

**INSTITUTIONAL FACTORS INFLUENCING THE
SUSTAINABILITY OF DONOR FUNDED DAIRY
AGRICULTURAL PROJECTS: A CASE OF SIYOI, WEST
POKOT COUNTY, KENYA.**

AKUTO, TERESA CHEYECH

**A Research Project submitted in partial fulfilment of the requirements for Degree of
Master of Arts in Project Planning and Management of the University of Nairobi.**

2020

DECLARATION

The Research Project is my original work and has not been presented for any academic award in any other university.

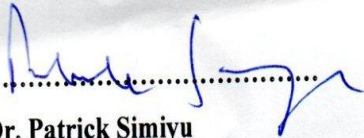


.....
Akuto Teresa Cheyech
L50/25131/2019



.....
Date

The Research Project has been submitted for examination with my approval as the University Supervisor.



.....
Dr. Patrick Simiyu
Lecturer
Department of Open Learning
University of Nairobi,



.....
Date

DEDICATION

I dedicate this Research Project to my parents who laid foundation and invested a lot in my studies and my beloved sons; Alvin Mwangat, Wayne-Steve Rotich and Jerome Pkemoi who have been inspirational and close friends for their constant support, understanding and daily encouragement during the entire period I have been away from home.

ACKNOWLEDGEMENT

I am indebted to my research supervisor Dr. Patrick Simiyu Cheben for his guidance and positive encouragement and etiquette of this research project work. He has provided much needed support and direction, assistance and corrections in the course of writing the research project. I would also like to thank the University of Nairobi and the Kitale Learning Centre for giving me the chance to carry out my study in this institution. I thank the staff and all the lecturers in the Project Planning and Management Course for the knowledge they imparted to me. I wish to express my sincere gratitude to my Project Coordinator Mr. Philip Tingøaa for granting me permission to undertake this course. Finally, my gratitude goes to my friends and colleagues Jacob Eweet, Francis Anno, Peris Azimale and James for their support and encouragement during the course. May the Almighty God be praised.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iv
TABLE OF CONTENTS	v
LIST OF TABLES	ix
LIST OF FIGURES	xi
ABBREVIATIONS AND ACRONYMS	xii
ABSTRACT	xiv
CHAPTER ONE.....	1
INTRODUCTION	1
1.1. Background of the study.....	1
1.2. Statement of the problem.....	5
1.3. Purpose of the study	7
1.4. Objectives	7
1.5. Research Hypotheses.....	7
1.6. Significance of the study	7
1.7 Delimitations of the study	8
1.8. Limitations of the study	8
1.9. Assumptions of the study	9
1.10. Definitions of significant terms.....	9
1.11. Organization of the study.....	10
CHAPTER TWO	11
LITERATURE REVIEW	11
2.1 Introduction	11
2.2 Concept of institutional factors and sustainability of Donor Funded Dairy Projects.....	11
2.3 Managerial capacity and sustainability on Donor Funded Dairy Projects	12
2.4 Community participation and sustainability on Donor Funded Dairy Projects.....	13

2.5 Technology adoption and sustainability of Donor Funded Dairy Projects	14
2.6 Extension services and sustainability of Donor Funded Dairy Projects.....	16
2.7 Conceptual framework of the study	18
2.8 Relationship between variables	20
2.9 Summary of the literature reviewed.....	20
2.10 Knowledge gap	21
CHAPTER THREE.....	22
RESEARCH METHODOLOGY.....	22
3.1 Introduction	22
3.2 Research design	22
3.3 Target population.....	22
3.4 Sample size and Sampling procedure	23
3.5 Research instruments	24
3.5.1 Interview guide	24
3.5.2 Questionnaire.....	24
3.6 Validity of the instruments	24
3.7 Reliability of the instruments	25
3.8 Data collection procedure.....	25
3.9 Data analysis techniques	26
3.10 Ethical considerations	28
3.11 Operationalizing of the variables	29
CHAPTER FOUR.....	31
DATA ANALYSIS, PRESENTATIONS, INTERPRETATIONS, AND DISCUSSIONS	31
4.1. Introduction	31
4.2. Questionnaire return rate.....	31
4.3. Demographic characteristics of respondents	31
4.4. Basic statistical assumptions	33
4.5. Descriptive & quantitative findings related to research questions.....	33
4.5.1. Influence of Managerial capacity on sustainability of DFDP.....	34
4.5.1.1: Rating Managerial capacity	35
Table 4.3: Rating managerial capacity, governance structures and organization of the dairy farmers association.....	35

4.5.1.2. Effectiveness of management committees.....	36
4.5.2. Influence of Community participation on sustainability of DFDP	37
4.5.2.1.The level of the community participation.....	37
4.5.2.2.Target beneficiaries	38
4.5.2.3.Commitment of the county government	39
4.5.2.4 Effect of withdrawal of donor funding	40
4.5.3. Influence of Technology adoption on sustainability of DFDP	42
4.5.3.1.Period of Technology	43
4.5.3.2 .Adequacy of information	44
4.5.3.3 : Influence of technology	45
4.5.3.4. Learnt and adopted types of technologies.....	47
4.5.4. Influence of Extension services on sustainability of DFDP	49
4.5.4.1 :Influence of extension services	50
4.6. Findings based on hypotheses testing and multiple regression	52
4.7. Qualitative findings related to the research questions.....	61
4.8. Discussion of findings.....	64
4.8.1. Influence of Managerial capacity on sustainability of DFDP.....	64
4.8.2. Influence of Community participation on sustainability of Donor Funded Dairy Projects	66
4.8.3. Influence of Technology adoption on sustainability of Donor Funded Dairy Projects	67
4.8.4. Influence of Extension services on sustainability of Donor Funded Dairy Projects	69
CHAPTER FIVE	71
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS.....	71
5.1. Introduction	71
5.2. Summary of findings.....	71
5.2.1. Influence of Managerial capacity on sustainability of Donor Funded Dairy Projects	71
5.2.2. Influence of Community participation on sustainability of Donor Funded Dairy Projects	71
5.2.3. Influence of Technology adoption on Sustainability of Donor Funded Dairy Projects	72
5.2.4. Influence of Extension services on sustainability of Donor Funded Dairy Projects	72
5.3 Conclusions	73
5.3.1 Conclusion on Managerial Capacity and sustainability of Donor Funded Dairy Projects	73
5.3.2 Conclusion on Community Participation and sustainability of Donor Funded Dairy Projects	73
5.3.3 Conclusion on Technology and sustainability of Donor Funded Dairy Projects	73

5.3.4 Conclusion on Extension Service and Sustainability of Donor Funded Dairy Projects.....	73
5.3.5 Contribution to the body of knowledge.....	74
5.4. Recommendations.....	74
5.4.1. Recommendations for policy and practice	74
5.4.2. Suggestions for further studies.....	75
REFERENCES	76
APPENDICES	81
APPENDIX I: LETTER TO RESPONDENTS	81
APPENDIX II: QUESTIONNAIRE.....	82
APPENDIX III: INTERVIEW GUIDE FOR MINISTRY OF AGRICULTURE PASTORAL ECONOMY OFFICIALS, DIRECTOR LIVESTOCK AND OFFICIALS ON OTHER DONOR FUNDED PROJECTS	90
APPENDIX V: INTERVIEW GUIDE FOR DAIRY USERS ASSOCIATION IN SIYOI WARD.....	96
APPENDIX VI: RESEARCH PERMIT	98

LIST OF TABLES

Table 3.1: Target Population	23
Table 3.2: Sample size	24
Table 3.3: Reliability test Results	25
Table 4.1: Demographic characteristics of respondents.....	32
Table 4.2: To what extent to you think managerial capacity influence sustainability of DFDP ...	34
Table 4.3: Rating managerial capacity, governance structures and organization of the dairy farmers association.....	35
Table 4.4: Effectiveness of the management committee in relationship to sustainability of dairy projects after donor withdrawal	36
Table 4.5: Did you or any of your community members participate in any of project processes?	37
Table 4.6: Level of the community participation after donor withdrawal in the project	37
Table 4.7: Extent to which target beneficiaries and community participation influences sustainability of DFDP?	38
Table 4.8: Description of the level of commitment of the county government and community benefiting from the project	40
Table 4.9: Effect of withdrawal of donor funding on sustainability of DFDP	40
Table 4.10: Extent to which technology adoption influences sustainability of DFDPs.....	42
Table 4.11: Period at which technology influenced sustainability of DFDP.....	43
Table 4.12: Adequacy of information on availability of dairy technologies in your community..	44
Table 4.13: Influence of technology, on information, delivery, cost, and diversification.....	45
Table 4.14: Learnt and adopted type of technology practices	47
Table 4.15: Does extension services influence sustainability of DFDP?.....	49
Table 4.16: Influence of extension services on sustainability of DFDP	50
Table 4.17: Multivariate regression analysis between managerial capacity, community participation, technology extension services and sustainability of DFDP	58
Table 4.18: Multivariate analysis of variance between managerial capacity, community participation, technology, extension services and sustainability of DFDP	58
Table 4.19: Multiple linear regression model between technology, community participation, extension services, managerial capacity and sustainability of DFDP.....	60

Table 4.20: Interview with ministry of agriculture pastoral economy officials, director livestock and officials on other donor funded projects	61
Table 4.21: Interview guide for MoAIPE Ward Officers	63
Table 4.22: Interview with Dairy Users Association in Siyoi Ward	64

LIST OF FIGURES

Figure 2.1: Conceptual framework í 16

ABBREVIATIONS AND ACRONYMS

AI	Artificial Insemination
ASAL	Arid and Semi-Arid Lands
CBO	Community Based Organization
CDP	Community Development Project
DAC	Development Assistance Committee
DFP	Donor Funded Projects
DFDP	Donor Funded Dairy Projects
GOK	Government of Kenya
ICT	Information Communication Technology
KCSAP	Kenya Climate Smart Agriculture Project
MoAPE	Ministry of Agriculture and Pastoral Economy
MDG	Millennium Development Goals
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
PADEP	Participatory Agricultural Development and Empowerment Project
PRS	Poverty Reduction Strategy
TIMPS	Technology Innovations Management Practices
UON	University of Nairobi
UN	United Nation
UNDP	United Nation Development Partners
URT	Uganda Research Technology

URT United Republic of Tanzania
USAID United States Agency in Development
US United States

ABSTRACT

Sustainability of Donor funded projects has become critical in the management of projects by the community due to institutional factors characteristics. The purpose of this study was to investigate the institutional factors and the sustainability of Agricultural Donor Funded Dairy Projects in Siyoi Ward, West Pokot sub-county, West Pokot County, Kenya. The study specifically focused on the following objectives; to establish how managerial capacities, community participation, technology adoption and how extension services influenced sustainability of DFDP. The study was anchored on outcomes and systems theory. The study adopted a descriptive survey research design with a target population of 330 of the local households, county government officials from the Ministry of Agriculture and Pastoral Economy, the Director in charge of Livestock, Director Veterinary services, Funding Agency Officials and the Project manager (KCSAP), beneficiaries and the community members, Dairy Farmers Association and a church representative from the Siyoi Dairy farmers and the Church community. A stratified sampling method was used to select the respondents. The sample size was determined by applying the Yamane formula, which were 180 sampling units. Stratified and purposive sampling was used to identify sampling units from the sampling frame. Questionnaires and interviews guides were used as tools of data collection. A pilot study was conducted to pretest the instruments and to determine validity and reliability of the research instrument. Qualitative data was collected by holding face to face interviews with respondents. Quantitative data was collected by administering questionnaire. The SPSS version 22 software was used to analyze the data from questionnaires while thematic analysis was used to analyze the qualitative data. In the findings, 83.1%, 83.9%, 81.8% and 78.6% of the respondents stated that managerial capacity, community participation, technology adoption and extension services largely influenced sustainability of DFDP. Further, managerial capacity, community participation, technology adoption and extension services were statistically significant as the p-value, 0.000 was less than the level of significant adopted by the study, 0.05. There was an association of 0.977, 0.657, 0.616, and 0.491 between community participation, managerial capacity, technology adoption and extension services and sustainability of DFDP. Over 72.0% of the respondents elucidated that it took over two years after adoption of modern technology for it to have a meaningful impact on sustainability of DFDP. Further, 89.6% of the respondents supported the fact that the management of dairy association was ineffective and this could be explained by the low level of education. Following the above findings, the study recommends that community participation in project management be enhanced through training by the County Government Agricultural Extension Officers

CHAPTER ONE

INTRODUCTION

1.1. Background of the study

Globally, project sustainability has been a critical concern in project management. Planning of a project is seen in the ability for the project to provide appropriate output and sustainability. In both social and economic roles, it assists in alleviating human suffering and reduces poverty. Many international donors have often played a key significant role in assisting local communities to implement dairy projects in sectorial system reform strategies especially in developing countries. The drive to consider project sustainability gained importance to donors during the end of the 20th Century. (Scoons, 2007). Notably, project effectiveness and sustainability were considered during planning as they were pillars for any successful project undertaking (Homedes, 2001) (Hak & Dahl, 2007). A project is considered effective if it has an elaborate plan with strategic designs, is managed accordingly and is monitored and evaluated accordingly. A rational donor would use project sustainability as a measure of good project performance and it is from that basis that funding will be released to finance or implement the project. Use sustainability as one of the yard sticks in evaluating development interventions and become the basic purpose for donors to provide aid in achieving or promoting development (Kamalawati, 2008).

According to (Togbolo, 2005), the participation of donors in any project is not in any way an indication that the project has political legitimacy, but instead might involve the capabilities of the institution managing the project. In Germany, inclusivity community project ownership and use of technology were vital for sustainability of any DFP. Notably (Ellerk, 2018) elucidates that involving the government and the community from the beginning of the project until time is due or the withdrawal of the funds or end of the project through participation and sensitization is very important in matters sustainability. Project ownership according to (Ellersiek, 2018) entailed the ability of the community to undertake the project activities diligently and within a passion for the sole purpose of seeing it succeed. Use of technology goes hand in hand with the level of skills and knowledge and the beneficiary community such that an illiterate community will rarely support the use of technology for DFPs.

In Nepal, Asia Continent, the report by United States Agency for International Development, (USAID, 2017) asserted that organization capacity of community projects was determined by training individuals on governance and project coordination functions, guidelines and policies through project manuals and terms of reference that will see that the projects advance in terms of development and service delivery so as to improve the livelihoods of the beneficiary communities. Publications of project activities, scheduling for meetings and requisition of in-kind or cash contribution from the public are among aspects that enhance sustainability of DFP in Nepal. Such DFS have continued to thrive because management boards, Community driven committees are occupied by experienced and skilled people who understand community needs, financial management and sustainability strategies. The support given by the local community determines the establishment of community project, its ability to withstand challenging needs that emerge in between the project period and also its success. For (M., 2015) study in Sudan observes that lack of community participation and involvement has seen many projects suffer financial challenges and project viability and sustainability especially after the donor withdrawal of funding. The success of DFPs is pegged on sound institutional base, adequacy of funds and strong pragmatic approach(World Vision, 2019). Internal systems and framework instituted which include management and governance should be fostered in the local community either by experience learning because it is the core element of success in DFPs implementation.

According to (URT, 2009), Tanzania like any emerging economy has instituted measures aimed at poverty eradication. Asway of eradicating poverty, its citizens engage in Participatory Agricultural Empowerment Project. Also according to(BUSIIGE, 2008) on a survey done in Ruwenzori, Uganda to evaluate DFP, poverty continues to tighten its grip despite increased funding by donors and the government. PADEP was formed and launched in the year 2003/2004 and closed in 2007/2008 in eight pilot districts in Tanzania, including Morogoro District. The overall goal for the formation of PADEP was to increase the farmers' income, provide for food security through poverty elevation and the community priority constraint to increased and sustained agricultural productivity. However the major objective was to focus on the community priority on agricultural development constraints, needs and goals. Notably, to increase participation of the private sector, improve capacity building, and exploring markets for increased agricultural output.

