedlings of pasture grasses used to feed the cows and para-veterinarians provided drugs and health care to dairy cows. The market for milk and milk products from beneficiaries is still a challenging issue. For instance, while a litre of fresh milk is sold for 500/- to 550/- Tsh in Mbeya town, in this area the same amount of milk is sold for between 180/- to 200/-

Transportation of milk from this area is done by people with higher level of income usually business persons, majority of whom stay in Mbeya town. As purchasing power among villagers is low, dairy farmers are obliged to sell milk at prices dictated by middlemen. Few of them have the ability of taking a very little consignment to Mbeya urban because transport is costly. As such, poor returns to these farmers force some to sell their cows as a solution either to get out of the problem and/or switch to another project including crop production.

Due to poverty, some farmers sell dairy cows as an alternative to solve own problems related to food security and/or education for their children. This indicates that sustainability of this project after the support by CARITAS is questionable. Therefore this study aimed at investigating factors that will affect the sustainability of the project.

1.3 Research Justification

A number of studies on the contribution of livestock to poverty reduction have been done until now. Such studies were done by Mdoe *et al.* (1998), who examined livestock production and poverty reduction in Tanzania. Kayunze *et al.* (2001)

examined food status and income levels among dairy and non-dairy farmers in Chunya District, Tanzania. Rugambwa *et al.* (1997) on the other hand, examined the economic contribution and the economies of smallholder dairy production in Kagera Region. Despite all these studies no research has so far been done concerning sustainability of the CARITAS dairy cattle project in Mbeya Rural District since the project for poverty reduction was introduced. The Government recognizes CARITAS dairy cattle project for poverty reduction in Mbeya Rural District, but no empirical evidence has been produced so far to show the extent of the sustainability of the project.

This research is important as it will generate empirical information which will be used to advise beneficiaries of dairy cattle on sustainability of the project so as to improve the standard of living and increase incomes for poverty reduction. In addition, the research is in line with Millennium Development Goals (MDG) which call for a reduction of the absolute poverty to the people with income of less than one US$ per day come 2015, The National Strategy for Growth and Reduction of Poverty (NSGRP) that emphasises the increased growth rate of livestock sub sector by 2010 (URT, 2005).

1.4 Objectives and Research Questions

1.4.1 General objective

To assess the sustainability of the CARITAS supported dairy cattle project for poverty reduction

1.4.2 Specific objectives

i. To identify strategy or criteria used to allocate dairy cattle to the households
ii. To determine the level of awareness of the community about the project
iii. To assess the level of community involvement in the project
iv. To examine the importance of the dairy cattle to the household.

1.4.3 Research Questions

i. What criteria are used to allocate dairy cattle to the households within the project areas?
ii. What is the level of awareness of the community of the dairy cattle project?
iii. How is the community involved in the dairy cattle project?
iv. What is the importance of dairy cattle to the household?

1.5. Conceptual Framework

The conceptual framework in Fig. 1 shows four categories of variables. The dependent variable was sustainability (Ability to run the project for a long time). This variable was hypothesized to be influenced by three groups of variables namely background variables, independent variables and intermediate variables. The assumption was that background variables, independent variables and intermediate variables have influence on the dependent variable. The components have got a primary relationship in the determination of sustainability of the project towards household poverty reduction as presented in Fig. 1.

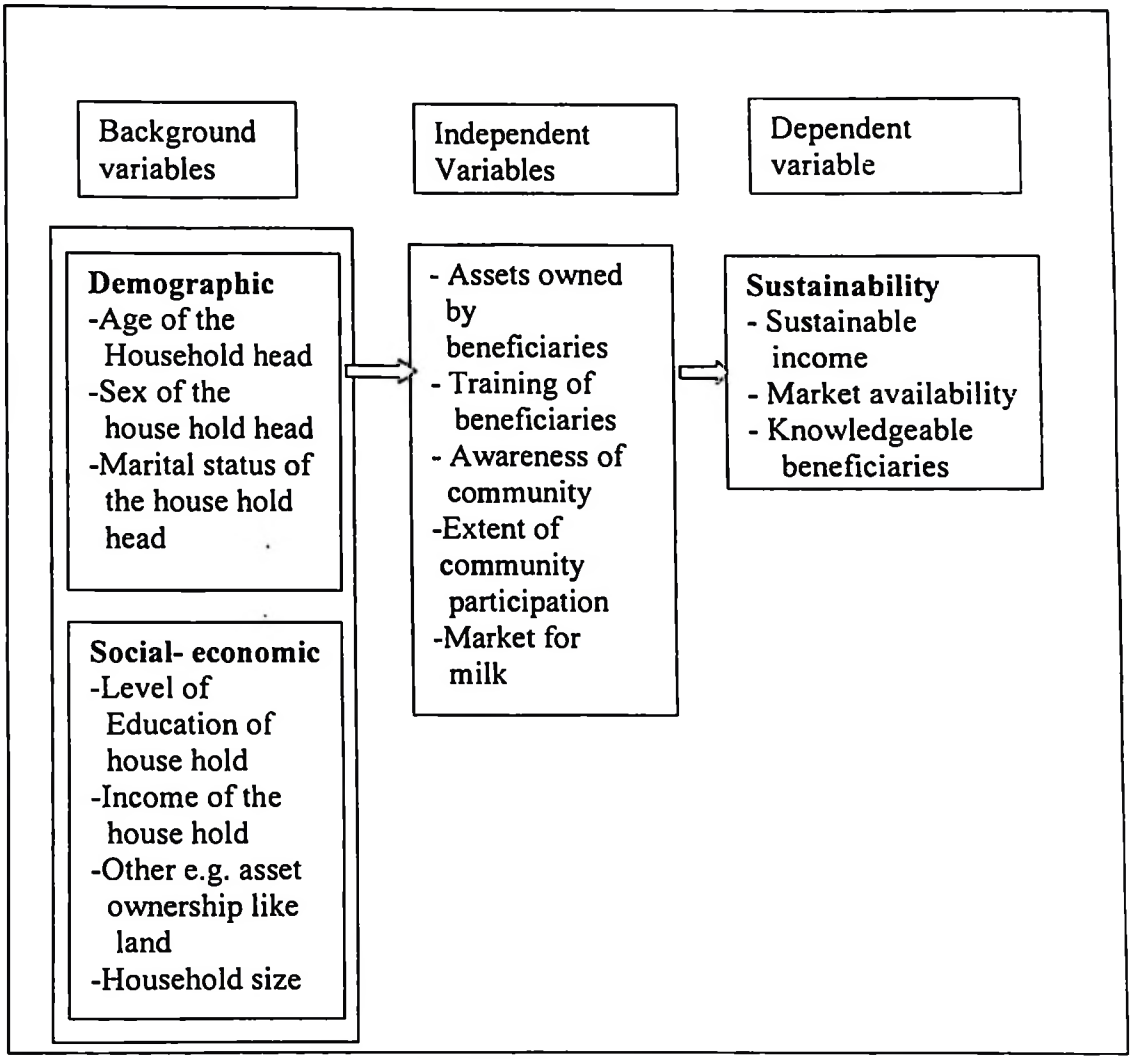

Figure 1: Conceptual Framework

Table 1: Variables and their operational definitions

Concept	operational definition	measurement level	units
Poverty	Low monetary value of products and services per capita	Ratio	Tsh
Poverty reduction	Increase in net household production	Ratio	Tsh
Sex	Biological appearance as being male or female	Nominal	1.Female 2. Male
Age	Number of years since one was born	Ratio	Years
Years of schooling of household member	Number of years on pursuing formal education	Ratio	Whole number
Marital status	Status of marriage of a person	Nominal	1.Married 2.Unmarried 3.Divorced 4.Single 5.Widowed
Household size	Number of people within the household	Ratio	Whole number
Level of awareness	Extent of community consciousness towards Dairy cattle production.	Ordinary	1. High 2. Low
Sustainability	Ability to run the project for a long time	Ratio	5 Years

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 The Concept of Poverty

Poverty may be defined as a state of lack of sufficient income to make someone to live a respectable life. Poverty is a result of many and often mutually reinforcing factors, including lack of productive resources to generate material wealth, illiteracy, prevalence of diseases, discriminative socio-economic and political systems and natural calamities such as drought, floods, HIV/AIDS and war (URT, 1999). Poverty is considered as multi-faceted phenomenon that includes vulnerability and powerlessness, deprivation, isolation, lack of decision making power, lack of assets and insecurity (Christian Aid, 2001).

Similarly Cooksey and Likwelile (2002), describe poverty in Tanzania as a complex and a multidimensional concept. The key dimensions of poverty identified are inadequate income to purchase basic necessities, deficiencies in human capability (illiteracy, malnutrition, and diseases), isolation and vulnerability (social exclusion and dependency) and powerlessness and hopelessness. Poverty can be categorised into two broad types, income poverty and non- income poverty. At the small-scale farmers' level, income poverty results from low productivity of agricultural and natural resources enterprises hence low sales of products. On the other hand, non-income poverty encompasses a wide range of life phenomena including level of education, survival strategies, poor nutritional status, lack of clean and safe drinking water, poor social wellbeing and vulnerability to change. Srinivas (2009) has suggested that poverty can be caused by the following factors; colonial history,

centralization of power, corruption, warfare, environmental degradation and social inequality.

2.2 The Role of Livestock in Poverty Reduction

Tanzania is well endowed with various types of livestock. The National Livestock Policy of 2006 gave the contribution of the livestock sub sector to the Gross Domestic Product (GDP) at 5.6% (URT, 2006). Despite this rich resource the consumptions of livestock products annually by the population of Tanzania increased from 555 million to 1.38 billion litres of milk of which the traditional sector contributed about 70% while annul meat production during last 10 years increased from 244 000 ton to 378 500 ton.

The per capita consumption of meat increased from 5 to 11 kg and milk increased from 20 to 39 litres. FAO recommends normal human requirements as 50 kg of meat and 200 litres of milk per annum (FAO, 2008). Therefore to meet the growing human demands, the livestock sector should be growing at 4.0 % per annum (Matovelo *et al.*, 2002). According to URT (2006), the policy goal of the new National Livestock Policy of 2006 is to increase production of milk in order to raise household income and improve nutritional status. The improvement of the well-being of the people whose principal occupation and way of life is based on agriculture, such as smallholder crop producer and livestock keeper, who do not produce surplus (Matovelo *et al.*, 2002). Recently studies have been shown that there is a potential of livestock sector to contribute to the poverty reduction and household food security in sub-Saharan Africa (Winrock International, 1992; Ashley

and Bazeley, 1999; Matovelo *et al.*, 2002). Since 84% of the active population depends on agriculture for their livelihoods, it means that much of the economic growth will have to come through improving agricultural and livestock productivity (Msambichaka *et al.*, 2006). Thus there are wide and serious implications for agriculture and livestock sub-sectors stakeholders. The potential role of livestock in increasing household income has been demonstrated through various interventions using a variety of livestock species (Matovelo *et al.*, 2002).

Smallholder dairying has been hailed as effective for economic development of rural populations. Since cattle are expensive capital items, programmes that target the poor among the rural populations have used the Heifer-in-Trust (HIT) schemes with some success (Matovelo *et al*, 2002). Such schemes include the Kagera Livestock Development Programme (KALIDEP) and the Tanga Dairy Development Programme (TDDP) funded by the Dutch government (Matovelo *et al.*, 2002), and the country wide HIT schemes run by the Heifer Project International (HIP) through churches (HPI, 2000).