Foreign development assistance in Kenya has drastically changed and improved in the recent past years towards addressing the underlying issues of poverty. The common ground amongst donors is expected to grow more so as to enhance democratic process which strengthens the marginalized groups in the civil society. A recent indicator is the move by donors and government to insist on sustainability which emphasizes community resource mobilization, cost recovery and skill acquisition (Thematic Group 2005). However, a common problem of many projects is that they are not sustainable. As a way of addressing such a challenge, key stakeholders developed an idea, which was agreed in Paris that aimed at improving effectiveness in funding, ensuring project accountability, enhancing project ownership and improving management.

In Kenya, Ngugi & Wanyonyi (2018) noted that the nature of technology to be used in DFPs is determined by the amount of information the beneficiary group has. This is largely dependent on attitudes, perception and the culture indoctrinated in the community regarding that technology, although some donors have their own international standards of technological practice to be adopted, the community sometimes deems some technology as not helpful, wasteful or destructive, which makes them change their views towards it. Stakeholders' participation was valued in terms of time taken, ability to make decisions, and commitment of their own resources towards the development and sustainability of DFPs.

Kenya dairy industry has grown with a dairy cow population of 3.5 million exotic breeds, 9.3 million indigenous animals, 1 Million camels and 13.9 million goats which produce about 3 billion litres of milk annually with exotic dairy cows producing more than 70 per cent of the total national milk output. Bulk of the feed is from natural forage, cultivated fodder, and crop by-products and concentrates (FAO, 2012). Dairy's main role is its contribution to the livelihoods of the many people throughout its value chain including its nutrition.

In DFPs in Samburu, Ltumbesi, Kidombo & Gakuu (2018) observed that technological support and sustainability of DFP are largely relied in community participations. Technical support helps by educating and equipping beneficiaries of the project with skills that would influence their perceptions, practices and community cultures that go against project sustainability. Community on the other hand improved capacity building in the identification of project problem, formulation of mitigation of intervention strategies. According to Ltumbesi, Kidombo & Gakuu

(2018) technical support and community participation can influence institutional capabilities on sustainability of DFDPs.

West Pokot has a population of 631,231 with a growth rate of 5.2% per year (GoK, 2013), which is almost twice the Nation's growth rate that stands at 2.9%. This high growth rate is seen in increased livestock products, cultural factors and high affinity of rural residency in the county. However, the county has 93,777 households. Total milk production is 56.4% from cattle. The dairy farming is practiced in areas of Lelan, Siyoi, Kapenguria, and Tapach, where small-scale farmers own five to ten dairy cattle. Income generated from dairy cattle has increased tremendously. This has been enhanced by the good veterinary services from the County Government while the Livestock Production Department (LPD) has continuously provided the best and most important suppliers of extension services that has enhanced good breeding. Milk co-operative is tasked with the role of collecting milk, processing and marketing.

Lack of rainfall which is majorly experienced in the area means that there is sometimes decline in milk production that results in a reduction in the number of transporters. Prolonged dry conditions affect milk quantity, and quality, which in turn leads to increased prices (GoK, 2013), increased heat stress on dairy cattle affects the quality of fodder consumed. This calls for extension services to alleviate the situation.

Despite all these numbers, majority of dairy farmers in Siyoi Ward cannot be considered to practice dairy farming as a business due to the low milk output. In the sub county, dairy farming has been an integral farming method used with crop farming which increased crop yield as a result of animal manure and has been used as an entry enterprise by many partners in poverty eradication in the county at large. Low milk production makes dairy farming in the sub county unsustainable and this records a project failure rate that is higher than the national average of 40%, due to Climate, technology, socio-cultural, extension services and Government policies

This study will examine and investigate the institutional capabilities on sustainability of the community DFDP in Siyoi ward. It will examine projects within this ward that had been implemented and experiences from different development projects from different countries are taken into consideration and used as further support for the research results gained.

1.2.Statement of the problem

Most projects in Kenya funded by donors have been draining dollars for many years with little performance and impact. People have continued to languish in poverty. Third world countries depend entirely on developed countries for their community developed projects. International donors have played an important and critical role in assisting Kenya to implement community development projects(CDPs). The private as well as the public sectors such as dairy farming organization in the country have also implemented many donors funded projects. Previous studies have indicated that institutional capabilities that influence sustainability of DFDPs in many developing countries have had a critical issue of planning that cannot be clearly examined by looking at factors that influence sustainability as the finding of such study does not adequately demonstrate how sustainability is maintained in the research, therefore, it's established that there is need to investigate appropriate independent contribution of the project sustainability which are inherent in the institution or project organization. In this regard it is necessary to establish institutional capabilities as a way of determining how and whether system abilities exist as a result of the institutional capabilities. Whereas the poor performance of projects and the disappointment of project stakeholders and beneficiaries seem to have become the rule and not the exception in contemporary reality, the project failure rate at the World Bank was over 50% in Africa until 2000 (World Bank, 2001 Commission). The World Bank's private arm, the International Finance Corporation has discovered that only half of its African projects succeed. In an independent rating, the Independent Evaluation Group (IEG) claimed that 39% of World Bank projects were unsuccessful in 2010 (Chauvet et al., 2010).

Kenya has not been left behind and the problems mentioned above are part of our donor funded projects. Lately, there is an increased interest from donors to start or assist most communities in the ASAL areas within Rift Valley, Kenya. Their main areas of concern are Agriculture, Education sector, Health (HIV/AIDs and malaria) and Tourism sectors. Community dairy projects funded by donors are critical components in food provision especially in rural areas and ASALS where government owned companies do not offer services (Macharia, 2010). However, every time a project concludes the concern on its effective implementation, corruption; mismanagement and sustainability are raised in the media.

Sustainability of dairy projects in development process requires consideration and analysis of variety of factors which needs commitment of all key stakeholders to the project. Despite the efforts made by PADEP through sensitization meetings and involving leadership, the achievement of dairy farmer groups investment target is still being challenged by low absorption rates, poor management skills, low justification rates and low completion rates which could affect sustainability of the dairy projects. Hence the issue of planning alone cannot clearly be examined by looking at factors that influence sustainability as the finding of such study does not adequately demonstrate how sustainability is maintained in the research. Therefore, its established that there is need to investigate appropriate independent contribution of the project sustainability which is inherent in the institution or project organization. In this regard it is necessary to establish institutional capabilities as a way of determining how and whether system abilities exist as a result of the institutional capabilities.

Siyoi is one of the wards within the semi-arid areas in West Pokot County, Kenya, that has always benefitted from donor funding through the Ministry of Agriculture, Livestock and Irrigation. Hence, the work is undertaken to create information that will guide planning of new project besides ensuring and ascertaining sustainability of Agricultural dairy projects that are heavily funded by donors who desire to establish the sustainability of the project in order to encourage enhanced project management. Despite all these efforts and the institutional capacities pumped to these projects, it appears that lack of managerial capacities, community participation, technology adoption as well as the extension services that are key, there has always been poor performance in terms of project performance and sustainability. However, lack of sustainability and poor performance of the dairy projects has demonstrated that poor management and maintenance leads to challenges experienced with low dairy yields and production. To the best of my knowledge, no study has been done in this area to determine factors influencing sustainability of DFDPs in the area. It is therefore important to carry out a study on factors influencing sustainability of DFDPs with focus on managerial capabilities, technology adoption, community participation and extension services because this has been the trend of most dairy projects in West Pokot County.

1.3.Purpose of the study

The purpose of the study was to investigate the influence of institutional factors on sustainability of Donor funded Dairy projects in West Pokot County, Kenya.

1.4.Objectives

The study was guided by the following objectives.

- i. To establish how managerial capacity influence sustainability of donor funded dairy projects in Siyoi Ward, West Pokot County, Kenya.
- ii. To determine how community participation influences sustainability on donor funded Dairy project in Siyoi ward, West Pokot County, Kenya.
- iii. To access the extent to which technology adoption influence donor funded dairy projects in Siyoi Ward, West Pokot County, Kenya.
- iv. To establish the extent to which extension services determine and influence the sustainability of donor funded dairy projects in Siyoi Ward, West Pokot County, Kenya.

1.5.Research Hypotheses

- i. Managerial capacity has no significant influence on sustainability of donor dairy funded projects in Siyoi Ward
- ii. Community participation has no significant influence on sustainability of donor dairy funded project in Siyoi Ward
- iii. Technology adoption has no significant influence on the sustainability of donor dairy funded projects in Siyoi Ward
- iv. Extension services do not have significant influence on the sustainability of donor dairy funded projects in Siyoi Ward

1.6.Significance of the study

The study will strive to obtain information that may be useful in the relation to the institutional capabilities on sustainability of Donor Funded Dairy Projects in Siyoi Ward, West Pokot County. The findings of this study will assist and contribute to the body of knowledge in the management

of the project. The findings and recommendations from the study will be critical to community driven development committee, dairy value chain management committee. It is also expected that project findings will be used for future references to form basis for decision making, financial and technological support for better utility of the available resources. Besides, it will also be of much importance to the donors in the dairy industry within and also outside the county government beneficiaries and other relevant stakeholders. It will also be used as a bench mark not only for dairy products but also other related within the Ward. Planners can use findings from this study to formulate policies aimed at addressing some of the challenges faced by farmers in Kenya. It is hoped that, academic scholars will learn more regarding the sustainability of dairy projects.

1.7 Delimitations of the study

This study was limited to the Donor Funded Dairy Project within Siyoi Ward. It covered donor dairy funded groups, major players like Department of Livestock Production, Veterinary services (Pastoral Economy), and other stakeholders who will systematically be selected. The study focused on the institutional factors on sustainability of DFDP, a case of Siyoi Ward, West Pokot County, Kenya. It was carried out between the months of February and June 2020 a period the county is experiencing dry spell. Technological factors in this study refer to the adoption of technical means to improve dairy production like A.I services, feeds and pasture compounding, disease control and zero grazing (Omondi, 2016). The intervening variables in the study were extension services, the number of trainings attended, skills and Knowledge acquired. The dependent variable was sustainability of the DFDP which is meant to increase milk production and income from milk sales within the Ward and region at large.

1.8. Limitations of the study

Language barrier, poor road network in some areas within the ward, inaccessibility of certain areas due to heavy rains and time frame were some of the limitations of this study. In order to mitigate these two, research assistants from the local area were engaged to help to reduce time required. The researcher organized to start the research process early enough to cover the rest of the areas in order to be within the timeframe of the study.

1.9. Assumptions of the study

It was presumed that the institutional factors influence sustainability of agricultural Donor Funded Dairy Project is a dependable variable of this study and that respondents are capable of providing information on sustainability of the Agricultural DFDP as was required of them. Another assumption of the study was to sample size selected groups that represented the whole population. The questionnaire and the interview guides obtained responses that supported in generalizing the findings. Questions asked were answered honestly by respondents.

1.10. Definitions of significant terms

Community participation; this is an active involvement of the local people in initiating, monitoring and evaluation on sustainability of the Agricultural DFDP as beneficiaries.

Dairy farming project; this is a class of Agriculture for long term production of milk, which is processed for eventual sale of the dairy products to support livelihoods hence need for sustainability.

Dairy farming extension services; these are services that the community should engage in to ensure dairy projects are sustainable.

Donor Funded Projects (DFP); these are jointly initiated projects with the community supported by external funding agency.

Managerial capacity; this is the ability of the project management to ensure the project product and services continue to benefit the beneficiaries during the existence of the donor.

Project; this is a temporary endeavor undertaken to create a unique product, service or result at the closure of the product or services remains.

Sustainability; this refers to capacity to maintain, manage and ensure continuation performance of the project activities even after the initial grants period expires. It is also the capacity to

maintain, manage dairy farming practice, through adoption of new technologies so as to renew the best practice for optimum milk production and other by-products.

Technology adoption refers to the utilizing new modern machines and equipment used to improve service delivery on product and quality, and it includes enhanced sustainability.

1.11. Organization of the study

The project was organized into three chapters; chapter one entails background of the study/ information, statement of the problem, purpose of the study, research objectives, research questions/Hypothesis, significance of the study, limitations, delimitations and assumptions of the study, it also contains the definitions of terms used in the research. Chapter two is the critical review of the literature related to the study, which is presented thematically according to the objectives of the study. It also contains the theoretical and conceptual frameworks and the relationships between variables explained and brief exposition of the research gaps. Chapter three highlights how the data was collected analyzed then presented. Chapter four dealt with data presentation analysis, interpretation and discussion. The final chapter presented the summary of findings, conclusions and recommendations. Last but not least the references and appendices on study will be indicated.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter will examine the empirical, theoretical literature and conceptual framework. It will review the literature from the findings of other studies to provide the theoretical framework which will guide the development of the study which eventually analyze the data for the present study. It will focus on the institutional capabilities on sustainability of DFDP in Siyoi Ward, West Pokot County. It will summarize the scholarly studies that will be reviewed to provide foundation upon which findings will be discussed and conclusions drawn.

2.2 Concept of institutional factors and sustainability of Donor Funded Dairy Projects.

Sustainability simply means to discover a world of innovative projects creating possibilities for sustainable future (Expo, 2020). It is the prolonged benefits accrued from the project after major support has been completed or donor funds have been withdrawn (Okun, 2009). DFDP adds that it is the ability of a dairy production system to remain producing a stream of benefits that are realized and are maintained long after donor funding has been stopped. Similarly, (UNDP, Sustainability of Dairy Project, 2000) considers a dairy project sustainable if it continues its operations, services and benefits during its life time. However, (World Bank, 2000) conceptualize a dairy project sustainable if it ensures a level of benefit flows through its economic life.

DFDP, sustainability is the ability of dairy farming to continuously improve the enterprise skills and produce a stream of benefits that continue to meet objectives that are defined in terms of benefits levels. Similarly, (UNDP, Sustainability of Dairy Project, 2000) considers a dairy project sustainable if it continues to maintain its operations, services and benefits during its life time. However, (World Bank, 2000) on the other hand conceptualizes dairy project sustainability if it maintains an acceptable level of benefit that flows through its economic life.

The comprehensive study of (Widodo et al, 1994) analyses the performance of 274 well established small scale dairy farmers near Malang in East Java. There are a lot of issues constraining the sustainability of the small scale dairy farmer. In the analysis, it was noted that the size of the farm and the quantity of fodder did not consummate the returns on labor. In this case, limited feeds affected reproduction, production and in deed health of the cows.

2.3 Managerial capacity and sustainability on Donor Funded Dairy Projects

A project may be well received, planned, initiated and adequately financed or resources may be enough in terms of specialization or training, but if the efforts of all the participants who have been given the mandate to coordinate the project are semi skillful and improperly prepared to run the functions, then the budget may not be strictly adhered to. Thus the failure to achieving the planned objective and hence a shortfall in functional and technical quality. This means that large projects require critical management functions.

In Nepal, Asian Continent, (USAID, 2017) carried out a study on rural populations. The researchers considered using Survey research design but restricted research instruments to interviews only. This will help them determine the organization capacity of community projects, that will be determined by training individuals on governance structures/institutional capabilities, guidelines and policies that will see the project advance in terms of development and service delivery (Sekaran Umma 2006). Other components of governance and management, which the researchers established were the ability of the project manager to publish project activities; scheduling for meetings and requisition of cash in-kind or cash contribution from the public are common aspects that enhance sustainability of DFPs (Mugenda Ag 2008). Compared with Sri-Lanka, which faced lack of clear governance structures, donor dairy funded projects in Nepal thrived because management boards were occupied by experienced and skilled people who understood community needs, financial management and sustainability strategies. Unlike the study by (USAID, 2017) that was comparative in nature, this study was focused in one place, adopted Survey research design and considered using both questionnaires and interviews as research instruments. This study was not narrowed down to governance structures or institutional capabilities as the only variable influencing sustainability of DFPs. It also considered use of technology, extension services and community participation.

Based on research, the level of information, experience and one's personality largely determine project management competency. (Mugenda Ag (2008). Information which is related to knowledge and management skills involves communication, team building, negotiation, and human resource. Another key element of knowledge refers to the ability to mobilize resources, manage project time and minimize project overhead costs. The last pillar of management is

industry based and it involves the ability to ensure product development methodologies and life cycle management.