Through such programmes, incomes of smallholder farmers have been reported to range from Tsh 135 000 per annum to Tsh 316 000 per annum. They generate employment of labourers who would earn between Tsh 60 000 and Tsh 140 136 per month (Rugambwa *et al.*, 1997; Matovelo *et al.*, 2002). Livestock play a predominant role in the diet, contributing more than 50% of the dietary needs for energy and protein, while the intake of animal protein is at least double (Matovelo *et al.*, 2002)

2.3 Meaning of Sustainability

According to Wikipedia (2008) the word sustainability, means "to maintain a certain state or condition indefinitely". Sustainability is not a fixed state, but rather a continuing process in which each decision we make as individuals, organizations. communities, businesses, can either move us closer to or further away from sustaining life on the planet (Support the Earth Ribbon Magnets, 2009).

A system is sustainable if it can persist for extended periods of time, if not indefinitely. The system can be a society, an economy, a biological region. etc. Sustainable systems exist not by simply maintaining the status quo. but rather by constantly adjusting to changing conditions to reach a new temporary equilibrium.

2.3.1 Sustainability of dairy cattle project

Involving the community in the dairy cattle project from its planning phase to its impact can help them gain confidence and develop a feeling of ownership towards the project. They can manage and maintain all the resources developed in the dairy cattle project with enthusiasm and dedication. This initiative of taking the community in hand for development can help to achieve sustainability (Reid, 2000). Factors constraining sustainability of dairy cattle project can be considered as lack of strategic focus in the types of livestock and production systems, livestock diseases, livestock products processing and marketing investment and credit. These are the main contributory factors to the inability to achieve sustainability both at the project as well as individual level. Also failure to provide identification of significant capacity gaps in the organization in terms of personnel, skills, knowledge

and experience, e.g. absence of effective management structures and personnel, lack of skills and experience in dairy cattle project beneficiaries and effective ways of avoiding or managing challenges as they arise (Apwann. 2007; URT. 2006).

There is a very real need for training in basic areas of project identification and management including marketing, strategic planning and governance as well as NGO management and governance and capacity-building. Lastly, mentoring is a very effective way of providing additional dairy cattle project implementation support for inexperienced groups and will increase the prospects for successful project implementation and sustainability.

2.4 Factors that Contribute to Sustainability of the Dairy Cattle Project for Poverty Reduction

2.4.1 Training.

The provision of appropriate training for identified target groups is often a key strategy for achieving sustainable dairy cattle project benefits. To improve the prospects for sustainability it should start at the right time i.e. not near the end, be conducted throughout the program or project, and allow for repetition (Hampshire, 2000). While the most appropriate type of training will depend partly on the nature of individual programs and projects, experience indicates that certain approaches are more likely to achieve sustainable benefits than others. Effective training should not only educate but also motivate and the beneficiaries must be selected on merit, including both men and women, and be of direct relevance to their work (Douglas, 2008). Beneficiaries must also be given the opportunity to apply newly acquired

skills on completion of training. In-country training, such as on-the-job training, mentoring and short competency-based training courses are more likely to support more sustainable benefits than overseas courses or long term academic training for a few. In cases where counterparts are transferred or leave over time, training must also be repeated and refresher courses given if the required skill base is to be sustained throughout.

2.4.2 Level of participation

Involving the community in identification, design and decision making is a key part of a sustainability strategy. Their participation in all parts of the activity cycle is essential for dairy cattle projects (Hampshire, 2000). Ensuring sex disaggregated data is collected during preparation and that a gender analysis is undertaken to determine the differential impact of costs and benefits on men and women will help to achieve sustainability. For sustainable outcomes, poverty reduction objectives must specifically address the needs of women given that they are over- represented in the poorest sections of many societies.

Participation in development is defined as a process of equitable and active involvement of all stakeholders in the formulation of development policies and strategies and in the analysis, planning, implementation, monitoring and evaluation of development activities. To allow for a more equitable development process, disadvantaged stakeholders need to be empowered to increase their level of knowledge, influence and control over their own livelihoods, including development initiatives affecting them.

2.4.3 Information dissemination and social networking;

Generating an understanding of, and support for, a program or project's objectives among a wide group of stakeholders and community participation should be a component of any sustainability strategy (Hampshire, 2000). Such awareness needs to start early in the design phase. During implementation it can include the use of many types of different media and group events include workshops. seminars. newsletters, personal contacts/lobbying community meetings and the use of electronic media (radio, TV and web-sites). All these can play a role in mobilizing political, administrative and community support. Establishing more linkages with CARITAS can also form part of an effective sustainability strategy of dairy cattle project.

2.4.4 User pays approaches

Hampshire (2000), argues that even in very poor communities, user pays approaches can work, and may be the only sustainable solution to service delivery if the government or NGO is unable or unwilling to provide adequate operating funds. For example in the CARITAS dairy cattle project people in the community are asked to prepare a standard cattle shed and one hectare of grasses for animal pasture (HPI, 2000). Donor-led and top-down projects generally fail to bring sustainable benefits because they do not lead to stakeholder ownership and commitment. Genuine participation and ownership is not being adequately addressed if the main strategy consists of simply conducting workshops or briefings with the aim of informing stakeholders on the programmes undertaken. According to Douglas (2008), some practical steps to achieve more effective participation include: (i) ensuring that the

ideas for programs/projects are demand led; (ii) ensuring that the design phase is thought of as an investment in a successful outcome and thus given adequate time and other resources; (iii) ensuring that the design incorporates specific activities and resources needed to implement participatory strategies; (iv) clearly defining who/which groups are expected to participate and who will benefit (a stakeholder analysis and a gender analysis); (v) clearly defining what type and level of participation is to be achieved (from simple consultation through to full ownership of decision making); and (vi) ensuring that key team members are appropriately skilled in participatory approaches.

For example, CARITAS through Heifer Programme International (HPI) has been supporting the creation of sustainable small-scale farm enterprises to improve nutrition and supplement income through providing livestock on loans. Farmers are given a loan in terms of a heifer, a goat, a fish pond or a hen and have to pass on two or more of the off-springs to another family in need within the project area as a loan as well as a gift (Wire, 2005). The programme thus promotes self-reliance, which builds self-esteem and helps families lift themselves out of poverty.

2.4.5 Organization

The general requirements for dairy cattle project organization is that persons considered are those in need with the first priority given to rural residents. Also, everybody who needs CARITAS assistance must be fully prepared. According to Mbapila (2006), beneficiaries must accept to work together in a social group, must have area for pasture establishment, being a permanent resident of the selected area,

have ability to construct a standard cow shed and have ability to pay the entrance fees. Also an essential part of the HIT philosophy is the understanding that each person who receives an animal will pass on as a gift of heifer calf to another farmer in need. Thus the herd keeps on growing and each recipient becomes in turn. a donor. Through this pass-on philosophy and with good management (organization), the project becomes continuous and sustainable (Wire, 2005).

2.4.6 Dairy cattle efficiency

There are many aspects regarding the success of dairy cattle efficiency and productivity (Anim, 2009). The amount and kinds of feed, costs of veterinary consultations, herd size, labour and capital were utilized to estimate efficiency of dairy cattle program in small scale farms. This also, can determine the effectiveness of possible factors affecting production performances of the project. Dairy cattle management, efficiency, dairy production and yield if are not in the desired levels urgent cautions should be taken especially to increase the dairy yield. Efficiency improvement of dairy cattle production will be achieved and a better income return will be provided compared to sole plant productions. As dairy cattle project increases the income in rural areas therefore, there is a decrease in poverty and reduced migration to urban areas.

2.5 History of CARITAS

CARITAS Mbeya is a development organization under the Catholic Diocese of Mbeya working with urban and rural poor communities in the Region or Diocese. It is a coordinating and a facilitating body of the Diocese of Mbeya (Mbeya Region)

working in partnership with local organizations through training, awareness, creation, capacity building, fundraising research, lobbying and advocacy, and other ways of technical support to strengthen their effectiveness in helping them utilize their resources to meet their basic needs for justice and well-being of everybody. The Diocese has 30 parishes scattered in the seven administrative Districts of Mbeya Region. The project concentrated its activities in Parishes.

In the beginning CARITAS started as a relief organization which aimed to provide services by donating clothes, food and milk to the poor. The approach was top-down. Later the approach changed to decentralization which encourages participatory spirit among the people in revealing their problems. People are required to participate in planning, decision making, and implementation of development activities established by CARITAS.

More efforts are required to change people's attitudes and perceptions towards perceiving CARITAS as a partner in sustainable development (CARITAS, 2008). There are several projects which are implemented by CARITAS in Mbeya Region, with different donors. These projects are Sustainable Agriculture; Single Mother, Walter Reed Project and Pact Project just to mention a few. All projects aim to eradicate poverty so as to improve the people's well-being.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Location and Study Area

Mbeya Region is located in the south west corner of the Southern Highlands of Tanzania. The Region lies between Latitudes 70° and 90°, South of Equator, and between Longitudes 320° and 350° East of Greenwich. Mbeya Region lies at an altitude of 375 metres above sea level with high peaks of 2 981 metres above sea level at Rungwe Mountains. Mbeya is one of Tanzania's twenty six administrative Regions. The regional capital is Mbeya. It is bordered to the northwest by Tabora Region, to the northeast by Singida Region, to the East by Iringa Region, to the South by Zambia and Malawi and to the West by Rukwa Region. Mbeya Region is occupied by several different ethnic groups including the Nyakyusa, Ndali, Nyiha, Nyamwanga, Safwa, Malila, Vwanji (or Wanji), Bungu, Sangu, Wanda and Sichela. Mbeya Region is administratively divided into eight Districts: Chunya, Mbarali, Mbozi, Rungwe, Kyela (which includes the Ikama administrative ward), Ileje and Mbeya rural and urban (Wikipedia, 2009).

3.1.1 Population in the study area

The study was specifically conducted in Mbeya Rural District. According to the census of 2002 Mbeya Rural District had a population of 254 897 whereby 119 214 were men and 135 683 were women with estimated growth rate of 6.2% p.a in 63 522 households. The study was carried out in Santilya because it was the only Ward CARITAS dairy cattle project was operating. Santilya ward had a population of 15 271 and 3 937 households (URT, 2003).

3.1.2 Economic activities

Most people in the area are farmers growing both annual and perennial crops including round potatoes, coffee and variety of beans. Other economic activities include fishing and small businesses. Very few farmers keep livestock including cattle, goats and sheep. A larger number of the livestock keepers (about 80%) are under the CARITAS project.

3.2 Research Design

The study used a cross-sectional design in which data were collected at one point in time. This design has been recommended by Bernard (1996) and Babbie (1990). Data collected were used for the purposes of simple statistical description and interpretation and also made possible to determine relationship between different variables that were in focus at the time of the survey.

3.3 Sampling Procedure and Sample Size

3.3.1 The population and sample size

There were a total of three hundred and eighty three households that benefited from CARITAS dairy cattle project in eight villages of Santilya ward which was purposively selected. Six villages were visited including Itizi, Jojo. Sheha. Pashungu, Shigamba and Iswago in which a total of 112 livestock keepers that were under CARITAS were interviewed. The sample size was desired basing on statistical analysis (Simon, 2009) "recommended sample size should not be less than 30 respondents". Thus in this study, the sample size of 112 was used.

3.3.2 Sampling procedure

Purposive sampling was used to select the ward and villages in which CARITAS project operates. Selection of eligible sampling unit was done through sampling frame with serial number, names and physical address which was obtained from the CARITAS office. The sampling frame was used to select respondents whom later were obtained through assistance of community leaders. In particular, the Village Executive Officers were used to identify the randomly selected respondents who were invited for interview.