The experience competency for a project manager includes the ability to have had a managerial position, with known/recorded performance, given hours spent on projects, and the size of a given project managed. The personality component is vital and involves attitudes, beliefs, integrity, trust and adaptability. Good communication skills and showcasing the ability to motivate others is considered an element of good personality. However, the mastery of political environment helps project managers to adapt to ways of coping in such environments.

A competent project manager should always strike a balance between the three components that include, knowledge, experience and personality to ensure that this required amount of money on a specific activity within a known time and by mobilizing other resources to ensure that maximum benefit is accrued from the project. In this case, the can-do attitude and confidence plays a vital role in success.

2.4 Community participation and sustainability on Donor Funded Dairy Projects

Studies show that involving the local community in all stages of a project makes them own it. This will enhance its success, hence, achievement of the project objectives and sustainability. In Germany, (Ellersiek, 2018) conducted a study that focused on inclusivity, community project ownership and use of technology as a component towards sustainability of any DFP. Over the years, community participation has shaped the operations of donors both locally and internationally. For instance, the DAC of the OECD notes that a sustainable project should be owned by the community in which the project is implemented and that the project should adopt community based strategies during implementation, (Saxby 2003). In their policy document, donors were encouraged to capacity development, community support as ways of owning the project. Like the OECD/DAC, (Wolfenshn, 1999) insists that donors ought to play a supportive role but the community should be allowed full participation to ensure project ownership(Phillips & Pitman, 2009). Similarly, donors should showcase the ownership of the plan (Sirgy et al., 2011). The paramount objective of any project sustainability is to ensure both the community and the donor win in the project as it allows participation and ownership by the community and support by the donor.

According (Gofin and Gofin, 2010), Community participation is the ability to allow people take part in the implementation of project roles from the initial stage to the end or until the project is handed over by the donor. The community in this case should mobilize resources, create a unit of identification and protect the project with the sole goal of ensuring it benefits them in the long run (Morrow et al., 2011).

Community involvement encourages the community to be responsible, to own and commit the time in ensuring that they complement the support of the donor. Creating a united bond, forging together and avoiding disputes of any case is a show that the community is in full support of the project implementation from the start to the end (Cohen, 2010)

2.5 Technology adoption and sustainability of Donor Funded Dairy Projects

Technology is the sophisticated way of making improvements. It is an informed and advance way of using machines by enhancing human capital through improving controls and environmental modification for maximum output. According to (Bonabana-Wabbi, 2002), the use of technology involves the use of tools and machines to enhance efficiency and effectiveness.

A study conducted in Germany by (Ellersiek, 2018) focused on the use of technology as a key component towards sustainability of any donor funded dairy project. Although in the Enos and Park (1988) study, the focus is non-agricultural. This definition fits agricultural technologies too, especially in the dairy farming sector which requires some improvements. From their definition, it is clear that technology is aimed to ease work of the entity to which it applied. In this study, a technology, as it related to dairy farming, is a set of new and innovative management practices integrated into a dairy production package that aimed to assist a farmer to produce milk more efficiently and effectively than the conventional methods and also to improve on his sales.

According to (Bonabana-Wabbi, 2002), the dynamic process of adopting the use of technology involved gathering information about its implementation. Notably, a number of management practices have taken some time for managers to learn and adopt (Bonabana-Wabbi, 2002); Rogers, 1995; Enos and Park, 1988). The adoption rate of technology is determined by the time taken by a group of farmers to acquire information about the skill and put it in practice. The

extent of adoption is determined by the quantity of technologies underutilization by the farmers adopting them.

Technological information can be accessed from any sources (Rogers, 1995). During his or her own experimentation, a farmer can be advised on how to go about the technology as he or she experiments.

If a number of farmers are adopting the same technology and are acquiring the same technological skills, then it is said they are learning socially. In a study carried out in Ghana by (Conley & Udry, 1998), it was noted that most farmers acquired technological skills as opposed to group learning. These farmers managed to reduce the costs, increased benefits and minimized risks of farming (Benin et al 2003). Therefore, it is important to understand some of the key features that influence farmers' adoption of new technology. Little work was done to examine how the adoption of new technologies determined sustainability of DFDP in Siyoi Ward, West Pokot County of Kenya, the objective of this study.

Artificial insemination (AI) has been one of the effective technological tools of improving productivity and enhancing profits of dairy farming. The technology has been in practice for over 65 years; however, its adoption has been slow because of a number of reasons. This technology has been used in dairy farming more than in beef farming because of the repeated benefits dairy farmers accrue from its adoption. Swine farmers have partially adopted the technology because of lack of enough information about its implementation (Books, 2010)

The practice of AI has been widely used in dairy farming because of the reduced cost of managing and feeding a required bull. The quality and quantity of milk produced after the adoption of AI has kept on encouraging farmers to adopt its use (Macaskill, 2010). The average world cow produced 2,300 kg/year. This is low and was contributed to the increased number of cows that yield poorly in developing countries.

In Kenya, the previous studies carried out indicated that understanding the institutional capabilities and also factors that affected the farmers' technological adoption of various milk productions and marketing technologies were critical to successful implementation of programs in the Kenyan liberalized dairy industry. Little work had been done to examine and investigate

how technological factors influence sustainability of DFDP in Siyoi Ward, West Pokot County, Kenya which was, the objective of this study.

2.6 Extension services and sustainability of Donor Funded Dairy Projects

The move to provide extension services in itself is enhancing capacity building because it seeks to improve competences, skills and the needed knowhow. The UNDP defines capacity building as a continued process where all stakeholders are involved in learning (UNDP, 2011). Globally, most Agricultural extension services face perplexing situations when executing their mandate in their field. In Sri Lanka for instance, extension service providers have decried issues of client dissatisfaction, bureaucratic procedures, low investment in the extension service, changing roles and lack of motivation as they execute their work (Wanigasundera & Attapattu, 2019).

Nevertheless, Sri Lanka's Agricultural Extension Services are organized in departments and authorities where specific personnel manage livestock while others manage crop, research and development. Over time, the system has evolved in such a way that training is offered, and there is decentralized and integrated approach of extension services. However, there has been little progress to enhance the activities of extension services that deal with food production. Online extension services have gained importance as farmers in remote areas can now access needed services in a timely manner.

The recent ICT initiatives by government to enhance extension services has faced a number of challenges that include limited poor internet access, lack of support, and lack of computer knowledge. In this case, there have been proposed reforms that include the expansion of Agricultural Extension cadre. The private sector has also come in hand to bridge the gap by providing, e-Crop advisory service, advisory messages, input supply and payment and system through mobile phones and introduction of reality TV for Agriculture (Wanigasundera & Attapattu, 2019).

Farmers have mastered the practice of learning from others; this has enabled them to avoid costly errors which are unnecessary (Bandura, 1977). All information necessary is required at all levels. It is also important to know the potential market for the dairy products before one decides to process any dairy product (Kotler et al, 2009), securing and utilizing the available market information.

Studies will show that farmers' education increase propels information flow and exposes a wide view of knowledge to farmers, thus promoting adoption of better technologies as well as innovative and improved management practices. United States for instance uses trained Extension Officers to provide various services to farmers. Services range from advisory services transfer of technology to human capacity building (Macaskill, 2010). In Nigeria for instance, accessing agriculture services from the government is a big problem. Related technical practices that small scale dairy farmers lack are the type of feed essential for dairy cows, breeding, parasites control, serving and calving, milking and packaging.

In a study that was carried out in Ghana by (Conley & Udry, 1998), it was concluded that farmers learn through social networks rather than in the context of collective experiment, this needs consistent backstopping by service providers and other extension agents as various models about the relationship between market orientation and innovation have been proposed (Verhees, 2007).

Kenya, Dairy farmers have various major platforms where education can be accessed. For example; the Agricultural shows, trade fairs, Agricultural training centers, Farmers commodity days, open Field days, expo exhibition centers, economic block forums are platforms where dairy farmers can interact, ask questions and receive invites from fellow dairy farmer in particular to show case his/her dairy breed. In such interactive sessions, extension officers are able to educate and disseminate information on parasite prevention, first aid kit, breeding and A.I service to dairy cattle. Farmers too are linked up with agents who willfully commit to find market for farmers' milk (Metcalf, 2014). Extension services in Kenya are not seen in many cases. This was according to the Director Agriculture report of 2011. Therefore, the government is trying to provide uniforms for identification because the services being offered are obsolete and farmers are not satisfied by them. (Muruiki, 2003) reported that most of the extension officers skills could not match the farmers hence were not of any help to the dairy farmers as the farmers seemed to be more knowledgeable than the extension officers themselves on the technical areas and this led to the farmers' low level of satisfaction

These centers serve as platforms for which new innovations, technologies and management practices are disseminated for the purpose of enhancing increased and improved agricultural productivities (Kbed Gunjal an Coffin, 1990); (Muruiki, 2008) where new technologies, innovation and management practices on production are exhibited. In the context of dairy

production, it means the farmers would still remain to practice rudimentary methods of pests and disease control, breeding methods, methods of feeding and cattle rearing just to mention but a few and all these would determine productivity in a negative way.

2.7 Conceptual framework of the study

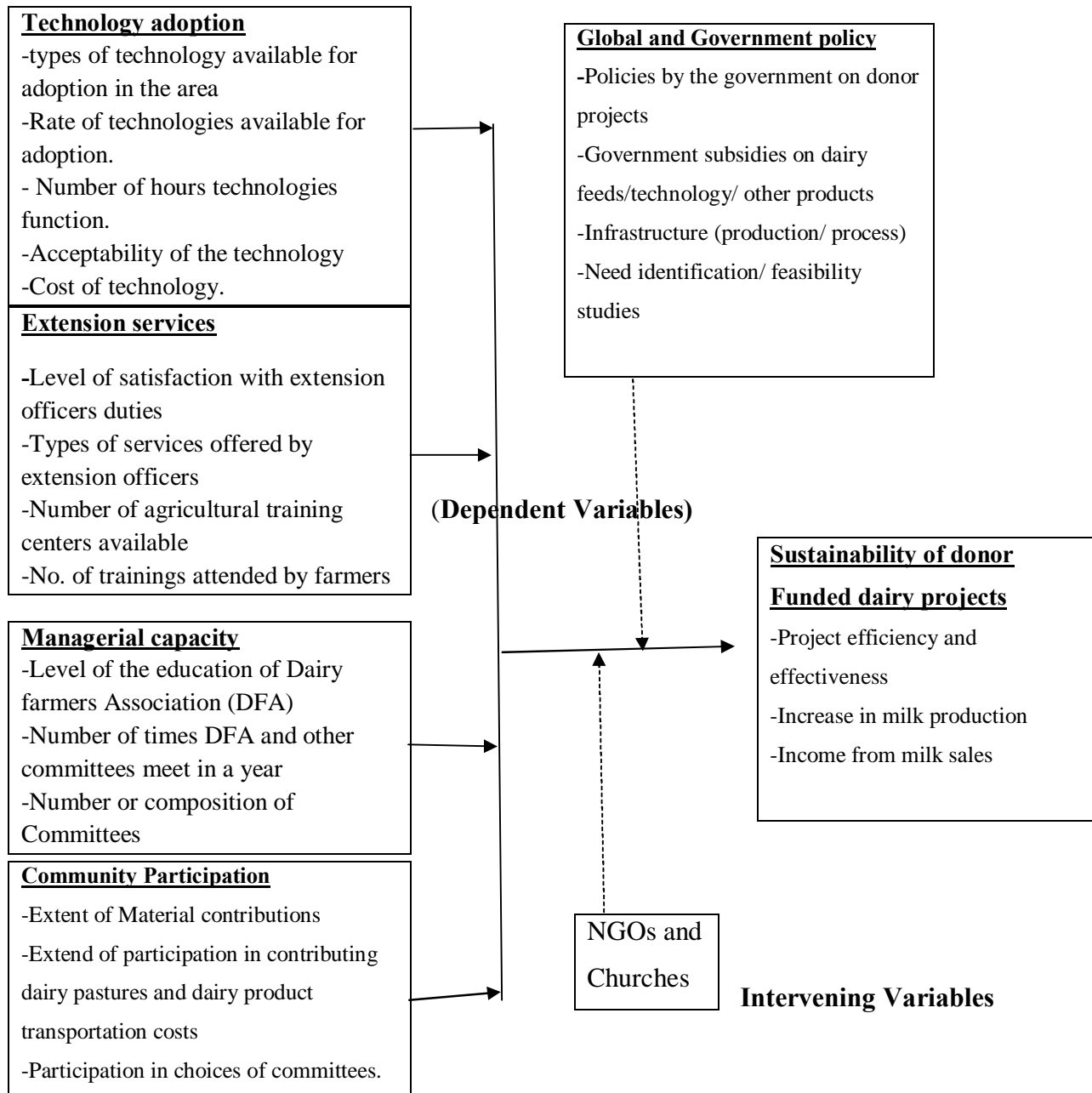
The conceptual framework of this study will be developed from the independent and dependent variables. Technology determinants like type of technologies, the number of technologies adopted that increased production among others were considered an independent variable in the study. The Community should participate fully in their project from the initial stage to the end stage as well as management of the projects after the withdrawal or expiry of the donor period. The extension services provided to dairy farmers, the level of satisfaction with extension officers, types of services offered, number of training centres available, number of trainings attended and skills and knowledge acquired by the farmers will also be an independent variable in the sustainability of the DFDP. The government policy on donor projects, subsidies and infrastructure will be considered to moderate variables on the institutional capabilities on sustainability of DFDP.

On the other hand the dependent variable, which is sustainability of the DFDP factors, considered were increase in milk production and income from the milk sales were considered

The relationship between determinants and sustainability of dairy farming

Figure 2.1: The figure below show the relationship between independent variables and dependent variables.

(Independent variables) Moderating Values



Source: Adopted and modified by the Researcher (2020)

2.8 Relationship between variables

The dependent variables in this study are sustainability of Donor Funded Dairy Projects. It entailed the criterion that was used to determine the level of sustainability of DFDPs that is project efficiency and effectiveness, project sustainability, increase in milk production and sales. The first independent variable is enhancing the managerial capacity to improve on their skills in operations and management through training of dairy farmers, enhancing regular meetings with the dairy committees and the number of composition of the committees. The second independent variable is community participation through provision of land, material contributions, participation in electing committees and scrutiny of reports and also to participate in committee of their choices. The third independent variable is to establish how technology adoption suits ASAL areas, the type and number of hours the technology functions, as well as its acceptability and the cost at which it is available. The last independent variable is to establish how extension services determine the influence of sustainability of DFDPs by establishing the level of satisfaction of the dairy farmersØproject with the extension officers on duty, the types of services offered, the number of Agricultural Training Centers available and the trainings attended by the dairy farmers to enhance sustainability of DFDPs.

2.9 Summary of the literature reviewed

The reviewed literature will reveal performance of community projects intricately linked to the Participation of the beneficiary community. The reviewed establishes that when community members participate actively in financial management, governance, operations and maintenance and monitoring and evaluation, projects are likely to deliver predetermined outcomes. In ASAL countries most projects have been mainly feeding the hungry, water, health and sanitation where the activities are minimal. The donor agencies give little attention to the root cause of the problems affecting sustainability of their dairy projects especially in ASAL areas. The donor agencies help in filling the gap in government work, but the sustainability of these projects is poor after completion or when the donor exits and hands over the project to the community. Therefore, there is need to look for ways and means of maintaining the continued sustainability of DFDPs to help alleviate poverty and improve the living standard of these communities.

2.10 Knowledge gap

The study will seek to fill a gap that was left out by previous researchers in the study area of institutional factors of Dairy projects (Omondi, 2016) carried out a study on determinant of sustainability of dairy DFP. However, the study looked at generalized factors and looked at large Dairy farming while the current study examines how socio-economic factors as well as institutional capabilities, sustainability of DFDPs in rural and ASAL areas. (Mbevi, 2016) studied community participation in sustainability of development of projects that are funded by National Government in Makueni County, and not specifically dairy projects. Consequently, they left a gap that the current study sought to fill, since it is examining how adoption of technology, extension services, institutional capacity and community participation is influencing sustainability of DFDPs.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter will show the details and methods of data collection that will be used in the study. It will focus on research design, target population, sampling procedure, methods of data collection, validity of the instruments used, reliability of research findings and data analysis techniques that will be used in the study.

3.2 Research design

The study adopted a descriptive research design. It described the characteristics of the population that will be studied. According to Cooper and Emory (1995), the objective of the descriptive study is to describe phenomena as they exist at present. The study used stratified and purposive sampling techniques which were very convenient for the study. The sampling method was used to identify the local community in terms of gender, age and occupation. It adopted a descriptive research design because it considered both qualitative and quantitative approaches. A descriptive design was used that is well as appropriate for this study as it enabled and assisted the researcher to investigate the target population and established the factors under investigation, so as to cover a small research area and make conclusions about the larger area. The study adopted both the qualitative and quantitative research approaches.

3.3 Target population

The target population for this study was 330. This number consisted of small scale dairy farmers as well as the local communities from each location in Siyoi Ward; a number of key informants i.e. the sub-county livestock production & veterinary officer, Siyoi ward Livestock & Administrative officers, Employees working in the West Pokot County DFP under ministry of Agriculture and Pastoral economy, Local Communities, Siyoi Dairy Farmers Cooperative Society, dairy Milk suppliers, relevant stakeholders who includes; Assistant chiefs, Dairy sub committees and representative samples drawn from each of these groups, as shown in table 3.1 below.

The table below summarizes the dairy farmers from the local households clustered in the four locations, Ministry of Livestock, Officers in the DFP, Siyoi Dairy farmers Association, chiefs and assistant chiefs in these locations.

Table 3.1: Target Population

Respondents	Target population
Local Communities (from each location)	252
MoAL(Director Livestock, Ward Administration& Livestock Officers)	27
Officers in other DFP 12	
Siyoi Dairy farmersø society 34	
Chiefs & Assistant chiefs	5
Total 330	

3.4 Sample size and Sampling procedure

The sample size to be prepared is 180 from a population of 330 farmers, with 95% confidence level and an error below simplified formulae taken from Taro Yamane 1967(Yamane, 2012). Systematic sampling techniques were adopted in this case. The dairy farmers were interviewed by use of questionnaires. This was appropriate due to the non-homogeneity of the dairy farmers funded projects in terms of size of projects and therefore benefits to be realised. Through focus group discussions, the study focused on the technical staff from livestock department and other relevant technical staff where applicable. This really helped the study to achieve the needed information. A systematic sample of respondents will be drawn from the categories which represents the target population. The sample size was summarized and presented.

Yamane (1967) provides a simplified formula for sample size $n = \frac{N}{1 + N(e)^2}$

Which shows; n as the size of the sample

N as the Population

e as the error of margin, which was 0.05

Hence n is 180, N is 330

Table 3.1: Sample size

Respondents	Target Population	Sample size	
Local Communities (from each location)		252154	
MoAL (Director Livestock, Ward Adm& Livestock Officers)		2715	
Officers in other DFP	12	2	
Siyoi Dairy farmersø society	34	4	
Chiefs & Assistant chiefs		5	5
TOTAL330 180			

3.5 Research instruments

The research instruments were used to extract information to be used for a given evaluation /assessment and thereafter conclusions are made (Mugenda & Mugenda, 2003). In the case of this study, structured questionnaires and interviews schedules were used to collect information relating to institutional capabilities that influence the sustainability of DFDPs.

3.5.1 Interview guide

Open ended questions that are based on the research objectives were administered to Sub County and ward officers, DFPs representatives, director of livestock, Dairy cooperative society member, and dairy farmerø committee. The terms indicated the profile of the respondent

3.5.2 Questionnaire

Structured questions that are related to the study and research objective were used to extract relevant information from the respondent, which facilitated the derivation of conclusions thereafter. The questionnaire comprised of five sections section one entails demographic information relating to the respondent while sections: two to five seek to collect information relating to institutional capabilities, technology used, extension farmers and community participation.

3.6 Validity of the instruments

Validity is the extent to which an instrument measures the actual subject of study in an accurate and meaningful manner (Mugenda & Mugenda, 2003). The researcher considered the following measures to ensure validity: Survey questions to be made based on literature review. The

questionnaires were pre-tested on a pilot survey carried out in Kapenguria ward and amendments made to make it clearer to respondents. The instrument was subjected to face validity by the University supervisor (Clark, 1998).

3.7 Reliability of the instruments

Reliability refers to the extent to which a research instrument gives some consistent results after repeated trials are conducted (Mugenda & Mugenda, 2003). A mini study was conducted of 40 farmers outside the area targeted for the research. After a week, the mini study was repeated and findings drawn using Cronbach's alpha co-efficient using SPSS package. The reliability co-efficient of >0.7 , was considered to reflect adequate reliability (Clark, 1998)

Table 3.2: Reliability test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.804	54

From the findings presented in table 3.3, it is clear that the reliability of questionnaires was 0.804 indicating that there was a 80.4% chance that the researcher will get consistent results upon conducting the research repeatedly using the same sample and research instrument.

3.8 Data collection procedure

The study also utilized primary data that was both qualitative and quantitative data. The data was collected through administration of questionnaires. Questionnaires were designed to capture the various variables of the study. The questionnaires had both open ended and closed questions covering issues on the project sustainability. The open ended questions had free responses from the chosen respondents without providing or suggesting any other structure for the replies

The closed questions enabled the researcher to analyse data easily using the stated alternatives. These alternatives were designed in such a way as to be simple for the respondents to easily understand.

The questionnaires were chosen because they helped the researcher to collect large amount of information in a large area within a short period of time (Orodho, 2003).

After responding to the questionnaires, the researcher organized on how to collect data from dairy farmers. After that, the researcher organized and secured time to have a face-to-face interview with Sub County and Ward officers, DFPs representatives, Director of Livestock, Dairy Cooperative Society member, and Dairy Farmers' Committee. The documents were presented to the respondents together with the letter of transmittal. The researcher re-assured the respondents about the confidentiality of their feedback. This encouraged the respondents to be honest.

3.9 Data analysis techniques

Collected data was analyzed using both qualitative and quantitative techniques. Quantitative data to be collected using questionnaires were analyzed in two ways using SPSS version 22 software. One way was to analyze using descriptive statistics where findings frequencies and percentages were presented in tables. The other way was to analyze using inferential statistics purposefully meant to test the hypothesis and more specifically the degree of association between independent and dependent variables using multiple regression analysis besides direct computation using Chi Square formula to test the hypotheses. Qualitative data was analyzed using thematic analysis where interview responses collected were summarized and organized in themes and sub themes as they were related to research instrument indicator respectively.

The regression model associated with testing hypotheses was as follows:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu_i$$

Where;

(a) Dependent variable sustainability of DFDP and is denoted by Y

(b) Independent variables are:

X_1 Managerial Capability

X_2 Community participation

X_3 Technology adoption

X_4 Extension Services

β_0 Constant term

β_j beta coefficients for $j=1,2,3,4$ which indicate per unit change in the dependent as the independent variable changes by one unit

μ_i Error term for $i = 1,2,3,4...n$

However, the presence of a moderating variable was measured through adding Z as a Moderating variable on the model that was regress on each of the five variables.

$$Y_i = \beta_0 + \beta_1 X_1 Z + \beta_2 X_2 Z + \beta_3 X_3 Z + \beta_4 X_4 Z + \mu_i$$

The Chi Square formula according to Preacher, K. J. (2001, April) was used in testing the hypotheses is as follows;

$$\chi^2 = \sum_i \sum_j \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

Where; O = is the observed frequency (value)

E = is the Expected frequency (value)

“ O_{ij} is the observed frequency and E_{ij} the expected frequency for the cell corresponding to the i^{th} condition and the j^{th} group”

3.10 Ethical considerations

Ethical issues are important and they are key in any research because they largely address the principle of morality of the study. Conducting research requires not only expertise and diligence, but also honesty and integrity. With the aim of maintaining privacy and dignity of every participating individual, the respondents agreed to comply with the research principles. Respondents were briefed on the aims of the study, benefits, potential hazards and methods. They were requested to personally or communally provide information about themselves (Richard Cash, 2009). He or she was at liberty to accept or decline participating in the study. Every participating research unit was notified with consent form and no inducement was given to influence their acceptance. The respondents' identities were coded and kept confidential (Richard Cash, 2009). No final draft or any communication on specific individual information or identity was revealed during and after the conclusion of the study unless by consent of participating individual (Kimmel, 2009) of adoption. The respondent was informed that the data that was collected was not be used to incriminate or victimize them in any way. The researcher informed them that the findings of the study will inform the relevant institutions to improve and better their situation.

3.11 Operationalizing of the variables

Table 3.4 : Operationalizing of the variables

The below matrix will be used to operationalize objective, variable, indicator, measurement and measurement scale, data collection tools and data analysis

Objective	Indicators	Measurement	Data collection	Tools	Analysis
scales	tools				
To establish how managerial-level of the education of DFA influence on sustainability of DFDPs -Number of times DFA met in a year -Number/Composition of committees	Level of the education of DFA -Number of times DFA met in a year Composition of committees	Nominal Ordinal	Questionnaires Interview guide	Descriptive Regression analysis	capacity
To determine how community participation influence sustainability of DFDPs transportation cost -Participation in choices of committees.	- Extent of Material contributions -Extend of participation in contributing dairy pastures and dairy product Ordinal	Nominal Ordinal	Questionnaire Questionnaire Ordinal Interview schedule	Descriptive and Regression analysis thematic analysis	
To access the extent to which adoption influence sustainability of DFDPs	-Types of technologies available for adoption -Number of technologies available for	Ordinal	Questionnaire Interview schedule	Descriptive and Regression analysis	technology

CHAPTER FOUR

DATA ANALYSIS, PRESENTATIONS, INTERPRETATIONS, AND DISCUSSIONS

4.1. Introduction

This chapter features the response rate to questionnaires, demographic characteristics of respondents, descriptive and inferential presentation of data. This follows a detailed analysis of the presented findings, and a discussion on the same.

4.2. Questionnaire return rate

In chapter three, it was indicated that 252 dairy farmers from the local community from each location will be considered in the study and specifically in responding to the questionnaires. After data collection, 154 questionnaires were returned representing 61% response rate. This constitutes a significant return rate since the questionnaire return rate was more than 60% which is perceived as adequate for generalisation of the findings (Kerlinger, 2007). This was made possible with the help of the research assistant who administered and collected questionnaires as soon as they had been completed by the respondents who were available.

4.3. Demographic characteristics of respondents

This section presents the bio data of respondents with a focus on some of the features that might be relevant to the study. The respondents were required to give age, gender, their marital status, education level and the main occupation.

Table 3.1: Demographic characteristics of the respondents

Demographic characteristics	Frequency	Percentages
Gender		
Male	116	75.3
Female	38	24.7
Household head		
Yes	124	80.5
No	30	19.5
Marital status		
Married	142	92.2
Single	12	7.8
Age group of the respondent		
Below 21 years	19	12.3
21-30 years	17	11.0
31-40 years	53	38.3
41-50 years	19	12.3
Above 50 years	40	26.0
Level of education		
Primary level	7	4.5
Secondary level	89	57.8
Tertiary or vocational level	18	11.7
University level	40	26.0
Main occupation		
Pastoralism	4	2.6
Farming	102	66.2
Trade	7	4.5
Security	3	1.9
Teaching	27	17.5
Others	11	7.1

From the findings presented in table 4.1, 116(75.3%) and 38 (24.7%) of the respondents were male and female respectively. In the same table, 124 (80.5%) stated that they were household heads while 30 (19.5%) indicated that they were not household heads. In another case, 53(38.3%) and 40(26.0%) who were majority of respondents stated that they were aged between 31-40 years and above 50 years respectively. In the same note, 19 (12.3%) in each case indicated that they were aged between 41-50 years and below 21 years respectively. In addition, 17 (11.0%) of the respondents stated that they were aged between 21-30 years. Regarding level of education, the majority of respondents 89(57.8%) stated that they had attained secondary level of education. Still on the same, 40(26.0%), 18(11.7%) and 7(2.6%) of the respondents stated that they had attained university level, tertiary/vocational level, and primary level of education respectively. In terms of occupation, 102(66.2%) of the respondents who accounted for the majority stated that their main occupation was farming. In another case, 27(17.5%), 11(7.1%), 7(4.5%), 4(2.6%), and 3(1.9%) stated that their main occupation was teaching, other occupation, trade, pastoralism, and security respectively. From the presentation in table 4, it is clear that the majority of the respondents were male, household heads, aged above 31 years, and who had attained only secondary education, were engaged in farming and specifically dairy farming.

4.4. Basic statistical assumptions

Independent and dependent variable assumed a linear relationship such that the association between the two types of variables assume a linear mode of relationship.

4.5. Descriptive & quantitative findings related to research questions

This section features quantitative findings that are descriptive in nature related to research questions

4.5.1. Influence of Managerial capacity on sustainability of DFDP

The study investigated from among responses provided by the population as to whether there is influence of managerial capacity on sustainability of DFDPs whereby respondents were asked to state their responses within a scale (SA- Strongly Agree, A-Agree, N-Neutral, and A-Disagree) and the results were as presented in the table 4.2 below;

Table 4.2: To what extent to you think managerial capacity influence sustainability of DFDP

Response	Frequency	Percentage
Strongly agree	49	31.8
Agree	79	51.3
Neutral	10	6.5
Disagree	16	10.4
Total	154	100.0

According to the findings presented in table 4.2, 79 (51.3%) agreed and 49(31.8%) strongly agreed that managerial capacity influenced sustainability of DFDP. Contrary to that, 16(10.4%) respondents disagreed that managerial capacity influenced sustainability of DFDP. Even so, 10(6.5%) respondents gave neutral response; they were not sure whether managerial capacity influenced sustainability of DFDP because they might have lacked information.

4.5.1.1: Rating Managerial capacity

The study inquired from among responses provided by the population as to whether rating managerial capacity, governance structures and organizational of the dairy farmers association influence the sustainability of managerial capacity of DFDPs whereby respondents were asked to state their responses within a scale (SA- Strongly Agree, A-Agree, N-Neutral, and A-Agree) and the results were as presented in the table 4.3 below;

Table 4.3: Rating managerial capacity, governance structures and organization of the dairy farmers association

Statement	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
	F	%	F	%	F	%	F	%	F	%
	Level of education of the Dairy Framers Association and other officials	50	37.7	66	42.9	0	0.0	30	19.5	0
Composition of the committee	45	29.2	99	64.3	0	0.0	10	6.5	0	0.0
Frequency of the meetings held	47	30.5	64	41.6	0	0.0	43	27.9	0	0.0

According to the findings presented in table 4.3, 66 (42.9%) and 50(37.7%) respondents agreed and strongly agreed respectively that the level of education of the Dairy Framers Association and other officials largely influenced sustainability of DFDP. On the contrary, 30(19.5%) disagreed that the level of education of the Dairy Framers Association and other officials largely influenced sustainability of DFDP. In another case, 99(64.3%) and 45(29.2%) agreed and strongly agreed respectively that the composition of the committee largely influenced sustainability of DFDP. Contrary to that, 10(6.5%) respondents disagreed that the composition of the committee largely influenced sustainability of DFDP. Out of 154 respondents who took part in responding to the questionnaires, 64(41.6%) and 47(30.5%) agreed and strongly agreed respectively that the frequency of holding meetings largely influenced sustainability of DFDP. On the flip side, 43(27.9%) disagreed that the frequency of holding meetings largely influenced sustainability of DFDP.