3.4 Data Collection

Both primary and secondary data were collected. Primary data were collected using semi-structured questionnaire consisting of both open and close-ended questions from CARITAS dairy cattle beneficiaries. Interviewing approach was employed in administering the tool with the help of one assistant researcher. The interview started at individual beneficiaries where information regarding background of the project, criteria for joining the project, importance of dairy cattle and dairy cattle management was collected. Key informants were then interviewed on background and sustainability of the project with the guidance of a checklist.

Secondary data particularly on sustainability of CARITAS dairy cattle project were obtained from various relevant sources including Sokoine University of Agriculture (SUA) Library, the internet, and additional information that was collected from CARITAS evaluation reports and surveyed documentary reviews.

3.5 Data Processing and Analysis

The primary data were entered, pre-coded, cleaned and analyzed using Statistical Package for Social Sciences (SPSS) computer programme. Descriptive statistics including frequencies, percentages and means were calculated so that they can give inferences made in the study. Likert scale and cross-tabulations were employed to determine the sustainability of dairy cattle project to poverty reduction to some of the indicators in the households after joining the project. Secondary data were used for reference and comparison during interpretation and discussion of results.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1. Socio economic Characteristics of the Respondents

4.1.1 Gender distribution of the beneficiaries

Gender perspective propagated by CARITAS is a commendable move for any successful economic project, although the number of men participating in the project is larger than the number of women as indicated in Table 2, a situation caused by cultural and family beliefs and practices that influence decision-making.

Walingo (2009) argued that livestock projects have played a key role towards empowerment of women in economic aspects. Women's access and control over productive and economic resources is central to their empowerment, changes in cultural beliefs towards ownership of large livestock in the home will lead to sustainable project and economic development, poverty reduction and environmental protection. The role of women in employment and economic activities is often underestimated because most women work in the informal livestock sector with little or no social protection. But the CARITAS project insists on women participation so as to challenge the different institutions which are controlled by men.

Table 2: Socio-economic characteristics of the respondents

Characteristics of beneficiaries	Frequency	Percent
Gender distribution		
Male	65	58.0
Female	47	42.0
Total	**112**	**100**
Educational level		
None	4	3.6
Primary	98	87.5
Secondary	9	8.0
Adult education	1	0.9
Total	**112**	**100**

4.1.2 Level of education of beneficiaries

Findings in Table 2 indicate that more than three quarters of the beneficiaries (87.5%) of the project had primary education. According to Lyimo *et al.* (2004), working with livestock keepers in Turiani, Tanzania, such education level could be regarded as sufficient for a livestock keeper. This project is designed to provide livestock and training to low income people in the rural areas, enabling them to become self sufficient and raise themselves out of poverty, thus, at least primary education is necessary for the farmer to be able to participate in the training effectively.

Further to this, majority of the poor families are those with low education level. It is therefore not surprising to see that majority of the respondents had primary education level which is sufficient for a person to understand during training and seminars. Hugh *et al.* (2003) reported that importance of education is in a person's ability to understand and create necessary strategies for adopting improved technologies. Such technologies include adopting improved livestock production and productivity to increase income.

4.1.3 Age distribution of beneficiaries

Most of the interviewed beneficiaries were within the age group of less than 35 years and between 36 to 50 years (Figure 2). The difference in age was influenced by the population distribution of the area. People with less than 18 years of age were not considered as owners of livestock in the project (CARITAS Coordinator Personal Communication, 2009). Age of household head has a positive influence on dairy cattle productivity implying that older beneficiaries are more likely to accumulate wealth than younger beneficiaries which comes out of experience and knowledge gained over a long time. Basnayake and Gunaratne (2002) argued that the age of a person usually is a factor that can explain the level of production and efficiency. Age influences wealth and decision making all of which have effect on the working capability of an individual and therefore individual productivity.

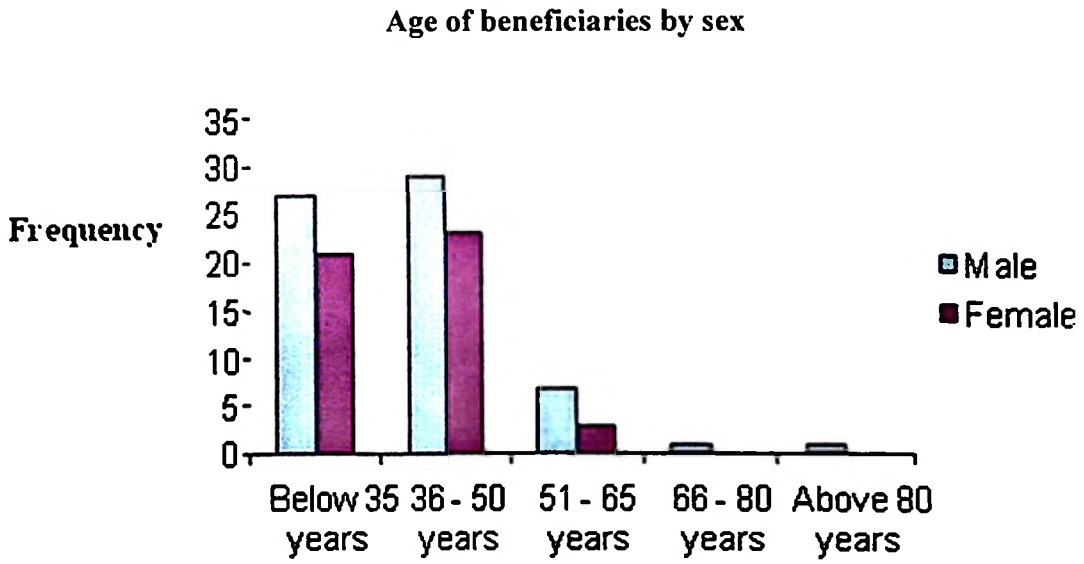

Figure 2: Age groups of beneficiaries by sex

4.1.4 Size of the household

Results in Table 3 show that more than a half of the beneficiaries (57.1%) were from households which had 4 – 6 members, followed by 23% of the households which had 7 – 10 members and lastly is 19% of the households which had 1 – 3 members. Having larger family size means more demand for food and other requirements which may lead to more poverty in the household. This is explained by the fact that income per capita will be lower as there are more mouths to feed. However in agriculture it can also mean more labour force and hence more production. Labour availability for socio – economic activity depends among other factors on the number of members available in the household; the bigger the household size the higher the labour availability (Makawia, 2003).

Table 3: Household size

Number of household members	Frequency	Percent
1-3 (small)	22	19.6
4- 6 (medium)	64	57.1
7-10 (Large)	26	23.2
Total	**112**	**100**

4.1.5 Marital status

Findings in Table 4 show that 81.3% of the beneficiaries are married, 10.7% are single, 4.5% widow, 2.7% widowers and only 0.9% were divorced. Marital status influences decision making at the household level. Understanding the distribution of marital status of respondents is important for assessing management of the dairy cattle project. King (2008) reported that marriage has an effect in production activities as it affects the availability of labour at the household level which in turn has effect on the chances to engage in production.

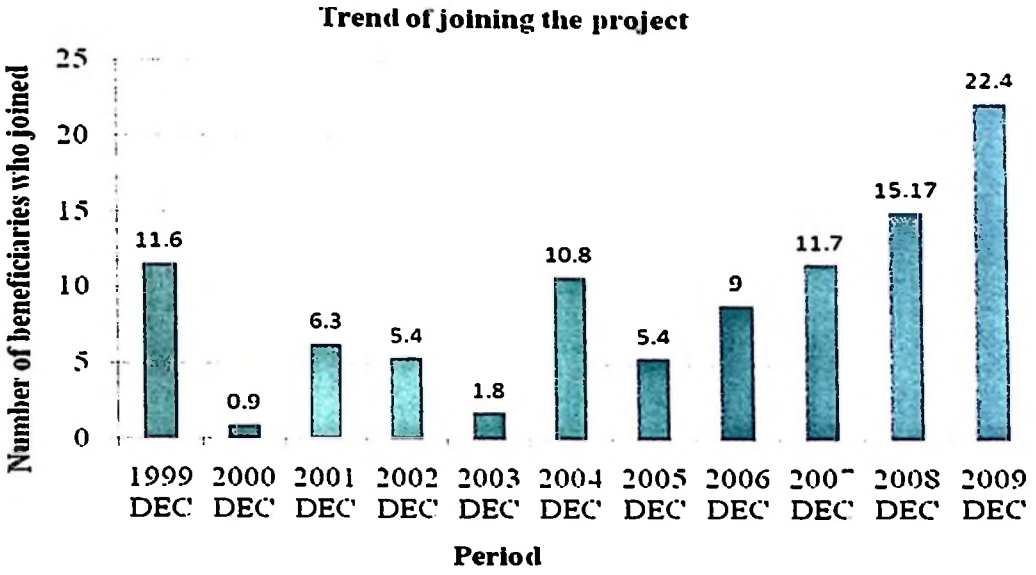

Figure 3: Trend of joining the project

4.2.2 Reasons to receive dairy cattle and benefits of the project to beneficiaries

Results from the study show that beneficiaries from CARITAS were selected to join the project based on three criteria, (i) Sending application letter requesting to join, (ii) paying registration fee Tshs 2,000/= and (iii) low income person (below $ 1 per day).

Abiding to these steps reveals a sign of commitment to run the project which if no other external forces subvert these efforts. beneficiaries will manage the project leading to sustainability. Immediately after joining the project different activities began like brick fabrication for building the groups' office and training concerning dairy cattle management. These activities were achieved through community involvement, an essential component for creation of sense of ownership, and hence, project sustainability.

Table 4: Respondents' marital status

Marital status	Frequency	Percent
Single	12	10.7
Married	91	81.3
Widow	5	4.5
Widower	3	2.7
Divorced	1	0.9
Total	**112**	**100**

4.2 Criteria Used to Allocate Dairy Cattle to the Households Within the Project Areas

4.2.1 Date the project began and beneficiaries joined

The project started within the ward in 1995 at Itizi village; in the following year it spread to other villages and up till now people continue to join. Fig.3 below indicates a progressive increase of the beneficiaries who joined the project with time from 11.6% in December 1999 to 22.4% in December 2009. The positive response among people to join is a sign of sustainability of the project for the future. Currently people's awareness concerning the importance of the project is high; people are now willing to join and support development of the project compared to previous years.

Understanding the essence of project ownership to beneficiaries will accelerate them to embrace and put more efforts to make sure the goals are met which is again important for sustainability. Table 5 revealed that of the 112 beneficiaries, 52% realized that the project increased their household income, 35.7% benefited for food security, 8.9% benefited for socialization and paying school fees and 3.6% realized that the project was a prestige to them. Increased household income and food security counted to about 88%, indicating that the project had a great contribution to the betterment of beneficiaries' livelihoods. These benefits being realized by the community itself will tend to attract more people to join and the existing groups will put more efforts to make sure they benefit more, leading to sustainability of the project.

Table 5: Reason for the project and its benefits to the beneficiaries

Project benefits	Frequency	Percent
Increased HH income	58	51.8
Prestige to the beneficiaries	4	3.6
Increase food Security	40	35.7
Others	10	8.9
Total	**112**	**100**

Among the beneficiaries, 51.8% possessed half of an acre of land for pasture, 38.4% an acre and 9.8% quarter of an acre used as criterion for receiving a cow. Also more than half of beneficiaries (54.5%) possessed other types of livestock like pigs, goats and sheep. Availability of pastures signifies adequate feeding of the cattle throughout the year hence sustainability of the project. The presence of other livestock implies that famers do not depend on dairy cattle alone to solve problems related to their lives. Integrated projects at household level will complement each other when need be, and thus, sustainability of the project (Boi, 2004).