4.5.1.2. Effectiveness of management committees

The study therefore sought to establish to know the effectiveness of the management committee in relationship to sustainability of dairy projects after donor withdrawal

Table 4.4: Effectiveness of the management committee in relationship to sustainability of dairy projects after donor withdrawal

Response	Frequency	Percent
Very effective	13	8.4
Effective	3	1.9
Ineffective	26	16.9
Very ineffective	112	72.7
Total	154	100.0

From the findings presented in the table 4.4, the majority of respondents, 112(72.7%) respondents rated the effectiveness of the management committee in relationship to sustainability of DFDP after donor withdrawal as very ineffective dairy projects after donor withdrawal. This was an indication that, the management committee was not doing their level best to ensure that they sustain the performance of DFDP. Contrary to that, 26(16.9%) respondents rated the management committee in relationship to sustainability of DFDP after donor withdrawal as ineffective dairy projects after donor withdrawal. Out of 154 respondents who took part in responding to questionnaires, 13(8.4%) and 3(1.9%) respondents rated the effectiveness of the management committee in relationship to sustainability of DFDP after donor withdrawal as very effective and very effective respectively dairy projects after donor withdrawal.

4.5.2. Influence of Community participation on sustainability of DFDP

The study investigated from among responses provided by the population as to whether there is influence of community participation on sustainability of DFDPs whereby their responses were yes or no as to whether they participated in any of their community project processes as shown in table 4.5 below;

Table 4.5: Did you or any of your community members participate in any of project processes?

Response	Frequency	Percentage
Yes	129	83.8
No	25	16.2
Total	154	100.0

According to the findings presented in table 4.5, 129(83.8%) accounting for the majority of respondents, indicated that they took part in project identification and in financial contribution to sustain project processes. On the other hand, 25(16.2%) respondents denied taking part in project identification and in financial contribution to sustain project processes.

4.5.2.1. The level of the community participation

The study investigated from among responses provided by population as to whether there is influence of community participation on sustainability of DFDPs whereby their responses were yes or no as to whether they participated in any of their community project processes, elections, meetings or financial contribution as shown in table 4.5 below;

Table 4.6: Level of the community participation after donor withdrawal in the project

Activities in community participation	Greatly		Fairly		Low	
	F	%	F	%	F	%
Election	63	40.9	84	54.5	7	4.5
Meetings	52	33.8	87	56.5	15	9.7
Financial contribution	25	16.2	65	42.2	64	41.6

In the findings presented in table 4.6, 84(54.5%) respondents were fairly involved in elections after donor withdrawal while 63(40.9%) respondents indicated that they were greatly involved in elections after donor withdrawal. In the same note, 7(4.5%) respondents observed that they were lowly involved in elections after donor processes. Regarding, meetings, 87(56.5%) of the respondents accounting for the majority stated that they were fairly involved in meetings, while 52(33.8%) respondents stated that they were greatly involved in meetings. Another group of 15(9.7%) respondents indicated that they were lowly involved in meetings organized for the purpose of improving sustainability of the project. In terms of financial contribution, 65(42.2%) and 64(41.6%) of the respondents stated that they were involved in financial contributions as a community participation activity. In another case, 25(16.2%) of the respondents noted that they lowly participated in project activities by contributing finances.

4.5.2.2.Target beneficiaries

The study investigated from among responses provided by population the extent to which target beneficiaries and community participation influences sustainability of DFDP in terms of ownership, involvement of the processes and the project service in terms of benefiting the intended community whereby respondents were asked to state their responses within a scale (SA- Strongly Agree, A-Agree, N-Neutral, and A-Agree) and the results were as presented in the table 4.3 below;

Table4.7: Extent to which target beneficiaries and community participation influences sustainability of DFDP?

Statements	Stronglyagree		Agree		Disagree		Stronglydisagree	
	F	%	F	%	F	%	F	%
The project is fully owned by the target beneficiaries of the dairy farming project	48	31.2	46	29.9	28	18.2	32	20.8
The community is involved in decision making processes	35	22.7	57	37.0	28	18.2	34	22.1
The dairy farming projects are performing to the expectations of the	22	14.3	24	15.6	52	33.8	56	36.4

community

The project is serving and 54 35.1 64 41.6 25 16.2 11 7.1
benefiting the intended community

According to the findings presented in table 4.7, 48(31.2%) and 46(29.9%) respondents strongly agreed and agreed respectively that the project was fully owned by the target beneficiaries of the dairy farming project. Contrary to that, 32(20.8%) and 28(18.2%) strongly disagreed and disagreed respectively that the project was fully owned by the target beneficiaries of the dairy farming project. This indicated that the majority of respondents owned the project and therefore protected and managed the project accordingly. In terms of decision making, 57(37.0%) and 35(22.7%) respondents strongly agreed and agreed respectively that they took part in the decision making process of the project. On the flip side, 34(22.1%) and 28(18.2%) respondents strongly disagreed and disagreed respectively that they took part in the decision making process of the project.

Out of 154 respondents that took part in responding to questionnaires, 56(36.4%) and 52(33.8%) respondents strongly disagreed and disagreed respectively that dairy farming projects were performing to the expectations of the community. On the other hand, 24(15.6%) and 22(14.3%) of the respondents agreed and strongly agreed respectively that dairy farming projects were performing to the expectations of the community. Regarding project benefiting the community, 64(41.6%) and 54(35.1%) of the respondents agreed and strongly agreed respectively that the project was serving and befitting the intended community. Contrary, 25(16.2%), and 11(7.1%) of the respondents disagreed and strongly disagreed the project was serving and befitting the intended community.

4.5.2.3. Commitment of the county government

The study therefore sought to establish the level of the commitment of the county government and community benefiting from the project, the respondents were requested to state whether the county government is Committed or less committed as shown in table 4.8 below;

Table 4.8: Description of the level of commitment of the county government and community benefiting from the project

Response	Frequency	Percent
Committed	33	21.4
Less committed	121	78.6
Total	154	100.0

In table 4.8, 121(78.6%) who accounted for the majority of the respondents indicated that the county government was less committed in ensuring project sustainability and that the project benefits local communities. In another case, 33(21.4%) of the respondents observed that the county government was committed in ensuring project sustainability and that the project benefits local communities.

4.5.2.4 Effect of withdrawal of donor funding

The study investigated from among responses provided by population the effect of withdrawal of donor funding on sustainability on sustainability of DFDPs, the respondents were to state whether the project continued normally, had dismal sustainability, technical challenges or extension services challenges, the results were presented in the table 4.9 below;

Table 4.9: Effect of withdrawal of donor funding on sustainability of DFDP

Statement	Frequency	Percentages
Project continued normally	28	18.2
Dismal sustainability	94	61.0
Technical challenges	14	9.1
Extension services challenges	18	11.7
Total	154	100.0

In the findings presented in table 4.9, 94(61.0%) of the respondents indicated after donor withdrawal, there was dismal sustainability for the project. Contrary to that, 28(18.2%) of the respondents indicated that the project continued normally after withdrawal of donor funds. Another group of 18(11.7%) and 14(9.1%) respondents stated that after donor withdrawal of funds, the project experienced technical and extension service challenges.

4.5.3. Influence of Technology adoption on sustainability of DFDP

A component within technology, the types of technology available for adoption were studied to establish the extent to which its adoption influence, the period and adequacy of information on availability of technology influences the sustainability of donor funded dairy projects. The respondents responses were analysed and represented in the tables below;

Table 4.10: Extent to which technology adoption influences sustainability of DFDPs

Responses	Frequency	Percentages
Strongly agree	107	69.5
Agree	19	12.3
Neutral	13	8.4
Disagree	7	4.5
Strongly Agree	8	5.2
Total	154	100.0

According to the findings presented in table 4.10, 107(69.5%) that accounted for the majority of respondents strongly agreed that adoption of technology influences sustainability of DFDPs. On the same note, 19(12.3%) of the respondents agreed that adoption of the technology adoption influences sustainability of DFDPs. On the other hand, 8(5.2%) and 7(4.5%) of the respondents strongly agree and agreed respectively that adoption of technology influenced sustainability of DFDPs. Giving different responses was a group 13(8.4%) respondents who gave neutral responses may be because they lack information relating technology and sustainability of DFDPs.

4.5.3.1.Period of Technology

The study investigated the period at which technology influenced sustainability of DFDPs and the respondents stated the period in terms of less than one year, one year, two years and above three years as presented in the table 4.11 below;

Table 4.11: Period at which technology influenced sustainability of DFDP

Responses	Frequency	Percentage
Less than one year	21	13.6
One year	22	14.3
Two years	78	50.6
Above three years	33	21.4
Total	154	100.0

According to the findings presented in table 4.11, it was clear that it took averagely more than two years for the technology to make a meaningful impact on sustainability of DFDP. Notably, 78(50.6%) and 33(21.4%) of the respondents indicated that it took two and above three years respectively after adoption of modern technology for it to have a meaningful impact on sustainability of DFDP. Still on the same, 22(14.3%) and 21(13.6%) of the respondents stated that it took one year and less than one year respectively after adoption of modern technology for it to have a meaningful impact on sustainability of DFDP.

4.5.3.2 .Adequacy of information

The study sought to inquire the adequacy of information on availability of dairy technologies in the community. The respondents were to give their views in a scale of VA= very adequate, A=adequate, I=inadequate and VI=very inadequate and their responses were presented in the table 4.12 below

Table4.12: Adequacy of information on availability of dairy technologies in your community

Responses	Frequency	Percentage
Very adequate	10	6.5
Adequate	3	1.9
Inadequate	47	30.5
Very inadequate	94	61.0
Total	154	100.0

In the findings presented in table 4.12, 94(61.0%) and 47(30.5%) of the respondents stated that information about technology on dairy farming was very inadequate and inadequate respectively. On the same note, 10(6.5%) and 3(1.9%) of the respondents stated that information about dairy technologies in their community was very adequate and adequate respectively.

4.5.3.3 : Influence of technology

The study investigated from among responses provided by population the influence of technology on information, delivery, cost and diversification on sustainability of DFDPs, the respondents were to state whether the project continued normally, had dismal sustainability, technical challenges or extension services challenges, the respondents were asked to state their responses within a scale (SA- Strongly Agree, A-Agree, N-Neutral, and A-Disagree) and the results were as presented in the table 4.13 below;

Table 4.13: Influence of technology, on information, delivery, cost, and diversification

Statement	Strongly agree		Agree		Not sure		Disagree		Strongly disagree	
	F	%	F	%	F	%	F	%	F	%
The County has a system for fast delivery of dairy services	10	6.5	35	22.7	4	2.6	55	35.7	50	32.5
Information on dairy farming is easily assessable within the County	13	8.4	12	7.8	10	6.5	32	20.8	87	56.5
Information technology use has cut cost and improved production of dairy farming	18	11.7	29	18.8	12	7.8	31	20.1	64	41.6
The County has diversified into other sectors to promote dairy farming in terms of facilities availed to farmers	10	6.5	13	8.4	6	3.9	40	26.0	85	55.2

According to the findings presented in table 4.13, 55(35.7%) and 50(32.5%) of the respondents disagreed and strongly disagreed respectively that the County had a system for fast delivery of dairy services. Still on the same, 35(22.7%) and 10(6.5%) of the respondents agreed and strongly agreed respectively that the County had a system for fast delivery of dairy services. A group of 4(2.6%) respondents were not sure as to whether to agree or disagree with the fact that the County had a system for fast delivery of dairy services.

In another case, 87(56.5%) and 31(20.1%) of the respondents strongly disagreed and disagreed respectively that information on dairy farming was easily assessable within the county. In another case, 13(8.4%) and 12(7.8%) strongly agreed and agreed respectively information on dairy farming was easily assessable within the county. Contrary to others, 10(6.5%) respondents were not sure whether information on dairy farming was easily assessable within the county or not.

Out of 154 respondents, 64(41.6%) and 31(20.1%) strongly disagreed and disagreed respectively that the adoption of technology reduced the cost and improved production of dairy farming. On the other hand, 29(18.8%) and 18(11.7%) agreed and strongly agreed respectively that the adoption of technology reduced the cost and improved production of dairy farming. Different from others was a group of 12(7.8%) respondents who were not sure whether adoption of technology reduced the cost and improved production of dairy farming or not.

In another case, 85(55.2%) and 40(26.0%) of the respondents strongly disagreed and disagreed respectively that the county had diversified into other sectors to promote dairy farming in terms of facilitates availed to farmers. Still on the same, 13(8.4%) and 10(6.5%) agreed and strongly agreed respectively that the county had diversified into other sectors to promote dairy farming in terms of facilitates availed to farmers. Only 6(3.9%) respondents were not sure whether the county had diversified into other sectors to promote dairy farming in terms of facilitates availed to farmers or not.

4.5.3.4. Learnt and adopted types of technologies

The study also further investigated from among responses provided by population the learnt and adopted types of technologies. These types were Artificial insemination, maize stovers treatment, zero grazing, planting fodder trees, feed compounding, ticks and flies control, silage making worms and helminthes control, hay making and biogas production, the respondents were to state yes or no on learnt and adopted types of technologies as presented in table 4.14 below;

Table4.14: Learnt and adopted type of technology practices

Factors on Technology	Leant				Adopted			
	Yes		No		Yes		No	
	F	%	F	%	F	%	F	%
Artificial Insemination	109	70.8	15	9.7	19	12.3	11	7.1
Maize stovers treatment	44	28.6	51	33.1	13	8.4	46	29.9
Zero grazing	73	47.4	44	28.6	18	11.7	19	12.3
Planting of fodder trees	68	44.2	38	24.7	28	18.2	20	13.0
Feed Compounding	66	42.9	36	23.4	28	18.2	24	15.6
Ticks and flies Control	80	51.9	40	26.0	31	20.1	3	1.0
Silage making	79	51.3	33	21.4	24	15.6	18	11.7
Worms and Helminthes Control	79	51.3	22	14.3	36	23.4	17	11.0
Hay making	71	46.1	30	19.5	27	17.5	26	16.9
Biogas Production	71	46.1	38	24.7	10	6.5	35	22.7

In the findings presented in table 4.14, 109(70.8%) respondents indicated that they learnt the practice of artificial insemination while 15(9.7%) stated that they did not leant the practice of artificial insemination. On the other hand, 19(12.3%) and 11(7.1%) stated observed that they adopted and did not adopt respectively the practice of artificial insemination. Regarding maize stover treatment, 44(28.6%) and 51(33.1%) of the respondents stated that they learnt and did not learn the practice of maize stovers treatment respectively. On the other hand, 13(8.4%) and 46(29.9%) stated that they adopted and did not adopt the practice of maize stover treatment respectively. In terms of zero grazing, 73(47.4%) and 44(28.6%) of the respondents indicated that they learnt and did not learn the practice of zero grazing respectively. On the other hand,

18(11.7%) and 19(12.3%) of the respondents noted that they adopted and did not adopt the practice of zero grazing respectively.

In another case, 68(44.2%) and 38(24.7%) of the respondents stated that they learnt and did not learn the practice of planting of fodder while 28(18.2%) and 20(13.0%) respondents indicated that they adopted and did not adopt the practice of planting fodder respectively. Apart from that, 66(42.9%) and 36(23.4%) of the respondents noted that they learnt and did not learn the practice of feeding dairy within the compound respectively. On the other hand, 28(18.2%) and 24(15.6%) respondents indicated that they adopted and did not adopt the practice of feeding dairy within the compound respectively. Regarding tick and flies control, 80(51.9%) and 40(26.0%) respondents stated that they adopted and did not adopt tick and flies control respectively. On the other hand, 31(20.1%) and 3(1.0%) respondents indicated that they adopted and did not adopt the practice of tick and flies control respectively.

Apart from that, 79(51.3%) and 33(21.4%) respondents stated that they learnt and did not learn respectively the practice of silage making respectively. Even so, 24(15.6%) and 18(11.7%) of the respondents indicated that they adopted and did not adopt the practice of silage making respectively. Out of 154 respondents, 79(51.3%) and 22(14.3%) of the respondents stated that they learnt and did not learn the practice worm and helminthes control practices while 36(23.4%) and 17(11.0%) of the respondents stated that they adopted and did not adopt the practice of controlling worm and helminthes.

In another case, 71(46.1%) and 30(19.5%) of the respondents stated that they learnt and did not learn the practice of hay making while 27(17.5%) and 26(16.9%) stated that they adopted and did not adopt the practice of hay making. Apart from that, 71(46.1%) and 38(24.7%) of the respondents stated that they learnt the practice biogas production while 10(6.5%) and 35(22.7%) of the respondents indicated that they adopted and did not adopt the practice of biogas production.