4.2.3 Criteria used to allocate dairy cattle to the beneficiaries

All beneficiaries under the study received dairy cattle from CARITAS from October 1999 through January 2008. Results show that beneficiaries were required to follow the four criteria to be given dairy cattle: (i) Must be a resident of the project area (ii) ability to build a cowshed and (iii) pay contribution fee 15 000/= and (iv) have an established pasture area.

Key informants accepted the criteria mentioned above and added others like a person must be mentally and physically well, and poor person living under one US$ per day. Of the beneficiaries, 98.2% met the criteria and only 1.8% did not manage due to extreme poverty. A poor person can hardly construct a standard cowshed before the cow starts to produce milk, he/she cannot afford all the rearing costs. At the same time, a poor person eligible for cattle is likely to be old and cannot have all the necessary labour unless he/she employs temporary labour.

It can be concluded that it is essential to look at the alternative, so as to involve affected community who are beneficiaries and find how other people may benefit from the project for effective sustainability as suggested by Christian Aid (2002). Hampshire (2000) argued that even in very poor communities, user pays approaches can work, and may be the only sustainable solution to service delivery if the government or NGOs' are unable or unwilling to provide adequate operating funds. Donor-led and top-down projects generally fail to bring sustainable benefits because they do not lead to stakeholder ownership and commitment.

Genuine participation and ownership is not being adequately addressed if the main strategy consists of simply running workshops or briefings to let them know what you are doing. Acceptance to work in groups mentioned by 98.2% of beneficiaries has the advantage of facilitating the pass-on philosophy. It will also allow the building of goodwill while building self-reliance and caring for the earth (Nordic News, 2005). About 85.7% of the beneficiaries believed that criteria were set by CARITAS. This fact signify majority of the respondents managed to meet the minimum requirement of getting a cow, which implies some good signs of sustainability of the project as they do own it.

4.2.4 Objectives of the groups

Based on the results of the study, all of the beneficiaries organized themselves into groups. The process to join the group include (i) filling a registration form (ii) paying registration fee (Tsh 2 000/-), (iii) discussed and accepted by group members and (iv) a letter of agreement to be a group member. Initially each group consisted of 10 members, but at the time of this study there was no limit. Each group is autonomous with its own structure of leadership including group chairperson, secretary and treasurer. It was realized that, the formulated groups had the following objectives: (i) to increase income, (ii) to eradicate poverty (iii) to pay school fees and (iv) to improve quality of food. Attainment of the mentioned objectives means sustainability of the project as well as improved well-being of the beneficiaries' direct income and non-income aspects of life.

Group members together performed different activities which would support the sustainability of the project like building the project office, establishing other activities for income such as fish ponds, crop production, formation of SACCOS and planting of trees. Not only these but advice and challenges were given to each other and sometimes they discussed matters raised concerning the development of the project. Rouse (2008) suggested that groups provide the poor with an effective instrument for participation in local decision-making, helping them to cooperate more fully in the development of their communities and to exert pressure, where necessary, to improve their conditions.

Also it is further recommended that the project should then organize informal meetings with prospective group members to discuss the purpose, methods of operation and benefits of groups, as well as possible enterprises and means of production (Rouse, 2008). Group promoters should make a list of potential group members and leaders, possible group activities and required inputs.

Once the participants have identified viable income-raising activities, those interested in a particular activity should decide on criteria for group membership: for example, whether members should belong to a specific category (such as small-holders, tenants or landless) or whether the group should be male-only, female-only or mixed. They should also assess their productive resources, including capital, skills and experience.

By consensus or formal voting, the group members should then elect a chairperson. secretary and treasurer. Project staff should encourage rotation of leadership positions among group members in order to give all members leadership experience. thus minimizing the risk of domination by a few. Finally. the group should formulate its own constitution and procedures, settings out rules on such matters as the frequency of group meetings and the use of savings and loans. Formation of viable and stable groups requires patience and, in most cases. a period of from two to six months. Both overly rapid formation and overly long delays. which may dampen the interest of potential group members, should be avoided. A total number of 97.3% of beneficiaries were satisfied with the way groups were formed. Reasons for satisfaction were; no conflict within the group. rules and regulations were followed, well organized groups, no bias and there is good leadership.

4.2.5 CARITAS pass-on philosophy

Field observation indicates that the philosophy of pass-on is done in the sense that each person who receives dairy cattle will pass on as a gift of heifer calf to another family in need. The family in need first should be a group member and should meet all criteria set to be given a calf. Group members discuss the matter and assess criteria for a person to be given a calf and agree together. Up to the time of the study more than 150 beneficiaries had already shared the pass-on process. Thus, the herd keeps on growing and each recipient becomes in turn a donor. Through this pass-on philosophy and good management of the project, it has become continuous and sustainable.

4.3 Level of Awareness of the Community Towards the Dairy Cattle Project

4.3.1 Community awareness towards CARITAS dairy cattle project

In 1932, a social scientist called Rensis Likert introduced 5-point scale (Bernard 1994; Kothari, 2004; Bailey, 1994), which is widely used in attitudinal studies to gauge views of respondents. The scale has five alternative answers, that is, strongly disagree (1), disagree (2), undecided (3), agree (4) and strongly agree (5). In this study, this method was adopted and the respondents were asked 10 questions to ascertain their attitude of participation in the dairy cattle project.

The responses were recorded in Likert style format in which the respondents were asked to indicate whether they strongly disagreed, disagree, undecided, agreed or strongly agreed with each statement. For simple comparison, the responses were clustered into three categories with the scale of three alternative answers namely disagree (1), undecided (2) and agree (3). Table 6 shows that respondents seemed to have understanding with almost all the statements that sought to measure their attitude towards community awareness. This finding confirms that community has high level of awareness on community participation towards the dairy cattle project. This shows that there was favourable environment for them to participate in communal work and this could be due to the reason that those proposing and planning projects tend to under-estimate the difficulties that will be encountered if the community is not well aware. In fact, key informants reported that there was a high community participation during the whole process of planning and implementations of the project, due to clear arrangements and strategies made before, as emphasized by the CARITAS and community leaders. As indicated in the

Table 6 below statement 9, 5, 2 and 1 scored high on "agreed" statement 6 for "undecided" and remaining statements number 10, 7, 8 and 3 for "disagree."

Table 6: Statements depicting level of community awareness towards the CARITAS dairy cattle project.

S/No	Attitudinal statement	Agree		Undecided		Disagree	
		Freq	%	Freq	%	Freq	%
1	To manage dairy cattle costs a lot	64	57	16	14	32	29
2	Dairy cattle project increases household income	78	67	16	14	18	16
3	CARITAS dairy cattle project is affiliated to followers of a particular religion	26	23	30	27	54	48
4	CARITAS dairy cattle project gives equal opportunity to the people for the aim of poverty reduction	76	68	13	12	23	21
5	Sustainability of the diary project depends on the beneficiaries	64	57	40	36	8	7
6	Dairy cattle provided by CARITAS to the beneficiaries have high quality	40	36	50	44	22	20
7	Dairy cattle project targets those who have high income	20	18	27	24	65	58
8	Manure produced by dairy cattle project is very expensive	28	25	24	21	60	54
9	Number of beneficiaries of dairy cattle should be increased	77	69	17	15	18	16
10	There is no improvement on standard of living among beneficiaries of the dairy cattle	15	13	18	16	79	71

Likewise, the index ranged from 10 – 30 was developed based on the new scale of three alternative answers namely disagree (1), undecided (2) and agree (3). The index was further categorized into 10 – 19, 20 and 21 – 30 indicating negative, neutral and positive attitude respectively. The results presented in Table 7 show that

the majority (50.9%) of the respondents had positive attitude towards the activities. while 19.6% had neutral attitude and 29.5% had negative attitude towards the dairy cattle project. This generally shows that the majority (50.9%) of respondents had positive attitude to the statements of knowledge in dairy cattle management. care and its importance. Those who denoted by 21- 30 know that the project gives equal opportunity to the people for the aim of poverty reduction, claimed that the project is not affiliated to any religion, know that sustainability of the project depends on the beneficiaries themselves and dairy cattle project led to improvement of standard of living among the beneficiaries.

According to FAO (2008), participatory development leads to increased self-reliance among the poor and the establishment of a network of self-sustaining rural organizations. This carries important benefits: the greater efficiency of development services stimulates economic growth in rural areas and broadens domestic markets. thus favouring balanced national development; politically, participatory approaches provide opportunities for the poor to contribute constructively to development. It was noted by Reid (2000) that participation is a very useful tool for building a sense of ownership, cost reduction for the subproject, timely completion of subprojects and enhancing knowledge and skills for the beneficiaries which facilitate sustainability of the project

Table 7: Point range on attitude of community participation towards CARITAS dairy cattle project (N = 112)

Community score on level of awareness	Frequency	Percent
10 -19 Negative attitude	33	29.5
20 Neutral attitude	22	19.6
21-30 Positive attitude	57	50.9
Total	**112**	**100**

4.4 Community Involvement in the Dairy Cattle Project

All beneficiaries were informed about the establishment of dairy cattle project in their community. Village officials, CARITAS, neighbours or friends, church leaders and other means were used to pass information from one person to other. Table 8 shows that 42.9% of the community got information through village officials who visited them in their homes. Information was given through home visitation too as planned by the project where 58% of the community was informed. Other means used were through an identified informer, village assembly, posters and during church services.

The aim was to let the community get involved in planning so as to increase the sense of ownership for sustainability and development of the project. Also key informants agreed that the community was involved during the planning through different means as explained by the beneficiaries.

Table 8:Means used by the project to disseminate information to the community

Ways through which information was given to community	Frequency	percent
Home visitation	65	58.0
Village assembly	30	26.8
Posters	1	0.9
Church services	14	12.5
Village officer	2	1.8
Total	**112**	**100**
Way through which information was given to individuals		
Village officials	48	42.9
Neighbours/Friends	38	33.9
Caritas staff	15	13.4
Church leaders	10	8.9
Others	1	0.9
Total	**112**	**100**

4.4.1 Amount contributed by beneficiaries on the project

Results in Table 9 reveal that 99.1% of the beneficiaries contributed to the dairy cattle project by paying cash of Tshs. 15 000.00 while 0.9% contributed Tshs. 17 000.00. This amount of money was supposed to be paid by beneficiaries at the time when they were given a calf with the aim of creating a sense of ownership to them.

Hampshire (2000) argues that payment is an expression of value. If people are willing to pay for a good or service, then they want it. Demonstrated demand is a strong indicator of likely sustainability, both for economic and social sector programs and projects. User pays approaches also generate revenue that can be used to continue the service. Even in very poor communities, user pays approaches can work, and may be the only sustainable solution to service delivery if the government is unable or unwilling, to provide adequate operating funds.

Table 9: Amount contributed by beneficiaries

Amount contributed (Tsh)	Frequency	Percent
15 000.00	111	99.1
17 000.00	1	0.9
Total	**112**	**100**

4.4.2 Aspects in which community participated and contributed during the process of decision making

Beneficiaries were involved in the planning process where suggestions and decisions were made. Only 15.2% of the beneficiaries contributed during the process of decision making as indicated in Table 10, while 84.8% participated but did not contribute. Suggestions were given by beneficiaries on several aspects during the process of decision making such as: (i) The project should draft guidelines for project implementation (ii) Beneficiaries should be trained on dairy cattle management (iii) Groups should select their leaders for organizing groups activities (iv) Within the project area, market for milk is a problem, CARITAS could help beneficiaries to find a market, (v) Groups should build the office, (vi) Project should be owned by individuals not groups, (vii) Group members should not be fixed, people within the community could continue to join the group at any time, (viii) Members of the groups should be free to work with other development projects and (ix) There should be extension workers who would facilitate treatment of animals within a certain project area.

Table 10: Beneficiaries' contribution to decision making process

Beneficiaries contribution to decision making	Frequency	Percent
Contributed in decisions	17	15.2
Did not contribute in decisions	95	84.8
Total	**112**	**100**

In participating communities, there is no such thing as a bad idea. All ideas are welcome and treated with respect. This not only honors the person whose idea is put forward, but it also sets a welcoming tone for fresh ideas and inspirations that might otherwise be hidden due to fear of ridicule. Participating communities establish ways of screening out the best ideas from the merely interesting, but in a way that acknowledges the value of all ideas, no matter what their source. In doing so, they encourage all the members to bring forth their best for the common good (Reid 2000). Some decisions require more participation by the community than others.

Community members' views are invited and reward is given for the best suggestion. With this scheme, the beneficiaries' interest in the problems of the project is aroused and maintained. Progressive management increasingly uses the suggestion schemes. Suggestions can come from various levels. The ideas could range from changes in inspection procedures to design changes, process simplification, paper-work reduction and the like. Out of various suggestions, those accepted could provide marginal to substantial benefits to the project. The rewards given to the beneficiaries are in line with the benefits derived from the suggestions (Penrith City Council, 2010).

4.4.3 Decisions made and agreed upon during planning meetings

Decisions were made and agreed upon during planning process as indicated in Table 11. Most of the decisions were made based on the suggestions contributed by community members. There were several ways through which community members participated in decision making. (i) 43.8% participated during meetings (ii) 10.7% during drafting of guidelines (iii) 6.3% village committee members and (iv) 39.3% found themselves in the participating groups.

Decisions made were: (i) Groups would prepare guidelines for project implementation, (ii) People within the community would continue to join, thus, expansion of groups, (iii) CARITAS would provide training so as to impart knowledge of dairy cattle to the beneficiaries, (iv) Beneficiaries could continue to find other source of income, (v) Groups would prepare joining form for new members, (vi) Each group would have a leaders chosen by group members, (vi) Beneficiaries would be able eligible to find market not CARITAS, (vii) Each group would build the project's office, (viii) Beneficiaries would be free to work with other projects, (ix) In case of request for other projects people could write a proposal to CARITAS, (x) All community members should accept the project, (xi) Extension workers should be distributed in all project areas for advice and veterinary management (xii) Dairy cattle can be owned by individual not group. All aspects were discussed and decisions made for implementation bearing in mind that sustainability cannot be achieved without community involvement and support. Stakeholders, both men and women, should actively participate in decision making, which means, having the opportunity to influence the direction and details of

designing and implementation. Allocating adequate time and resources for participatory analysis and responding to demand-led approaches are important ways to improve community involvement (Reid, 2000).

Table 11: Decisions made by beneficiaries and agreed upon during planning meetings

Decisions made during the planning	Beneficiaries	Percent
Accept the project	98	87.5
Groups should draft the joining form for new members	3	2.7
Extension workers should be provided in every project area.	1	0.9
Beneficiaries are free to find other source of income	1	0.9
Beneficiaries should be organized into groups	3	2.7
Each group should build the office	2	1.8
Beneficiaries will be trained on dairy cattle management	1	0.9
If community need another project should write a letter to CARITAS	3	2.7
Total	**112**	**100**
Ways beneficiaries involved in planning		
During meetings	49	43.8
Drafting guidelines	12	10.7
Found in group	44	39.3
Village committee members	7	6.3
Total	**112**	**100**

In ensuring that the project activities go as planned the CARITAS officer, village leaders, church committee and few people including group leaders were chosen to supervise. Some standards were set and assessed for the betterment of the project e.g. a quality cowshed and well established pasture area. About 39.3% of the beneficiaries admitted that standards set were frequently assessed to find if they have been met for betterment and sustainability of the project. It was pointed out that the project will be sustainable because it was introduced in accordance with the

beneficiaries' prospects in view of poverty eradication and increasing income of the poor people. Key informants explained that beneficiaries perceived at the beginning that the project would be owned by CARITAS. Later on, beneficiaries realized that the project was actually owned by themselves, a fact which increased motivation on care and management of the dairy cattle.

4.5 Importance of Dairy Cattle to the Household or Owner

Results in Table 12 indicate that all beneficiaries including 18.8% who did not benefit appreciated the importance of dairy cattle. Those who benefited argued by giving reasons that dairy cattle supported them to pay school fees, household income increased, and availability of organic manure increased crop yields, improvement of food security and employment.

Table 12: Number of respondents by sex with amount earned

Amount earned per year	Male	Female	Percentage
0	15	6	18.8
1shilling -1 million Tsh	45	40	75.8
2 million -3 million Tsh	3	0	2.7
4 million -5 million Tsh	1	0	0.9
6 million -7million Tsh	1	0	0.9
>8 million Tsh	0	1	0.9
Total	**65**	**47**	**100**

All key informants appreciated the importance of dairy cattle to the beneficiaries as it was believed that people's lives have been improving day after day. They argued that its importance can be revealed through improvement in income, food, crop yields and the number of beneficiaries who send their children to private secondary schools.

4.5.1 Reasons for keeping dairy cattle

Dairy cattle was considered to be a major source of poverty reduction by 41.1% of the beneficiaries followed by 25.9% who saw it as a way to increase income, pay school fees for their children, poverty reduction and food security, increase income and food security as well as a source of food (Table 13). Very few people keep livestock for other reasons but income obtained from selling livestock and livestock products, is often used to buy food especially during periods of food shortage. Other studies, for example by Boi (2004), reported that livestock keeping was a banking strategy and plays the role of capital (wealth) accumulation.

According to Boi (2004), keeping of livestock as a way of banking falls under three reasons: first it was argued that it is very difficult to keep money in banks because one will always be withdrawing it even for unnecessary reasons; secondly there are no enough banking facilities in the districts; and thirdly they do not have enough education that will enable them to use banks.

Table 13: Reasons for keeping dairy cattle

Reason for project	Frequency	Percent
Poverty reduction	46	41.1
Income	29	25.9
For food security	24	21.4
Pay school fees for their children	7	6.3
Poverty reduction and food security	2	1.8
Increase Income and food security	3	2.7
All the above	1	0.9
Total	**112**	**100**

4.5.2 Herd size

Table 14 shows that 81.3% of the beneficiaries kept 1 - 2 cows, one acquired from the project and the offspring, 15.2% of beneficiaries own 3-4 cows. 1.8% owns 5-6 cows. Others were traditional herds which were acquired from elsewhere. Only 1.8% of beneficiaries out of 112 interviewed lost their cows through death, which indicates a very low mortality rate. Mbapila (2006) argued that this is exceptional especially when compared to the mortality rate for the exotic and crossbred dairy cows in other areas in Tanzania that ranges from 5 – 12%. The results could be interpreted as favourable for the project sustainability.

Table 14: Number of cattle owned by beneficiaries

Total number of cattle owned	Frequency	Percent
None	2	1.8
1-2 cattle	88	78.6
3-4 cattle	17	15.2
5-6 cattle	5	4.5
Total	**112**	**100**
Cattle owned from CARITAS		
None	2	1.8
1- 2 cattle	91	81.3
3 - 4 cattle	17	15.2
5 - 6 cattle	2	1.8
Total	**112**	**100**

4.5.3 Milk production and sales

It can also be seen that good management of livestock has positive results to the income of the household. This is supported by information in Table 15 which shows income earned does not depend on the number of cattle owned by the beneficiaries as Boi (2004) argued that a farmer with large number of livestock earned more income than one with a smaller number of livestock.

Table 15: Number of cattle owned by beneficiaries and income earned per year

Amount warned per year (Tsh)	Number of cattle owned by beneficiaries				
	no cattle	1 - 2 cattle	3 - 4 cattle	5 - 6 cattle	Total
None	2	20	0	0	22
1 shillings – 1millionTshs	0	56	12	1	69
2 million – 3 million Tshs	0	10	5	3	18
4 million – 5 million Tshs	0	1	0	1	2
6 million – 7 million Tshs	0	1	0	0	1
Total	**2**	**88**	**17**	**5**	**112**

Most of the beneficiaries (81.2%) were milking their cows except those with dry ones. Those having milking cows indicated that heifers were well selected as in-calf and calved down after they had arrived. Lactation length among milking cows differed because some were still continuing despite being due for weaning the calves. The length went as far as two to one week before the heifer calves down. The cited reason was that heifers take longer before they get dry, and thus, an advantage to the beneficiaries. Lyimo (2006) reported that it could be the cow was being milked so long as it was giving out some milk irrespective of the period it calved down. With some farmers, it was observed that calving interval exceeds the normal period for other reasons such as infertility, lack of bulls and improper mating time or the cow continued to be milked simply because it did not conceive.

About 65% of the beneficiaries had a milk yield of less than 15 litres per day (Fig. 4) followed by 33% who produced 15 to 30 litres per day and very few households (2%) were producing above 30 litres per day. This production is similar to that reported elsewhere in the small holder dairy community in the tropics of Tanzania (Lyimo, 2006).

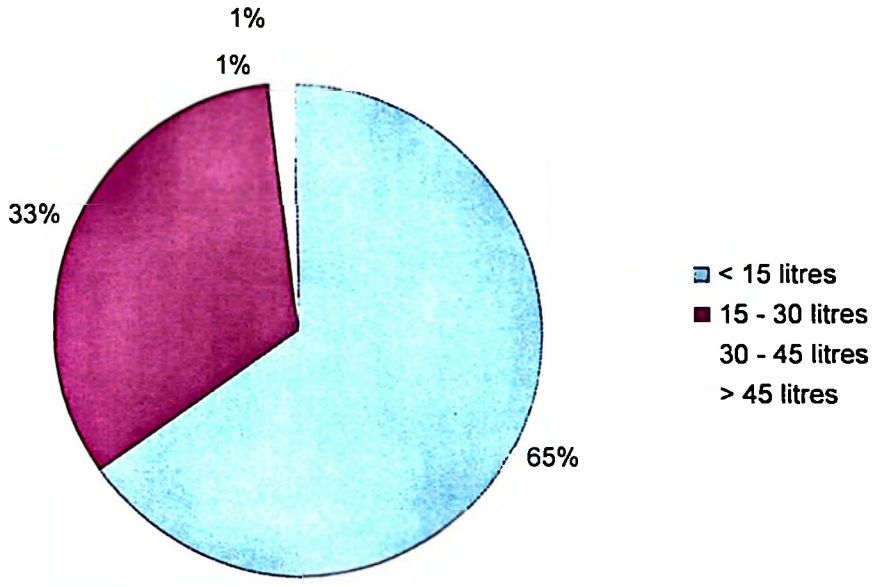

Figure 4: Litres obtained per day by percentage of beneficiaries

Market for milk produced is a big problem which has been facing all beneficiaries. Price of milk per litre is mainly determined by community members where price offered per litre at the time of the study was Tshs 300. Milk price at the production level has been low almost in all places in Tanzania (Kurwijila *et al.*, 1995; FSSA, 2006). In most cases prices are lower than the production costs if all inputs including labour are costed (De Wolf, 2001). Any attempt to improve the price such as establishment of milk cooperative will be an advantage for the sustainability of the project and the objective of poverty reduction. Improvement of the community based infrastructure including road network and electricity, establishment of savings and credit organizations and milk collection centres could be some of such strategies (Kurwijila *et al.*, 1995; FSSA, 2006).