4.5.4. Influence of Extension services on sustainability of DFDP

As a component within the agricultural Services available within the farmers and their supposed determinant factor of sustainability of DFDPs, the study sought to establish whether extension services influences the respondents were to agree on yes or no as indicated and shown in table 4.15 below;

Table 4.15: Does extension services influence sustainability of DFDP?

Response	Frequency	Percent
Yes	121	78.6
No	33	21.4
Total	154	100.0

From the findings presented in table 4.15, 121(78.6%) accounting for the majority of respondents accepted that extension services largely influenced sustainability of DFDP. On the other hand, 33(21.4%) respondents denied the fact that extension services influenced sustainability of DFDP.

4.5.4.1 :Influence of extension services

The study also investigated from among responses provided by population the influence of extension services on sustainability of DFDPs in terms of frequent visits, enhanced trainings, regular services. The respondents were asked to state their responses within a scale (SA-Strongly Agree, A-Agree, N-Neutral, and A-Agree) and the results were as presented in the table 4.16 below;

Table 4.16: Influence of extension services on sustainability of DFDP

Statement	Strongly disagree		Disagree		Not sure		Agree		Strongly Agree	
	F	%	F	%	F	%	F	%	F	%
Frequent visits by veterinary officers and agricultural influence dairy farming productivity	10	6.5	35	22.7	4	2.6	55	35.7	50	32.5
Enhancing a cascaded training by extension officers to dairy farmers help in imparting knowledge to control pest and diseases.	13	8.4	12	7.8	10	6.5	32	20.8	87	56.5
Extension services should be offered on regularly and dairy farmers should know how to access the services especially when they need information of improved dairy farming.	18	11.7	29	18.8	12	7.8	31	20.1	64	41.6
Some of the Extension officers should be enlisted and trained from a group of dairy farmers to enhance dairy farming of the locals	10	6.5	13	8.4	6	3.9	40	26.0	85	55.2

According to the findings presented in table 4.16, 55(35.7%) and 50(32.5%) agreed and strongly agreed respectively that frequent visits by veterinary officers and agricultural influence dairy farming productivity. Contrary to that, 35(22.7%) and 10(6.5%) disagreed and strongly disagreed

respectively that frequent visits by veterinary officers and agricultural influence dairy farming productivity. A few respondents, 4(2.6%) were not sure whether frequent visits by veterinary officers and agricultural influence dairy farming productivity or not. In another case, 87(56.5%) and 32(20.8%) of the respondents strongly agreed and agreed respectively that enhancing a cascaded training by extension officers to dairy farmers help in imparting knowledge to control pest and diseases. On the other hand, 13(8.4%) and 12(7.8%) respondents strongly disagreed and disagreed respectively that enhancing a cascaded training by extension officers to dairy farmers help in imparting knowledge to control pest and diseases.

Out of 154 respondents that took part in responding to the questionnaires, 64(41.6%) and 31(20.1%) of the respondents strongly agreed and agreed respectively that extension services should be offered on regularly and dairy farmers should know how to access the services especially when they needed information of improved dairy farming. On the flip side, 29(18.8%) and 18(11.7%) disagreed and strongly disagreed respectively that extension services should be offered on regularly and dairy farmers should know how to access the services especially when they needed information of improved dairy farming.

In another case, 85(55.2%) and 40(26.0%) of the respondents strongly agreed and agreed respectively that some of the extension officers should be enlisted and trained from a group of dairy farmers to enhance dairy farming of the locals. On the other hand, 13(8.4%) and 10(6.5%) disagreed and strongly disagreed respectively that some of the extension officers should be enlisted and trained from a group of dairy farmers to enhance dairy farming of the locals. A group of 6(3.9%) respondents were not sure whether some of the extension officers should be enlisted and trained from a group of dairy farmers to enhance dairy farming of the locals or not.

4.6. Findings based on hypotheses testing and multiple regression

Objective 1: To establish how managerial capacity influence sustainability of Donor Funded Dairy Projects.

To achieve the above objective, data on respondent score was used to substantiate the null hypotheses given here below

H₀₁: there is no significant relationship between managerial capacity and sustainability of Donor Funded Dairy Projects.

H_{a1}: there is a significant relationship between managerial capacity and sustainability of Donor Funded Dairy Projects.

Data based on the response of the respondents to the statement provided here below was utilized to determine the correlation.

In order to test the null hypothesis, data was obtained using the items indicated here below.

To what extent does:

The management committee influence sustainability of of Donor Funded projects?

Leadership style of a manager influence project sustainability?

A managerial education level influence sustainability of projects?

Managerial capacity influence sustainability?

Table 4.16.1 provides data on managerial capacity that was used to test the hypothesis on whether there is a relationship between managerial capacity and sustainability of Donor Funded Dairy Projects.

Category	Yes/ effective	Not effective/ Ineffective
Observed 1	16	138
Observed 2	134	10
Observed 3	111	43
Observed 4	128	26

Df= 3

SL= 0.05

Obtained chi square value= 274.29

P value= 0.000

Critical chi square value= 269.55

Legend: Df=Degree of Freedom

SL=Significant Level

The study rejected the null hypothesis and accepted the alternative hypothesis concluding that there is a significant relationship between managerial capacity and sustainability of Donor funded Dairy Agricultural Projects. These findings are in agreement with findings in related studies by Juliana et al (2011).

However, this study makes an additional contribution to knowledge since it established that managerial capacity and an effective management committee besides community participation influence sustainability of projects.

The computed Chi Square is greater than the critical value necessary for the rejection of the null hypothesis at the 0.05 level; the null hypothesis is rejected and thus the alternative is accepted.

It is held that there is a significant relationship between managerial capacity and sustainability of Donor Funded Dairy Agricultural Projects.

Objective 2: To establish the extent to which community participation influence sustainability of Donor Funded Dairy Projects.

This objective was meant to be achieved through data obtained for analyzing based on the hypotheses given here below:

H₀₂. There is no significant relationship between community participation and sustainability of Donor Funded Dairy projects.

H_{a2}. There is a significant relationship between community participation and sustainability of Donor Funded Dairy Agricultural Projects.

The responses to the statement provided below led to the generation of data for Chi Square value determination and substantiating the hypothesis.

To facilitate the null hypothesis testing, data based on whether community participation in Donor Funded Dairy Projects result into sustainability of the projects was obtained and applied accordingly.

Table 4.16.2 below, gives data of community participation status that was used to test the hypothesis on whether sustainability relationship exists between community participation and sustainability of Donor Funded Dairy Projects.

Table 4.16.2 Community participation in Donor Funded Dairy Projects.

Participation status	HighYes	Average	Poor
Election	63	84	7
Meeting	52	87	15
Contribution	25	65	64
Sustainability status	28	95	32

Df= 6

SL= 0.05

Obtained Chi Square= 94.86

P value= 0.0000

Critical chi square= 90.53

Legend: Df=Degree of Freedom

SL=Significant Level

The obtained Chi Square is greater than the critical Chi Square so the null hypothesis is rejected and the alternative hypothesis is accepted. This means there is a significant relationship between community participation and sustainability of Donor Funded Dairy Agricultural Projects. These findings are in collaboration with related studies by (Seyedes & Bossink, 2017) which held that participation by the community in project management enhances sustainability of most projects.

Objective 3: To determine if there is relationship between technology adoption and sustainability status of Donor Funded Dairy Projects.

H₀₃. There is no significant difference in sustainability status of Donor Funded Agricultural Projects as a result of technology adoption by farmers.

H_{a3}. There is a significant difference in sustainability of Donor Funded Dairy Projects as a result of adoption of technology by farmers.

To achieve the above objective, data on farmer's technology adoption status was used to compute the Chi Square value was used to substitute the hypothesis as shown in the computation provided here below.

Table 4.16.3 below provides computed data on farmer's mean difference in relation to adoption of technology.

Table 4.16.3 Farmer's technology adoption mean score

Condition	Adopted technology	
	Yes	No
Level of adoption of technology	60	94
Technology use	49	119
<u>SD</u>	<u>109</u>	<u>45</u>

Df= 2

SL= 0.05

Obtained Chi Square= 60.34

P value= 0.0000

Critical chi square= 58.40

Legend: Df=Degree of Freedom

SL=Significant Level

The result of the null hypothesis testing shown in table 4.6.3 indicate that the farmers who had adopted technology had a higher score than those who had not adopted the technology. The obtained Chi Square is significant so the null hypothesis is rejected. Farmers who have adopted technology have a higher Chi Square Value as opposed to those who had not.

Objective 4:To establish whether there is a significant relationship between extension service to farmers and sustainability of Donor Funded Dairy Agricultural Projects.

H₀₄. There is no significant relationship between extension services and sustainability of Donor Funded Dairy Projects.

H_{a4}. There is significant relationship between extension services and sustainability of Donor Funded Dairy Projects.

Table 4.16.4 below provides the response to the following items led to obtaining data to determine whether to reject the null hypothesis.

- i) Does frequent visit by Veterinary Officers influence sustainability of Dairy farming?
- ii) Does training by extension officers influence sustainability of Dairy projects?
- iii) Has the training helped sustainability of Donor projects?
- iv) Dairy farmers should be trained in order to enhance sustainability of the projects.

Table 4.16.4

Statement	Response	
	Yes	No
Extension service is regular	105	49
Training has enhanced sustainability	119	35
Trained farmers enhance sustainability	125	29

Df=2 SL=0.05

Obtained Chi Square= 7.404

P value= 0.002

Critical Chi Square= 6.634

Legend: Df=Degree of Freedom

SL=Significant Level

Since the obtained Chi Square is higher than the critical Chi Square value the null hypothesis is rejected and the alternative hypothesis is accepted and held that there is a significant relationship between extension service and sustainability of Donor Funded Dairy Agricultural projects

Table 4.17: Multivariate regression analysis between managerial capacity, community participation, technology extension services and sustainability of DFDP

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.979 ^a	.959	.946	.249

a. Predictors: (Constant), technology, community participation, extension services, managerial capacity

According to the findings presented in table 4.17, the value of R indicates the measure of quality of prediction that can be done on the dependent variable using the independent variable. A positive value of R indicates that the prediction is high and reliable. The value of R squared, 0.959 indicated the overall association of variables in the model. This value showed the proportion of variance in sustainability of DFDP explained by the predictors. It also measured the correlation between independent variables (predictors) and dependent variable. Considering that the value of R squared would change upon additional predictors, the value of adjusted R squared, which was 0.946, was reliable.

Table 4.18: Multivariate analysis of variance between managerial capacity, community participation, technology, extension services and sustainability of DFDP

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	167.558	37	4.529	72.945	.000 ^b
1	Residual	7.202	116	.062		
	Total	174.760	153			

a. Dependent Variable: Sustainability of DFDPs

b. Predictors: (Constant), technology, community participation, extension services, managerial capacity

From the multivariate regression analysis in table 4.18, it is clear that the regression model (in chapter 3) is sufficient to assess the sustainability of DFDP. Considering the p-value of 0.000 (see table 21), which is less than the level of significance of 0.05 considered by the study imply that the regression analysis is effective in determining how technology, community participation, extension services, managerial capacity influence sustainability of DFDP. Further, technology, community participation, extension services, managerial capacity was statistically significant with sustainability of DFDP. Furthermore, F-computed using SPSS is 72.945 (shown in table 4.18) and F-critical is 1.6491 {from the F-distribution tables ($df_1=37-1=36$ and $df_2=116-1=115$)}. Considering that F-computed (from SPSS) was greater than F-critical, it strengthen the fact that technology, community participation, extension services, managerial capacity largely influenced and were statistically significant with sustainability of DFDP.

Table4.19: Multiple linear regression model between technology, community participation, extension services, managerial capacity and sustainability of DFDP

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
	(Constant)	5.168	.631	8.196	.000
1	community participation	.977	.089	.701	10.980
	managerial capacity	.657	.120	.405	5.462
	technology adoption	.616	.062	.598	9.984
	extension services	.491	.071	.446	6.913

a. Dependent Variable: Sustainability of DFDPs

The values of unstandardized beta coefficients given by B, were used as parameters used to determine of technology, community participation, extension services, and managerial capacity. These parameters would be used to predict sustainability of DFDP. The simple regression equation adopted for such a relationship was as follows

$$Y=B_0+B_1X_1+B_2X_2+B_3X_3+B_4X_4 + \text{error term}$$

Where Y is the sustainability of DFDP

B₀= Constant, given by 5.168

B_i= coefficient of technology, community participation, extension services, and managerial capacity

The above Multiple Linear equation was used to predict the influence of technology, community participation, extension services, and managerial capacity on sustainability of DFDP.

$Y = 5.168 + .977 \text{ community participation} + 0.657 \text{ managerial capacity} + 0.616 \text{ technology adoption} + 0.491 \text{ extension services} + \text{error terms}$. In the equation above, a unit increase in community participation managerial capacity, technology adoption, and extension services would increase sustainability of DFDP by 0.977, 0.657, 0.616, and 0.491 units respectively, see table 4.19.

4.7. Qualitative findings related to the research questions

Table 4.20: Interview with Ministry of Agriculture Pastoral Economy Officials, Director Livestock and Officials on other donor funded projects

Theme	Sub-themes
Managerial capacity	<p>Experienced and skilled management team usually understands management, financial and sustainability strategies of a project</p> <p>A highly knowledgeable manager uses resource mobilization skills, personality, and experience to control and utilize resources in a manner aimed at enhancing project sustainability</p>
Technology adoption	<p>The type and number of dairy farming technology depends on the availability and accessibility of information related to that technology; determine the adoption and hence sustainability of DFDP</p> <p>The rate of adoption of dairy farming technologies is stimulated by the benefits accrued from adopting that technology while the cost of technology depends on how the technology solves the problem of human labor and the rate of getting work done.</p>
Community participation	<p>The level of community participation and extent of material contribution depends on how the donor has supported community members and empowered them to fully take charge of the project.</p> <p>Allowing community members to take part in vital project decision making by voting and sharing ideas makes them commit to the project, own it and</p>

Extension services	support it Ease of access to extension services influences the level of satisfaction of community members and hence project sustainability An increased number of training centers increases dairy farming information dissemination to farmers hence increasing the ability to use improved dairy farming methods and hence project sustainability
---------------------------	---

Table 4.21: Interview guide for MoAIPE Ward Officers

Theme	Sub-themes
Managerial capacity	Dairy Farmers Association should comprise of members with high level of commitment towards improving the state and welfare of farmers, and visionary leaders out to address challenges faced by farmers
Technology adoption	Most farmers have heard negative perceptions towards any meaningful change in agricultural practices especially when technology is involved and this has been a challenge towards project sustainability
Community participation	The level of community participation is low especially among dairy farmers who do not understand or accrue direct benefit from the project; further, participation in terms of material contribution is not regular because of the seasonal nature of farm produce and their sale hence negatively influencing project sustainability
Extension services	Long bureaucratic procedures, distant training centres and a few farmers are some of the challenges that have affected dairy project sustainability

Table 4.22: Interview with Dairy Users Association in Siyoi Ward

Theme	Sub-themes
Managerial capacity	Few dairy farmers take part in decision making in the association because they do not feel part of the project and they do not have confidence in the management team
Technology adoption	Hay making and artificial insemination are some of the technological practices that suit this ward because farmers practice extensive and pasture-based dairy farming
Community participation	Dairy Farmersø Association has been functioning but not productive because of failed community participation and lack of effective market value chain
Extension services	A significant number of dairy farmers have been trained but very few have adopted and practised some of the learnt skills especially with regard to technology adoption.