Milk and other dairy cattle products including manure and meat can be sold and income obtained can be used to purchase food, corrugated iron sheets, house construction, pay school fees and other household items. Shively and Mwakalobo (2001) argued that increase in income increases the ability to purchase food for the family to curb the food insecurity situation perpetuating in more than 40% of the poor families in the tropics.

4.5.4 Income obtained by beneficiaries from CARITAS dairy cattle products per year

Earnings from CARITAS dairy cattle project are presented in Table 16. With the exception of those who had dry cows and those whose animals died, other beneficiaries were gaining more from milk than from any other source. Results indicate that 62% of beneficiaries earned more from milk only, while in addition to milk 7% gained from selling meat and 4% from selling manure.

Table 16 Level of income earned by respondents from CARITAS dairy cattle products

	% of respondents gaining from dairy cattle (N=112)		
Amount earned per year (Tshs)	**Beneficiaries earned from selling meat**	**Beneficiaries earned from selling manure**	**Beneficiaries earned from selling milk**
0	91.0	96.0	20.0
1 shillings -1million	7.0	4.0	62.0
2 million - 3 million	2	0	16.0
4 million - 5 million	0	0	2.0
> 6 million	0	0	1.0

Owen *et al* (2005), argued that cattle production is more compared to other species (sheep and goats) in terms of meat, manure and milk, also when sold pays more. Therefore cattle can contribute more to income in the household compared to other livestock. More than half (80%) of the beneficiaries earned their annual incomes which ranged between Tshs 1 000 000.00 – Tshs 2 000 000.00 from selling manure, milk and meat (Fig. 5). This amount is almost similar to what is regarded as lowest salary scale for the government employee in Tanzania (URT, 2002). De Wolf (2001) reported income of Tshs 300 000.00 – 500 000.00 from dairy cattle project in Dar es Salaam.

However the author indicated this to be below break-even point and argued for increase in price of milk. The issue of price for selling milk is a problem even to CARITAS' beneficiaries compared with input costs. Observations made in Mbeya town, indicated that the consumer price is Tshs 500.00 per litre which implies that beneficiaries lost half of the profit compared to the selling price in the village.

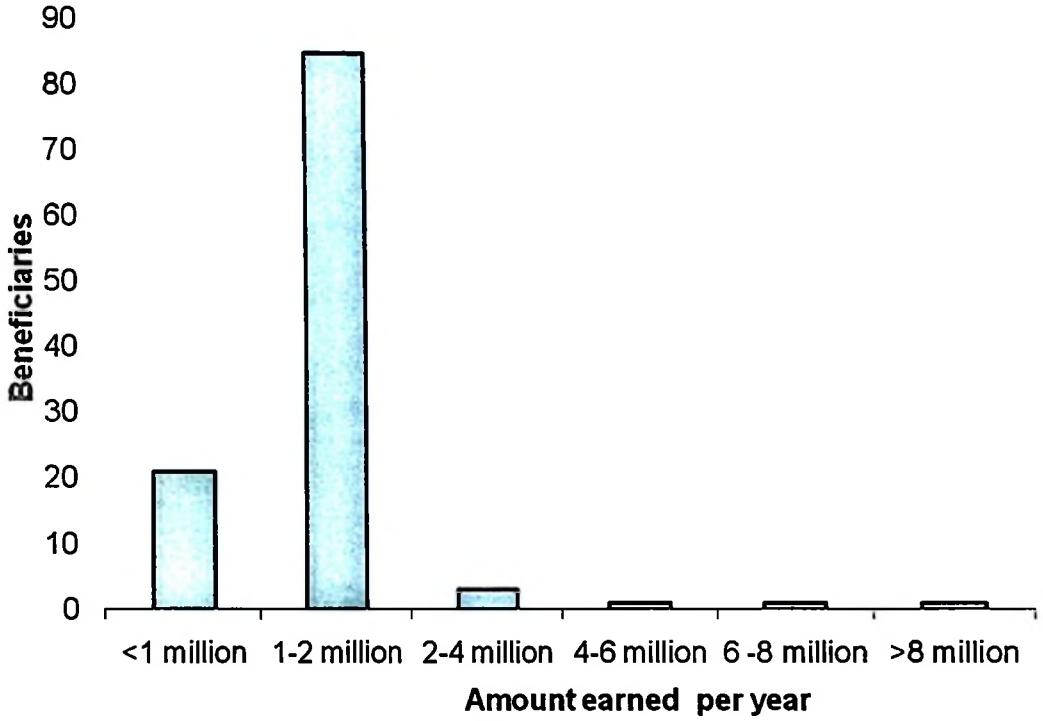

Figure 5: Level of income earned from respondents

4.5.5 Home consumption of livestock products

The quantities of livestock and livestock products consumed by individuals in the study area are shown in Table 17. The amount consumed is lower than that which the development program had targeted to be taken by the year 2000 (URT, 1998) and those reported by Kurwijila *et al.* (1995). Findings show that 73.2% of the beneficiaries consumed only one litre per day, while 20.5% consumed 2 litres, 3.6% consumed 3 litres, 0.9% consumed more than 3 litres and 1.8% has nothing. The low consumption of livestock products could be explained by several factors. For example low purchasing power of the consumers, low livestock production and people's attitudes towards consumption of products like milk and meat.

In some communities, taking of milk and milk products is regarded as luxury though may be linked to poverty which leads to inadequate purchasing power. Contrarily, in some cultures milk and milk products are routinely taken for example the Maasai, who take an average of 15-50 litres per month depending on the amount of milk produced (Kurwijila *et al.*, 1995).

Table 17: Litres of milk consumed by beneficiaries per day

Litres of milk	Frequency	Percent
None	2	1.8
1 litres	82	73.2
2 litres	23	20.5
3 litres	4	3.6
> 3 litres	1	0.9
Total	**112**	**100**

Amount of milk left for home consumption was 1 - 3 litres although one family consumed more than 3 litres per day as shown in Table 17. The amount of milk consumed at the household level, however, depends on household size. Also milk left for home consumption was more related to the availability of market and access to the road. This gives an impression that, with improvement in market channels, less milk may be left for home consumption. As advocated by FAO (2002), in order to achieve the objectives of promoting sustainable economic growth and immediate alleviation of poverty and hunger a twin track approach of food security and productivity growth for the poor is necessary.

4.6 Knowledge of Dairy Cattle Management

According to results in Table 18 beneficiaries who attended CARITAS training were only 52.7%. The remaining had been receiving knowledge through those who attended the training organized by CARITAS. A substantial number of beneficiaries (62.5%) suggested that the training was inadequate but useful (Table 18). Working with farmers under similar heifer in trust scheme in Turiani, Tanzania, Lyimo (2006) reported that training for smallholder beneficiaries in Tanzania is inadequate.

Table18 Beneficiaries who attended CARITAS training and knowledge acquired

Respondents who attended CARITAS training	Frequency	Percent
Trained	59	52.7
Not trained	53	47.3
Total	**112**	**100**
Level of knowledge acquired		
Adequate and useful	30	26.8
Inadequate but useful	70	62.5
Neither adequate nor useful	5	4.5
Do not know	7	6.3
Total	**112**	**100**

ILEIA (2000) argue that farmers adapt their farming systems as conditions and needs change. They try out new ideas they have seen or heard about from other farmers, visitors, and extension agents. IIRR (1998) reported that there is high percentage of farmers going to farm visits and extension services as a source of education. The provision of appropriate training for identified target groups (government, NGOs, communities or private sector) is often a key strategy for achieving sustainable benefits. To improve the prospects for sustainability it should start at the right time (i.e. not near the end), be conducted throughout the program or

project, and allow for repetition. While the most appropriate type of training will depend partly on the nature of individual programs and projects, experience indicates that certain approaches are more likely to achieve sustainable benefits than others. Effective training should not only 'educate' but also motivate: trainees must be selected on merit, include both men and women, and be of direct relevance to their work. Trainees must also be given the opportunity to apply newly acquired skills on completion of training (Hampshire, 2000).

In this study beneficiaries were assessed for the knowledge concerning types of grass for cattle feeding, types of minerals and amount of water they give their cows. Elephant grass was ranked the first with about 92.9% beneficiaries followed by Guatemala grass 71.4% and Setaria grass 51.8%. There were other types of grass used by beneficiaries to feed their cattle as shown in the Table 19.

Table 19: Types of grass used to feed their cattle

Types of grass	Percentage
Guatemala	71.4
Setaria	51.8
Elephant grass	92.9
Other types of feed used by beneficiaries	
Banana leaves	0.9
desmodium,	0.9
Mixture	1.8
None	0.9
Rhodes	64.3
Top red grass	29.5
Type of mineral	
Cattle Mix	87.5
Super Maclick	61.6
Calcium and Iron	43.8

Mixed grass was used by 0.9%, 29.5% used Rhodes, 0.9% feed their cattle banana leaves, 1.8% use 0.9% use zero grazing while 64.3% do not use any other types of feed to their cattle. The types of minerals commonly used were cattle mix which was ranked the first by 87.5% beneficiaries, super maclick the second by 61.6%, and lastly iron and calcium by 43.8%. Amount of water given to a cow ranged from 20 to 80 litres per day. On average a cow was given 30 litres per day. Among surveyed beneficiaries, 53 which is approximately 50%, were correctly providing 2 buckets of water per cow per day.

Rouse (2008), suggested that the target groups of training must be group members and project staff (including group promoters).Training should be pragmatic and based on solving immediate and recognized problems. Therefore, it must be on-going training, a continuous process implemented within the context of any project action to improve the production, income and social conditions of the participants. Trainers must have practical experience. They should include group promoters and other project staff, technical officers of delivery agencies, experienced small scale producers as well as successful groups that train and motivate others.

4.7 Economic Status of Beneficiaries as Reflected by Possession of Assets

The high acquisition of wealth from milk sale showed the importance of CARITAS dairy cattle to the beneficiaries. About 71.4% spent their money at least for building standard housing roofed with iron sheets, pay school fees, purchase household assets like furniture, mattress, radio and bicycle, buy food and pay for health services. These indicate not only certain degree of poverty reduction but also sustainability of

the project. Furthermore nutritional status of the poor people improved because most of the income obtained from milk sale was used to buy food (CARITAS Coordinator Personal Communication, 2009). Beneficiaries are willing to use some of the funds to maintain the sustainability of the project. Despite the priority in food security shown by them, it is worth to reinvest in the project to maintain and sustain it.

Rouse (2008) commented that groups can achieve notable increases in food crop and meat production. In Ghana, for example, groups' maize output per hectare is 20 percent higher than that of non-participating farmers. Similar results have been recorded in Sierra Leone, Sri Lanka and Kenya. Although income data is notoriously difficult to collect, proxy indicators such as high group loan repayment rates, rising levels of group savings and visible improvements in participants' housing conditions point towards increased net family incomes. Savings mobilized by group members may appear low to outsiders, but the per capita savings registered in projects represent a major achievement by rural people who, previously, had no savings at all.

CHAPTER FIVE

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The CARITAS dairy cattle project has operated for 16 years in Mbeya Rural District. It has directed its effort to poverty alleviation and needy people mostly aged from 36 years of age through donation of livestock. Criteria that were given priority in allocating the animals were the acceptance of the farmers to work in a social group and being a resident of the project area, ability to build a shed, an established pasture area and payment of an entry fee. The positive response and ability to meet these criteria greatly encouraged CARITAS to distribute the animal in time, thus, improved efficiency of the project.