4.8. Discussion of findings

This section presents a detailed analysis of both quantitative and qualitative findings, which are descriptive and inferential in nature. The discussion will be supported by scholarly reviews and findings related to research questions and hypotheses

4.8.1. Influence of Managerial capacity on sustainability of DFDP

From the findings presented in this study, 128(83.1%) of the respondents indicated that managerial capacity largely influenced sustainability of DFDP (see table 4.3). This findings was supported by inferential statistical findings in table 4.19 where the association between managerial capacity and sustainability of DFDP was 0.657. Notably, over one half, 89(57.8%) of the respondents majority of whom were dairy farmers had only attained secondary level of education an indication that the management of dairy farmers association, which is elected from a group of dairy farmers lacked the competence, skills and experience of ensuring project sustainability. In table 4.1, over 75% of respondents indicated that level of education, composition of the committee and frequency of holding meetings largely influenced sustainability of DFDP. Further, in table 4.4, 138 (89.6%) responded supported the fact that the

management of dairy association was ineffective and this could be explained by the low level of education. In the qualitative findings,

Ministry of Agriculture Pastoral Economy Officials, Director Livestock and Officials on other Donor Funded Projects stated,

“.....Experienced and skilled management team usually understands management, financial and sustainability strategies of a project....”

“.....A highly knowledgeable manager uses resource mobilization skills, personality, and experience to control and utilize resources in a manner aimed at enhancing project sustainability....”

MoAIPE Ward Officers stated,

“....Dairy Farmers Association should comprise of members with high level of commitment towards improving the state and welfare of farmers, and visionary leaders are out to address challenges faced by farmers....”

Dairy Users Association in Siyoi Ward stated,

“.....Few dairy farmers take part in decision making in the association because they do not feel part of the project and they do not have confidence in the management team....”

From the qualitative findings presented in this study, it was clear that a highly competent team of Dairy Farmers Association managers who would make sound and informed decisions contributed largely towards project sustainability. These findings coincided with quantitative findings and scholarly findings.

According to (USAID, 2017) study conducted in the rural population of In Nepal, Asian Continent, the researcher established that the ability of the project manager to publish project activities, scheduling for meeting and requisition of cash in-kind or cash contribution from the public are common, the aspect that enhance sustainability of DFPs. Compared with Sri-Lanka, which faced lack of clear governance structures, donor dairy funded projects in Nepal thrived because management boards were occupied by experienced and skilled people who understood

community needs, financial management and sustainability strategies. Based on research, the level of information, experience and one's personality, largely determine project management competency. Information which is related to knowledge and management skills involves communication, team building, negotiation, and human resource. Another key element of knowledge refers to the ability to mobilize resources, manage project time and minimize project overhead costs. The last pillar of management is industry based and it involves the ability to ensure product development methodologies and life cycle management.

4.8.2. Influence of Community participation on sustainability of Donor Funded Dairy Projects

From the findings presented in this study, in table 4.5, 123(83.9%) respondents stated that the community participation played a major role in enhancing project sustainability. In table 4.6, over two thirds of respondents indicated that their level of commitment in project activities was fair especially in elections, meetings and material contribution. This implied that there was no regular attendance to meetings and elections and some of the dairy farmers were not reliable in terms of making material contributions.

In table 4.8, averagely 40% of respondents stated that they did not commit themselves to project activities, the project was not performing to its expectations, the project was not helpful to community members, and that they did not take part in project activities such as elections. The level of commitment by the county government was low as 121 (78.6%) of the respondents asserted that the institution was less committed with affairs of dairy farming. Further in table 4.9, 91(61.0%) of the respondents noted that the project performed dismally because the dairy farmers did not own the project and commit to the affairs of the project. However, community participation largely influenced sustainability of dairy project even compared to managerial capacity, technology adoption and extension services. In table 4.19, the correlation between community participation and project sustainability was 0.977 and this implied that a unit increase in community participation would increase project sustainability by 0.977. Essentially, project sustainability was largely influenced by community participation. Qualitative findings from interviews coincided with quantitative findings.

Ministry of Agriculture Pastoral Economy Officials, Director Livestock and Officials on other Donor Funded Projects stated,

“.....the level of community participation and extend of material contribution depends on how the donor has supported community members and empowered them to fully take charge of the project.....”

“.....allowing community members to take part in vital project decision by voting and sharing ideas make them commit to the project, own it and support it.....”

MoAIPE Ward Officers stated,

“.....The level of community participation is low especially among dairy farmers who do not understand or accrue direct benefit from the project; further, participation in terms of material contribution is not regular because of the seasonal nature of farm produce and their sale hence negatively influencing project sustainability.....”

Dairy Users Association in Siyoi Ward stated,

“.....Dairy farmers’ association has been functioning and not been production because of failed community participation and lack of effective market value chain.....”

Findings from interviews were in line with findings from questionnaires in such a way that they both noted the influence community participation had on sustainability of dairy project. Scholarly findings also supported them.

Community involvement encourages the community to be responsible, to own and commit time in ensuring that they complement the support of the donor. Creating a united bond, forging together and avoiding disputes of any case is a show that the community is in full support of the project implementation from the start to the end (Cohen, 2010). OECD/DAC,(Wolfenshn, 1999) insists that donors ought to play a supportive role but allow the community full participation to ensure project ownership (Phillips & Pitman, 2009). Similarly donors should showcase the ownership of the plan (Sirgy et al., 2011). The paramount objective of any project sustainability is to ensure that both the community and the donor win in the project as it allows participation and ownership by the community and support by the donor.

4.8.3. Influence of Technology adoption on sustainability of Donor Funded Dairy Projects

According to the findings presented in this study, 126(81.8%) of the respondents asserted that technology adoption largely influenced sustainability of DFDP. The same findings were

supported by findings from inferential statistics where there was a 0.616 correlation between technology adoption and sustainability of DFDP. However, the period within which technology takes after its adoption to influence sustainability of dairy project is large. Notably, over 72.0% of the respondents elucidated that it took over two years after adoption of modern technology for it to have a meaningful impact on sustainability of DFDP. It should be noted that for technology to be adopted and make a meaningful impact, information regarding it should be disseminated faster and targeted users should practice what they learnt. In table 16, over 90% of the respondents stated that information about technology on dairy farming was inadequate and this meant that project sustainability could be compromised because the majority did not know how to adopt modern farming practices that reduce costs and increase productivity. Over 70% of the respondents affirmed that the county did not have a fast and effective milk delivery service, the ease of access to technological information was low, technology had not reduced the cost of dairy production, and there was no diversification from dairy farming. These findings were in line with qualitative findings as follows

Ministry of Agriculture Pastoral Economy Officials, Director Livestock and Officials on other Donor Funded Projects stated,

“.....The type and number of dairy farming technology depends on the availability and accessibility of information related to that technology; ease of use to determine the adoption and hence sustainability of DFDP.....”

“....The rate of adoption of dairy farming technologies is stimulated by the benefits accrued from adopting that technology while the cost of technology depends on how the technology solves the problem of human labor and the rate of getting work done.....”

MoAIPE Ward Officers stated:

“....Most farmers have heard negative perceptions towards any meaningful change in agricultural practices especially when technology is involved and this has been a challenge towards project sustainability.....”

Dairy Users Association in Siyoi Ward stated:

“.....Hay making and artificial insemination are some of the technological practices that suits this ward because farmers practice extensive and pasture-based dairy farming.....”

Findings from interviews coincided with quantitative findings from questionnaires in such a way that they emphasized the need to disseminate information regarding technology, adopt modern farming and improved practices of dairy farming. Scholarly findings supported both qualitative and quantitative findings.

According to (Bonabana-Wabbi, 2002), the dynamic process of adopting the use of technology involved gathering information about its implementation. Notably, a number of management practices have taken some time for managers to learn and adopt (Bonabana-Wabbi, 2002); Rogers, 1995; Enos and Park, 1988). The adoption rate of technology is determined by the time taken by a group of farmers to acquire information about the skill and put it in practice. The extent of adoption is determined by the quantity of technologies underutilization by the farmers adopting them.

4.8.4. Influence of Extension services on sustainability of Donor Funded Dairy Projects

From the findings presented in this study, 121(78.6%) of the respondents stated that extension services largely contributed towards sustainability of DFDP. This finding coincided with inferential statistical findings where there was a correlation of 0.491 between extension services and sustainability of DFDP. Further, over 80% of the respondents indicated that frequent visits, enhanced trainings, and opening training centres were some of the activities that largely influenced sustainability of DFDP. Notably, the ease of access of information and extension officers was a determinant towards improving project sustainability. These findings supported qualitative findings in the following ways

Ministry of Agriculture Pastoral Economy Officials, Director Livestock and Officials on other Donor Funded Projects stated:

“.....Ease of access to extension services influence the level of satisfaction of community members and hence project sustainability....”

“.....An increased number of training centres increases dairy farming information dissemination to farmers hence increasing the ability to use improved dairy farming methods and hence project sustainability....”

MoAIPE Ward Officers stated:

“.....Long bureaucratic procedures, distant training centres and sparsely populated farmers are some of the challenges that have affected dairy project sustainability.....”

Dairy Users Association in Siyoi Ward stated:

“.....A significant number of dairy farmers have been trained but very few have adopted and practiced some of the learnt skills especially with regard to technology adoption.....”

Findings from questionnaires were in line with findings from interviews in such a way that extension services ought to be offered without any bureaucratic processes and the ease of accessing information and extension officers should be effective. Training services and centres ought to be increased to improve dissemination of information to dairy farmers.

In Sri Lanka for instance, extension service providers have decried issues of client dissatisfaction, bureaucratic procedures, low investment in the extension service, changing roles and lack of motivation as they execute their work (Wanigasundera & Attapattu, 2019). Studies will show that farmer education increases propels information flow and exposes a wide view of of knowledge to farmers thus promoting adoption of better technologies as well as innovative and improved management practices. United States for instance uses trained extension officers to provide various services to farmers. Services range from advisory services, transfer of technology and human capacity building (Macaskill, 2010). In Nigeria for instance, accessing agriculture services from the government is a big problem. Related technical practices that small scale dairy farmers lack are the type of feed essential for dairy cows, breeding, parasites control, serving and calving, milking and packaging.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS.

5.1. Introduction

This chapter features a summary of the main findings, conclusions based on findings, and recommendation based on the findings. Recommendations will be into two; recommendations for policy and practice and suggestions for further studies.

5.2. Summary of findings

The study investigated the influence of managerial capacity, community participation, technology adoption and extension services on sustainability of DFDPs. This section presents a summary of key findings related to each research objectives and hypothesis as follows;

5.2.1. Influence of Managerial capacity on sustainability of Donor Funded Dairy Projects

The findings presented showed that 83.1% of the respondents stated that managerial capacity largely influenced sustainability of DFDP. In the inferential statistics, the association between managerial capacity and sustainability of DFDP was 0.657. Notably, 57.8% of the respondents majority of who were dairy farmers had only attained secondary level of education. Over 75% of respondents indicated that level of education, composition of the committee and frequency of holding meetings largely influenced sustainability of DFDP. Further, 89.6% of the respondents supported the fact that the management of dairy association was ineffective and this could be explained by the low level of education. Findings from interviews coincided with findings from questions and from scholars.

5.2.2. Influence of Community participation on sustainability of Donor Funded Dairy Projects

The findings demonstrated that, 83.9% respondents asserted that community participation played a major role in enhancing project sustainability. Over two thirds of respondents stated that their level of commitment in project activities was fair especially in elections, meetings and material contribution. On average, 40% of respondents stated that they did not commit themselves to project activities, the project was not performing to its expectations, the project was not helpful to community members, and that they did not take part in project activities such as elections. Further, 61.0% of the respondents noted that the project performed dismally because the dairy

farmers did not own the project and commit to the affairs of the project. The correlation between community participation and project sustainability was 0.977. Qualitative findings from interviews coincided with quantitative findings.

5.2.3. Influence of Technology adoption on Sustainability of Donor Funded Dairy Projects

Out of 154 respondents that took part in the study, 81.8% of the respondents indicated that technology adoption largely influenced sustainability of DFDP. The same findings were supported by finding from inferential statistics. Technology adoption was statistically significant with sustainability of DFDP and that the correlation between the two was a 0.616. Over 72.0% of the respondents elucidated that it took over two years after adoption of modern technology for it to have a meaningful impact on sustainability of DFDP. Further, over 90% of the respondents stated that information about technology on dairy farming was inadequate and this meant that project sustainability could be compromised because the majority did not know how to adopt modern farming practices that reduce costs and increase productivity. Over 70% of the respondents affirmed that the county did not have a fast and effective milk delivery service, the ease of access to technological information was low, technology had not reduced the cost of dairy production, and there was no diversification from dairy farming. These findings were in line with qualitative findings.

5.2.4. Influence of Extension services on sustainability of Donor Funded Dairy Projects

It is evident in this study that, 78.6% of the respondents indicated that extension services largely contributed towards sustainability of DFDP. This finding coincided with inferential statistical findings where there was a correlation of 0.491 between extension services and sustainability of DFDP and that extension services was statistically significant with sustainability of DFDP. Further, over 80% of the respondents indicated that frequent visits, enhanced trainings, and opening training centres were some of the activities that largely influenced sustainability of DFDP. Notably, the ease of access of information and extension officers was a determinant towards improving project sustainability. These findings were supported qualitative and scholarly findings.

5.3 Conclusions

5.3.1 Conclusion on Managerial Capacity and sustainability of Donor Funded Dairy Projects

The majority of respondents did not have requisite qualifications to be part of dairy farmers' association leadership team and hence decisions made were not informed and strategic. Managerial committees lacked the competence to enhance and improve operations and hence sustainability of DFDP. There is favouritism and corruption when it comes to elections and resource mobilization as these are key project activities where selfish people prioritise their interests.

5.3.2 Conclusion on Community Participation and sustainability of Donor Funded Dairy Projects

Dairy farmers and the community at large are failing to take part in the project activities because of lack of information and sensitization regarding the importance of the project. Lack of information is attributed to the fact that the available channels of communication are not accessible to the majority of community members. To a great extent, project donors have failed to educate the community on the need to embrace participation as this component will not only benefit members directly, but also contribute greatly towards sustainability of the problem especially after donor withdrawal.

5.3.3 Conclusion on Technology and sustainability of Donor Funded Dairy Projects

The rate at which technology regarding dairy farming practices is infiltrating the community members is slow and that the majority lack information on improved dairy farming practices. A few of the technological experts and community members with information, knowledge and skills on improved dairy farming practices are not doing enough in terms of imparting the same skill and practice in others. Technological resources on dairy farming are few and that the available ones are used to their limit.

5.3.4 Conclusion on Extension Service and Sustainability of Donor Funded Dairy Projects

There are long bureaucratic procedures associated with accessing Extension Service Officers who are few and stationed a distant place from dairy farmers. The number of trainings regarding

improved dairy farming are few because of the cost involved in movement, information processing and hiring training resources. Training experts seems to be lowly motivated in the line of duty and that is why they do not execute their roles accordingly.

5.3.5 Contribution to the body of knowledge

Since literature on institutional factors that influence sustainability of Donor Funded Dairy Projects is scarce, the findings presented here contribute to the existing literature for sustainable use. The study identified critical contribution by the community as a result of their participation in project management and subsequently enhancing sustainability of the Donor Funded Dairy Projects. The managerial technological and extension services were found to contribute to the success of the project management endeavour hence constituting essential ingredients of project sustainability.

5.4. Recommendations

This section features recommendations based on policy & practice and suggestions for further studies.

5.4.1. Recommendations for policy and practice

Donors should liaise with Ministry of Agriculture at the County level to formulate policies that set benchmarks and minimum academic qualifications for anyone willing to be in the committee of dairy farmers association. Having a standard guideline of recruitment and ways of managing the association will help in mitigating management capacity problems as everything will be done according to set rules and guidelines.

The local community should be educated and sensitized by donors on the benefits accrued from the project and this will help in improving the level of commitment, and project ownership. Empowering the community to take charge of the project especially in making decisions and material contributions helps them to feel part of the project and hence will aim at ensuring its sustainability.

As a way of reducing the cost associated in acquiring and installing agricultural-based technological devices, the national legislature should formulate laws and advise the executive to zero-rate taxes associated with these tools in order to enhance their usability by farmers, a move

that will enhance sustainability of the project and hence food security. There is a need to increase the number of training sessions especially on the adoption of technology in dairy farming as the majority of farmers did not have information and knowledge on the same.