Furthermore, participatory planning which was done prior to introduction of the project has contributed to the good performance of the project. Beneficiaries from CARITAS dairy cattle engaged in other activities like crop production but to them dairy cattle generate higher income than any other source, although sustainability of the project is jeopardized by the limited market opportunities for the livestock products mainly milk.

Involvement of the farmers in a participatory way will make interested and willing farmers to participate in the project. This gives a better chance for implementation and sustainability of the project. The farmers used little milk and most of the product is sold for income generation.

Introduction of the project to the area had made the beneficiaries to change their mode of life as well as becoming better off than before. Poverty alleviation was observed through several indicators including change in expenditure patterns and acquisition of material wealth such as houses, furniture and the increase in the ability to pay for school fees.

i. Strategy or criteria used to allocate dairy cattle to the household were identified. These were followed by every beneficiary, hence leading to the sustainability of the project as livestock are being directed to the right people at the right time.

ii. Level of awareness/attitude of the community about the project seems to be high. Based on the statement used respondents awareness was very high. Community awareness led to sustainability of the project as people in the community will be able to support the project financially by buying dairy products from the beneficiaries and provide moral support. Furthermore the number of people who joined the project has progressively increased.

iii. Community involvement to the project as in any development project is needed for sustainability. Not only that because the project is implemented within the community environments. During the establishment of dairy cattle project findings revealed that the community was involved starting from the early stages. The community was involved in planning and decision making. Decision of working in groups as suggested by community

members, accepting the project and formation of rules and regulations to be followed by beneficiaries were made and all these will lead to the sustainability of the project.

iv. Importance of the dairy cattle in the household or owner was examined. Findings revealed that all the beneficiaries admitted that dairy cattle are important to them. All of them agreed that household income increased the availability of food, and manure for their farms. It is obvious that beneficiaries' recognition of the importance of dairy cattle will led to more effort of good care and management which support sustainability of the project among the beneficiaries.

5.2 Recommendations

1) In order to stabilize and offer good milk price to beneficiaries, there is need for them to organize themselves into groups and cooperate together by establishing collection centres in the village that could ease the milk storage and sales problem such that they can utilize the benefits of the economies of scale.

2) There is a need to involve other development partners in the area at the establishment of the project so as to integrate all sectors of development. This will facilitate effectiveness, development and sustainability of the project.

3) Criteria for enrolling beneficiaries in the project should be regulated to fit the needy especially the poor people (those living under one US dollar per day). Currently people who live in absolute poverty cannot afford to join due to requirement of building a cowshed and paying entry fees.

4) Government should improve infrastructure including roads and electricity facilities in the rural areas so as to facilitate storage of milk in the village and movement of people from rural to urban areas.

REFERENCES

Anim, J. (2009). *Identifying technical efficiency of dairy cattle management in rural areas through a non-parametric method: A case study for the East Mediterranean in Turkey.* Medwell, 209pp

Apwann, V. (2007). Report of the Workshop on Project Implementation and Sustainability [http://www.undp.org.tt/sgp/sgp-workshop-report.pdf] site visited on 3/4/2009.

Ashley, S. S. and Bazeley, P. (1999). *Livestock in Poverty Focused Development.* First edition. The IDL Group (In Development Ltd). 96pp

Australian Bureau of Statistics (2003). The Bare Necessities – Poverty and Deprivation in Australia Today: Department of Employment and Workforce Relations. ACOSS. 48pp

Babbie, E. (1990). *Survey Research Methods.* Wadsworth Publishing Company. Belmont, California. 395pp

Bailey, K. D. (1994). *Methods of Social Research.* Fourth edition. Free Press. New York. 588pp.

Basnayake, B.M.K. and Gunaratne, L.H.P. (2002). Estimation of technical efficiency and its determinants in the small holding sector in the country wet zone of Sri Lanka. *Sri Lanka Journal of Agricultural Economics* 4:137-150

Bernard, H. R. (1994). *Research Methods in Anthropology: Qualitative and Quantitative Approaches.* Sage Publications, London. 585pp.

Bernard, H.R. (1996). *Research Methods in Anthropology: Qualitative and Quantitative approaches.* 3rd edition. Altamira Press. 800pp.

Boi, I. (2004). The contribution of livestock in rural poverty alleviation in Kilindi and Handeni Districts, Tanga Region, Tanzania. Unpublished Dissertation for Award of MARD Degree at Sokoine University of Agriculture Morogoro, Tanzania. 82pp.

CARITAS (2008). Monthly Progressive Report, June to December. 5pp.

Cheng, N. (2008). Feeding dairy cattle in tropical regions of China. [htt://www.fao.org/docrep/003/t04/3e/To413E00.html#TOC] the site visited on 28/ 4/ 2009.

Christian Aid (2001). Ignoring the experts. Poor people's exclusion from poverty reduction strategies. Policy Briefing. Christian Aid, London. [www.cchristian- aid.org.uk/indepth/0110prsp/prsp.htm] site visited on 12/4/ 2009.

Christian Aid (2002). Participation in dialogue? The Estrategia Bolivian de Reducción de la pobreza. Policy Briefing. Christian Aid. London, UK. 45pp.

Cooksey, B. and Likwelile, S. (2002). Research in Tanzania Guidelines for Preparing Research Proposals. REPOA Special Paper No 15. Mkuki na Nyota, Tanzania. 34pp.

De Wolf, C. (2001). Economics of producing milk in Dar es Salaam. *Proceedings of Tanzania Society of Animal Production.* Arusha. Tanzania. 5-7 December 2001. 27pp

Douglas, D. (2008). NGO sustainability index for Central and Eastern Europe and Eurasia. 13th Edition. Pontis Foundation Washington DC, 270pp

FAO (2002). Anti- hunger program. Reducing hunger through sustainable agriculture and rural development and wider access to food. Second draft. FAO, Rome. 41pp.

FAO (2008). Contribution of livestock to poverty alleviation. Animal Production and health. [http://www.fao.org/ag/againfo/projects/en/pplpi/home.html] site visited on 15/4/2010

FSSA (2006). Community infrastructure revitalization generates new economic activities. Food security and sustainable agriculture. [http:www.counterpart.org] site visited on 19/4/ 2009

Hampshire, A. (2000). Stronger communities and social connectedness – social capital in practice', The Council on the Ageing National Congress. November [http://www.bensoc.asn.au/research/sc_communityengagement.] site visited on 26/3/ 2009

HPI (2000). Heifer Project International Tanzania, Arusha, Tanzania Monthly Progressive report .12pp.

Hugh, P.A, Hurtes, J.G., Mark, H., Karin F., Margie, K and Khetsi, L (2003). *Education Africa Forum.* Delivering Africa's Education Renaissance in South Africa. 6th edition Education Africa, South Africa. 232pp.

IIRR (1998). *Sustainable Agricultural Extension Manual for Eastern and Southern Africa.* International Institute for Rural Reconstitution. Nairobi, Kenya. 241pp.

ILEIA (2000). Unleaching the creativity of famers. *ILEIA* 16(2):4

Kapunda, L. (2007). People and Livestock, Socially and Ecologically Responsible Development [http://www.pastoralpeoples.org/docs/PALissue5Apr07.pdf.] site visited on 23/6/ 2009.

Kayunze, K. A. Urassa J. K. and Mwakalobo A. B. S. (2001). Food Status and Income Levels Among Dairy and Non-dairy Farmers in Chunya District. Tanzania; Development Studies Institute, Sokoine University of Agriculture. 130pp.

King, A.C., Michaela, K., David, K. A and Wilcox, S. (2008). Effects of marital transitions on changes in physical activity: Results from a 10-year community study. *Journal Annals of Behavioral Medicine*, 17: 58-105.

Kothari, C. R. (2004) *Research Methodology: Methods and Techniques*. Second Edition. New Age International Publishers. New Delhi, India. 401pp.

Kurwijila, R. L, Munga, U. and Kyomo, M. L. (2002). The challenges of research in improving livestock productivity in Tanzania. In: *Proceedings of the second Universitywide Scientific Conference.* (Edited by kurwijila *et al.*) 9-10 May 2002. Morogoro, Tanzania. pp.28-63.

Kurwijila, R. L., Crees, J., Lamosai, A.S. and Kakala, S.M. (1995) The role of livestock industries in Tanzania. *In Proceedings of Tanzania Society Of Animal Production.* AICC, Arusha, Tanzania, 16 -18 August 1995. 21:1-18.

Lyimo H. L., Mtenga L. A., Kimambo A. E., Hvelplund T., Laswai G. H. and Weisbjerg M. R (2004). A survey on calf feeding systems, problems and improvement options available for the smallholder dairy farmers of Turiani in Tanzania. *Livestock Research for Rural Development* 16:4: 23-29.

Lyimo, H. L. (2006). Development of dairy calf rearing strategies for small holder dairy farmers in Turiani, Mvomero District. Unpublished Thesis for Award of PhD Degree at Sokoine University of Agriculture. Morogoro. Tanzania, 301pp.

Madulu, N. F. (2002). Population Distribution and Density in Tanzania: Experiences of the 2002 Population and Housing Census. Institute of Resource Assessment, University of Dar es Salaam. [www.ukzn.ac.za/CCS/files/madulu.pdf+percentage] site visited on 5/3/ 2009

Makawia, I. A. (2003). Contribution of Agro forestry to Human Nutrition. A case study of Maji ya Chai, Kikatiti and Kisongo in Arusha Region. Tanzania. Dissertation for Award of MSc. Degree at Sokoine University of Agriculture, Morogoro. Tanzania.115pp

Mbapila, E. (2006). Contribution of Heifer International Tanzania to Poverty Reduction in Temeke Municipality, Dar es Salaam Region. Unpublished Dissertation for Award of MARD Degree at Sokoine University of Agriculture Morogoro, Tanzania. 92pp

Mdoe, N. S. Y., Hella, J. P. and Turuka, F. M. (1998). Livestock production and poverty alleviation Tanzania. *Tanzania Veterinary Journal (Supplement).* 18 (4): 250-269pp.

Matovelo, J. A., Luzi-Kihupi, A., Monela. G. L. and Mgassa M.N (2002). Poverty Eradication and Sustainable Development; The role of Research in Agriculture and Sustainable Management of Natural Resources. *Proceedings of the second University-wide Scientific Conference held at the Institute of Continuing Education (ICE).* SUA. (Edited by Matovelo. J.A. *et al.*), 9-10 May 2002. 143pp.

Msambichaka, L. Mwamba, N. and Mashindano, O. (2006). *Globalization and Challenges for Development in Tanzania.* Dar es Salaam University Press. Tanzania.585pp.

Nordic News.(2005). Visiting HPI in Tanzania. *NOROIC CLUB of Milwaukee.* 34 (3): 5-6.

Owen, E., Kitalu, A. Jayasuriya, N. and Smith, T. (2005). *Livestock and Wealth Creation Improving the Husbandry of Animals Kept by Resource poor People in Developing Countries.* Purdue University. West Lafayette Indiana. 601pp

Penrith City Council (2010). Community participation policy[http://ourfuture.com.au/document/show/15] site visited on 12/7/ 2010

Reid, J. R. (2000). Community participation: How People Power Brings Sustainable Benefits to Communities. [www.rurdev.usda.gov/rbs/ezec/Pubs/commparticrept.pdf.] site visited on 7/8/ 2009.

Rouse, J. (2008). Participation in practice: Lessons from the FAO People's Participation Programme, [http://www.fao.org/sd/PPdirect/PPre0043.htm] site visited 20/3/ 2010

Rugambwa, V.K., Nholope, D. and Stanislaus, D. (1997). Socio-economic impact study of the Kagera Livestock Development Program (KALIDEP). Unpublished report.150pp.

Rutasitara, L. (2002). *Economic Policy and Rural Poverty in Tanzania.* 1st edition Mkuki na Nyota Publishers, Dar es Salaam. 118pp.

Rutamu, I. and Muster, Van, B. (1998). Institutional Options in Tanga Dairy sector. Costs, Subsidy and Quality Issues. *In Proceedings. 2nd Dairy Development Conference, (AIC)*, Arusha, 5-7th August, 1998. pg 30-37

Shively, G. and Mwakalobo, A. (2001). Food security and natural resource management in developing countries. Staff paper No. 1-12. Department of Agricultural Economics, Purdue University. West Lafayette Indiana. 22pp.

Srinivas, H. (2009). Causes of poverty. [http://www.gdrc.org/icm/icm-internent.] site visited on 27/8/2009

Support the Earth Ribbon Magnets (2009). Our view of Sustainability [http://www.sustainabilitycouncil.org/our_view.html] site visited on 13/7/2010

Tupy, M. L. (2005). Trade liberalization and poverty reduction in Sub-Saharan Africa [http://www.cato.org/pubs/pas/pa557.pdf.] site visited on 13/7/2010

URT (1997). *Ileje District Socio-economic Profile*. Dar es Salaam: Planning Commission and Ileje District Council. 146pp.

URT (1998). *The National Poverty Eradication Strategy*, Dar es Salaam: Vice-President's Office. 54pp.

URT (1999). Poverty and Welfare Monitoring Indicators. Dar es Salaam: Vice President's Office. 56pp.

URT (2002). Rural Development Strategy. Presidents Office. Regional Administration and Local Government, Tanzania. 124pp.

URT (2003). Poverty Reduction Strategy. The Second Progress Report 20001/02, Government Printer, Dar es salaam. 92pp.

URT (2005). National Stategy for Growth and Reduction of Poverty. Vice President's Office. United Republic of Tanzania. 51pp.

URT (2006). National Livestock Policy, Dar es Salaam: Vice-President's Office. United Republic of Tanzania. 28pp.

Walingo, M. K, (2009). Role of livestock projects in empowering women smallholder farmers for sustainable food security in rural Kenya. *African Journal of Food, Agriculture, Nutrition and Development* 1: 102 -276.

Wikipedia (2008). Sustainable development [http://en.wikipedia.org/wiki/Sustainability] site visited on 13/7/ 2010

Wikipedia, (2009). *Mbeya regionsocio-economic profile* [http://www.tzonline.org/pdf/Mbeyareg.pdf] site visited on 12/1/2009. 12pp.

Winrock International (1992). Low Head Irrigation. In: Proceedings *of Winrock International Review workshop*. Nairobi, Kenya, 17-18 Feb 2000. 61pp.

Wire, C. (2005). International Aid and Relief. Heifer Project International. [http://www.charitywire.com/charity76/01308.html] site visited on 30/1/2009. 36pp

APPENDICES

Appendix 1: Questionnaire for CARITAS members of dairy cattle project

Greetings! My name is ..... from Sokoine University of Agriculture (SUA), Morogoro. I am undertaking a study in the District to assess the sustainability of rural development projects using CARITAS dairy cattle project as a case study. As member of this village, you have been selected among others from which information will be collected. The information provided will be confidential.

Your participation is highly appreciated
Respondent name .....
Village.....
Ward.....

Date of interview.....

Questionnaire No: .....

A. Background Information

Person	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
1. Sex										
2. Age										
3. Education level										
4. Marital status										
5. Household head										
6. Household possession										

Key:

Sex	Education	Marital status	HH head	HH possession
1.Male	1.None	1.Single	1.Adult male	1.Bicycle
2.Female	2.Primary	2.Married	2.Adult female	2.Whelbarow
	3.Secondary	3.Widow	3.Orphan	3.Animal drawn cart
	4. College	4.Widower		4.Motor vehicle
	5.Adult education	5.Divorced		5.Donkey
	6.Others	6.Separated		
		7.Others		

B. Information on CARITAS Dairy cattle project Activities

1. When did the project begin in this village? .....

2. When did you join the project? Month .....Year.....

3. How did you join the project? Mention the steps

.....

.....

.....

..

4. What are some of the activities that took place immediately after you joined the project?

.....

.....

.....

5. Why do you think the dairy cattle project was initiated in your village?

i. .....

ii. .....

iii. .....

6. What are some of the benefits that you have realized to date since you joined?

[1] Household income has increased

[2] Prestige by having many cattle

[3] Assurance of food security

[4] Others (specify) .....

7. What is the size of land do you have for farming, for pasture? .....

8. Are you possessing any other types of livestock?

[Yes] [No]

9. If yes mention them

.....

.....

.....

C: Criteria Used to Distribute Diary Cattle to the Houscholds

10. Did you receive dairy cattle from CARITAS project?

[1] Yes [2] No

11. If yes, when did you receive it? .....

12. What were the criteria that have been set in distributing the dairy cattle?

.....

.....

.....

13. Who set the criteria mentioned in 12 above?

[1] CARITAS

[2] Beneficiaries (Households)

[3] Village leaders

[4] Others (specify) .....

14. Are you organized into groups for this particular project?

[1] Yes [2] No

15. If yes in 14, who formed the groups?

[1] CARITAS

[2] Beneficiaries (Households)

[3] Village leaders

[4] Others (specify) .....

16. What are the objectives of the group?

.....

.....

17. What do you do together as a group?

.....

.....

18. How do you, as a group, pass on the calf within the group?

.....

.....

19. Are you satisfied with the way the groups are formed? [1] Yes [2] No

20. Give reason to your answer .....

.....

D: Level of Community Awareness

21. In the table below are set of statements depicting awareness on the CARITAS dairy cattle project. Kindly indicate the level of agreement to the statements.

S/No	Attitudinal statement	Agree	Undecided	Disagree
1	To manage dairy cattle cost a lot			
2	Dairy cattle project increases household income			
3	CARITAS Dairy cattle project is affiliated to a particular religion followers			
4	CARITAS dairy cattle project gives equal opportunity to the people for the aim of poverty reduction			
5	Sustainability of the diary project depends on the beneficiaries			
6	Dairy cattle provided by CARITAS to the beneficiaries have high quality			
7	Dairy cattle project aims those who have high income			
8	Manure produced by dairy cattle project is very expensive			
9	Number of beneficiaries acquired dairy cattle should be increase			
10	There are no improvements on standard of living among beneficiaries of the dairy cattle			

E: Community Involvement in the Diary Cattle

22. Were you informed when the dairy cattle project began?

[i] Yes [ii] No

23. If Yes in 22 above, who informed you?

[i] Village officials [ii] Neighbours/ friends

[iii] CARITAS [iv] Church leaders/ Clergy

[iv] Others

24. How was information given?

[i] Home visitation by identified informers

[ii] Village Assembly

[iii] Posters

[iv] During church services

[v] Others (specify).....

25. Were you mostly involved in planning on how the project should be undertaken?

[i] I was involved during village meeting

[ii] Participated in drafting the 'pass on' guidelines

[iii] I just found myself in a group

[iv] I was among the village committee members

26. Did you contribute in decision making concerning the project during the planning?

[i] Yes [No]

27. If yes for which aspects? .....

28. What were/ was the decision.....

29. What did you contribute in the dairy cattle project?

[i] Gave cash (specify the amount given.....)

[ii] Labour contribution (No. of days worked: Paid..... Not Paid .....

[iii] Land where cow shed was built (Amount of land.....hectors)

[iv] Ideas on how construction should be done

[v] Cash and labour

30. Who was involved in ensuring that the dairy cattle activities went as planned?

[i] Church committee

[ii] CARITAS officer

[iii] Village leaders

[iv] Few people chosen to do the work

[v] No one did that

[vi] I don't have an idea

31. Were there any dairy cattle care standards which were to be met by the beneficiaries?

[i] Yes [ii] No

32 (b) If Yes, what were they? .....

33. Were you at one point assessed to see if the standards set have been met?

[i] Very Often [ii] Often [iii] Somehow

[iv] Not very often [v] Never

34. Do you think the dairy cattle project was introduced according to your expectations?

[i] Yes [ii] No

Give reasons .....

.....

35. Do you have any idea as to how much it cost for one dairy cattle?

[i] Yes [ii] No

If Yes, how much.....

F: Importance of Dairy Cattle to the Household

36. Do you think dairy cattle project is of any importance to your household?

[1] Yes [2] No

37. Give reason to your answer in 36 above: .....

.....

.....

38. How many dairy cattle does your household own to-date? .....

39. Of the cattle mentioned in 38 above, how many are a result of CARITAS dairy cattle project? .....

40. On average, how many litres do you get per day? .....litres

41. Of the milk obtained how much is sold per day? .....litres

42. How much is consumed by household members? .....litres

43. How long do you milk in a year? .....months

44. What are other households' sources of income?

i. .....
ii. .....
iii. .....
iv. .....
v. .....

45. In the table below, kindly indicate the income obtained after joining CARITAS dairy cattle project.

Source of Income from dairy cattle products	After Joining CARITAS Diary Cattle Project		
	Amount (Kgs/bags/tin/pcs/ltrs)	Price per unit	Estimated Cash Income Per unit
milk			
manure			
Meat			

46. What were the immediate benefits you realized from the diary cattle project?

Benefits	**Put 1, 2, 3....***
Employment	
Income	
Manure for farm	
Oxen	
Improvement of food security	
Social Network/ Status	
Other benefits (specify).....	

Key:

* Numbers are put in order e.g. 1 for most immediate benefit onwards

G: Knowledge about Diary Cattle Management

47 Have you ever attended any dairy cattle training?
[1] Yes [2] No
48. If yes where and when? .....

49. If yes how frequent in a year?
Once in a year
Twice in a year
Three and above in a year
50. Has the project been providing training about dairy cattle management?
[1]Yes [2] No

51. Was the knowledge provided in dairy cattle management adequate and useful?
[1] Adequate and useful
[2] Inadequate but useful
[3] Neither adequate nor useful
[4] Do not know
[5]
52. What types of glass do you feed your cow? .....

.....
.....
.....
53. Your dairy cattle drink how many buckets of water per day? .....
54. What kind of minerals do you feed your dairy cattle?
.....
.....
.....
.....
..
55. De-worming is given to your dairy cattle for how long? .....

56. In the table below, kindly indicate the assets that have been obtained by the income associated with dairy cattle.

S/n	Type of Asset

57. What can you say about dairy cattle project in your area?

.....

.....

.....

58. Currently what support do you get from CARITAS?

.....

.....

.....

59. What is likely to happen when CARITAS support is no longer?

SECTION A

Appendix 2: Key informants check list

Respondent name .....

Village.....

Ward.....

Date of interview.....

Check list No: .....

SECTION B: SUSTAINABILITY OF THE PROJECT.

1. When did the project start?

2. What is the aim of the project?

3. How was/ is the community involved in the project planning?

4. How do the project objectives address the need and priorities of the community?

5. What is the community perception with respect to the ownership of the project?

6. What criteria were used for selecting beneficiaries to join the project?
   .....
   .....

7. What criteria were used to distribute dairy cattle to the beneficiaries?

8. Between men and women who are supposed to get the cattle in the project?

9. Is the project more sustainable when owned by a woman or a man?
   Why? .....

THANK YOU FOR YOUR KIND COOPERATION