The national and county government should consider increasing the number of extension service providers, a move that will help in increasing the number of visits to dairy farmers. Increasing the number of training facilities will help in improving the rate at which community members absorb and utilize information learnt in order to practice it for improved productivity. Improving the level of access to extension service providers will help dairy farmers in need of the service, especially when in distress.

5.4.2. Suggestions for further studies

This study focused on institutional factors influencing sustainability of agricultural dairy projects in Siyoi Ward, West Pokot County, Kenya. There are other factors influencing sustainability of donor funded dairy projects and scholars should consider the following

Socio-economic factors influencing sustainability of agricultural dairy projects

Socio-cultural factors influencing sustainability of agricultural dairy projects

REFERENCES

- ASERECA, (2009). *Marking farmer group effective: project on “Crop-livestock integration for sustainable management of natural resources and building livelihoods resilience in Eastern and Central Africa*. Retrived on 25th June, 2020 from: http://www.asareca.org/sites/default/files/farmer_groups_edited.pdf].
- Blewit, J. (2008). *Understanding Sustainable Development*. Earthscan Ltd. London. Routledge Publishers
- Bonabana-Wabbi. C. (2002). *The dynamic process of adoption involved learning about a technology over time*. Nairobi: City Link Publishers
- Books. (2010). *Beef breeding herds due to the increased access and marketing of superior and favorable proven sires*. New York: Cengage Publishers
- BUSIIGE, C. (2008). *The Impact of Donor Aided Projects. Through NGOs on the Social and Economic*. Kampala: *Kampala Publishers*
- Chamala, C. S., & Shingi, P. (1987). *Establishing and Strengthening Farmers Organisations*. In: *Improving Agricultural Extension: A Reference Manual*. Rome, Italy: FAO
- Cohen. (2010). *Promoting multigenerational and multi-ethnic community involvement*. London: Routledge
- Conley &Udry. (1998). *Farmers learning through social network rather than in context of the collective experiment*.
- Ellersiek. (2018). *Inclusivity Community project ownership and Technology*.
- Ellersiek, A. (2017). *Donors and Funders' Meta-Governance of multi-stakeholders partnerships* . *Working papervNo. 2*. Retrieved on 24th June 2020 from: https://www.swp-berlin.org/fileadmin/contents/products/arbeitspapiere/Ellersiek_FG08_Working_Paper_2_018_01.pdf

- FAO. (2012). World report on milk production and population for 2012. Trends in production and demand and medium-term outlook. *ESA Working Paper 12-01*. retrieved on 27th June, 2020 from: <http://www.fao.org/3/a-an450e.pdf>
- Gofin and Gofin. (2010). *Major factor that influence community ownership of donor funded projects is participation which varies depending on the context of the projects*. London: Jones and Bartlett Learning
- Hak, T. B., & Dahl, A. (2007). *Sustainability Indicators*. London: Island Press
- Homedes, N. (2001). Managing externally financed projects: Integrated primary health care in Bolivia. *Health Policy Plan*, 16 (4): . 386-394.
- Juliana et al (2011). The sustainability challenge insight from Instrumental Theory and Organizational Theory
- Kakumba , M.(2010). Local Government citizen Participation and Rural Development: Reflections on Uganda's Decentralization System. *International Review of Administration Sciences*, 1(3), 5-17
- Kamalawati, D. (2008). Participatory and project sustainability: Participatory integrated development in rain-fed areas (PIDRA) project in East Java-Indonesia. *Dissertation for Award of MSc. Degree at Massey University Palmerstone North, New Zealand*.
- Kerlinger Fred N. (2017). Holt & Rinehart and Winston. Foundation and Behavioural Research . New York.
- KISANG, A. K. (2019). FACTORS INFLUENCING SUATAINABILITY OF DONOR FUNDED PROJECTS IN KENYA, A CASE STUDY OF TURKWEL WARD, LORUGUM LOCATION, TURKANA COUNTY, KENYA. *M. A in Project Planning and Management of University of Nairobi, Kenya*
- Kitonga, P. (2011). Factors influencing Sustainability of Donor Funded Rural Water Projects in Kitui. *M.Arts In Project Planning and Management Thesis*, University of Nairobi

- Kopenen, J. (2001). Finish Aid to Tanzania Still Afloat. FAD, IDS. *University Working Papers of Helsinki* No.2. 103.
- Kuria, E., & Wanyoike, D. (2016). ASSESSMENT OF FACTORS INFLUENCING SUSTAINABILITY OF DONOR FUNDED PROJECTS IN NAKURU COUNTY, KENYA. *International Journal of Economics, Commerce and Management, Vol. IV, Issue 10*, 472-501.
- Lelegwe, L., & Okech, T. (2016). COMMUNITY PARTICIPATION IN DONOR FUNDED. *International Economics Management and Commerce*, 588-599.
- Ltumbesi L, Kidombo H, & Gakuu C. (2018). Empirical analysis of the moderating influence of community participation on the relationship between technical assistance and sustainability of Donor funded projects in Samburu County, Kenya. *International Journal of Economics, Commerce and Management*, 6(3), 76-87.
- M., S. S. (2015). *International Journal of Technical Research and Application* 3(3). *Factors affecting project sustainability beyond Donor's support. the case of area developmentscheme (ADS) in Umkadadalocality, North Dafur State, Western Sudan*, pp. 94-101.
- Mbevi, A. (2016). Influence Of Community Participation In Sustainability Of Projects In Makueni County, Kenya. *Unpublished Masters Thesis*, University of Nairobi.
- Mlage, F. V. (2014). Sustainability Of Donor-Funded Community Development Projects In Tanzania: A Case Of Farmer Groups Investment Sub-Projects In Morogoro District. *Master Of Arts Dissertation, University Of Agriculture morogoro, Tanzania* , 1-Xv, 1-61.
- Mugenda O.M., and Mugenda A.G. (2003). *Research Methods: Quantitative and Qualitative Approaches*. Nairobi: Act Press.
- Mugenda O. M. & Mugenda, A, G.(2003). *Research Methods; Qualitative and Quantitative Approaches* . Nairobi :African Center for Technology studies.
- Mugisha, J. (2007). *Dairy Farming in Uganda: Production Efficiency and Soil Nutrients Under Different Farming Systems*. ILRI (aka ILCA and ILRAD).

- Natasha, A. (2013). The Quest for Financial Sustainability: Foundations in Southeast Asia. Introduction to Financing Development in Southeast Asia: Opportunities for Collaboration and Sustainability. Synergos. Retrieved on 23rd June, 2020 from: <https://www.synergos.org/news-and-insights/2003/quest-financial-sustainability-foundations-southeast-asia>
- Ngugi K A & Wanyonyi L S. (2018). Factors Influencing sustainability of donor funded projects: A case of Embuans Sanitation Company, Embu County, Kenya. *International Academic Journal of Information Science and Project Management*,, 317-330.
- Njogu, K. D.(2014). Influence of community participation on sustainability of constituency development funded Rural boreholes water projects . A case of Kerwa Sub Location, Kiambu County, Kenya. Unpublished Masters Thesis, Nairobi; University
- Okun, O. C. (2009). Factors affecting the Sustainability of Donors Funded Projects in Arid and Semi-arid Areas in Kenya; A case of Marsabit Central District. *Master Degree of Business Administration Thesis*, University of Nairobi.
- Omondi, O. D. (2016). Determinants Of Sustainability Of Funded Dairy Projects: A Case Of Malava, Kakamega Subcounty. *M.Arts Thesis, University Of Nairobi*, i-xiv, 1-120.
- Polit, D., & Hungler, B. (1999). The strengths and weaknesses of reaserch designs involving Quantitative measures, *Journal of Europeans Studies*, 62(2), 36-40).
- Seyedes and Bosink (2017). Journal cleaner products . Volume 167.; 1263-1275.
- Sekaran Umma (2006). *Research Methods for Mangers . A Skill building approach*, New York.
- Simona, B., & Adina, G. (2013). If it canø be expressed in figures-project Suatainability beyond Donors support. The case of area development scheme (ADS) IN Umkadada locality, North Dafur State, Western Sudan. *International Journal of Technical Research and Application*. 3(3), 94-101.
- Singh, R., & Mangat, N. S. (2013). *Elements of Survey Sampling*. New Delhi: Springer Sciencee and Business Media.

- St-Pierre, D. T., & Burley, L. (2010). Factors influencing donor partnership effectiveness *Foundation Review*, 1(4); 53-61.
- Tanga, P. T., & Meliehe, L. (2011). An analysis of community participation in Handicraft Project in Lesotho. *The Anthropologist*, 13(3), 201-2010.
- The World Bank (1998). *The role of community participation in Development Planning and Project Management*. Washington D.C.; The World Bank
- Vleems, M. (2018). Measurement of project performance : a method of project comparison. *Masters Thesis*, Faculty of Management and Science and Technology, Open University of Netherlands.
- World Health Organization. (2002). *Community participation in Local Health and sustainable Development. Approaches and techniques. European Sustainable Development and Health Series4*. WHO Geneva.
- Yamane, T. (2012). *Mathematics for Economists: An Element Survey*. New York: Literary Licencing.

APPENDICES

APPENDIX I: LETTER TO RESPONDENTS

AKUTO TERESA CHEYECH

P.O BOX 99-30600,

KEPNGURIA.

Dear Respondent,

I am a postgraduate student at the University of Nairobi Kitale Campus, pursuing a Masters of Arts Degree in Project Planning and Management. As a requirement of the institution, i am conducting a project research project, hence humbly request you to take part in this survey aimed at investigating the Institutional capabilities that influence sustainability of donor funded dairy project in Siyoi Ward, West Pokot County, Kenya.

You have been selected to be part of this study, I hereby kindly request you to assist in providing information and filling the questionnaires required to the best of your knowledge and ability. The information is strictly for academic and research purposes and will not be used against anyone. Other personal information will be handled with utmost confidentiality. Your kind assistance shall be highly appreciated.

Thank you in advance.

Faithfully yours,

Akuto Teresa Cheyech

Masters student UON.

L50/25131/2019

APPENDIX II: QUESTIONNAIRE

This questionnaire has been designed to collect information from Siyoi ward, institutional factors on sustainability of donor funded dairy projects and is meant for academic purposes only. The questionnaire is divided into three parts. Part 1 seeks to capture the profile of respondents while Part B and Part C will capture issues pertaining to the area of study. Please complete each section as instructed. Do not write your name or any other form of identification on the questionnaire. All the information in this questionnaire will be treated in confidence.

PART ONE: HOUSEHOLD QUESTIONNAIRE

INSTRUCTIONS: *Using tick (✓) to respond to close ended items.*

SECTION ONE: DEMOGRAPHIC INFORMATION

1: Please indicate your Gender 1. Male: 2. Female

2: Indicate whether you are the head of the household 1. Yes 2. NO

3: Indicate your marital status. Married () Single () Any other specify

4: Indicate your age group; Below 21-30 years 31-40 years 41-50 years Above 51 years

5: Indicate your level of education.

Never attended school Primary level Secondary level Tertiary or Vocational level University level

6: Main Occupation; Pastoralists Farming Trader , Security , Teaching Medical Others

SECTION TWO: INSTITUTIONAL FACTORS INFLUENCING SUSTAINABILITY OF DFDPs

a) Managerial capacity and sustainability of DFDPs

7. To what extent would you agree or disagree with the fact that management styles affect sustainability of dairy Farming project after donor funding is withdrawn?

- 1. Strongly agree []
- 2. Agree []
- 3. Neutral []
- 4. Disagree []

8. How would you rate the managerial capacity, governance structures and organization of the dairy farmers association *based on the following statements on the table below*, on how it influences sustainability of donor funded dairy project in Siyoi ward? Rate as follows; **1:Strongly Agree, 2:Agree, 3:Disagree**

		1	2	3
a	Level of education of the Dairy Framer Association and other officials			
b	Composition of the committee			
c	Frequency of the meetings held			

9. How would rate the effectiveness of the management committee in relationship to sustainability of dairy projects after donor withdrawal?

- 1. Very effective []
- 2. Effective []
- 3. Ineffective []
- 4. Very ineffective []

b) Community participation and sustainability of DFDPs

10. Did you or any of your community members participate in the process of the project identification or any other kind of contributions in the dairy farming project?

1. Yes [] 2. No []

11. How would you rate the level of the community participation and involvement in the implementation and after donor withdrawal in dairy projects in your Ward? Rate as follows, according to your level best of understanding; 1=Greatly, 2=Fairly, 3=Low,

		1	2	3
A	Elections			
B	Meetings			
C	Financial contributions			

12. To what extent would you agree or disagree with the following statement as related to target beneficiaries and community participation on how it influences sustainability of donor dairy farming projects? Rate as follows; 1. Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly disagree (Use four score scales)

		1	2	3	4
1	The project is fully owned by the target beneficiaries of the dairy farming project				
2	The community is involved in decision making processes				
3	The dairy farming projects are performing to the expectations of the community				
4	The project is serving and benefiting the intended community				

13. How would you describe the level of commitment of the county government and community benefiting from the project to ensure sustainability of dairy products access?

1. Very Committed []
2. Committed []
3. Less committed []
4. Not committed at all []

14. What has been the effect of withdrawal of donor funding on the Sustainability of dairy farming project and after the donor withdrawal in Siyoi ward? The project has;

1. Project continued normally []
2. Dismal sustainability []
3. Technical challenges []
4. Extension services challenges []

15. What has been the result of donor funding withdrawal on the sustainability of funded dairy farming projects in your ward? Please rate as follows; **4: Excellent, 3: Good, 2: Fair, 1:Poor(tick on the box based on the ranking)**

		1	2	3	4
1	Financial sustainability				
2	Technological challenges				
3	Managerial capacity/ operations of committees				
4	Community participation towards project sustainability				
5	Extension services towards sustainability				

c) Technology adoption and sustainability of DFDPs

16.To what extent would you agree or disagree according to your understanding that technology adoption influences sustainability of DFDPs?

		1	2	3	4	5
a	Strongly Agree					
b	Agree					
c	Neutral					
d	Disagree					
e	Strongly disagree					

17. To what extend according to your understanding, technology adoption influenced sustainability of DFDPs in your area? **Rate on a scale , according to functionality of dairy projects has been functional ; 1:Less than a year, 2: 1 year; 3: 2 years ; 4: Above 3 years**

		1	2	3	4
A	Less than a year				
B	One year				
C	2 years				
D	Above 3 years				

18. How would you rate adequacy of information on availability of dairy technologies in your community?

1. Very adequate
2. Adequate
3. Inadequate
4. Very inadequate

19. In this section please tick (ç) the most appropriate response for each of the statements in the table below with the following score in mind; (D **1**: Strongly agree (SA), **2**: Agree (A),); **3**:Not sure (NS), **4**:Disagree &**5**: Strongly disagree (SD));

	STATEMENT	SA=1	A=2	NS=3	D=4	SD=5
1	The County has a system for fast delivery of dairy services					
2	Information on dairy farming is easily assessable within the County					
3	Information technology use has cut cost and improved production of dairy farming					
4	The County has diversified into other sectors to promote dairy farming in terms of facilities availed to farmers					

5. What is your opinion on the technology adoption, Managerial capacity, extension services, community participation as a determinant of sustainability of donor funded dairy projects?

i) Technology adoption

í
í ...
í
í ..
í
í ..

ii) Managerial capacity

í
í
í
í
í
í ..í

iii) Extension services

í
í
í
í
í í

iv) Community participation

í
í
í í

í
í
í í í í í í ...

6. Does technology adoption support small scale dairy farming in this ward?

.....
.....
.....í í í í í í í í í í í í í í í í í í í
í ...

7. What is the influence of extension services on sustainability of dairy project in Siyoi Ward?

í
í ..
í ..í í í í
í
í í í í í í í ..í í í í í ..í í í í í í í í í í í í ..í í í í í í í í í í í í

8. Which challenges do you think the following stakeholders face regarding development and sustainability of dairy in future (Personal, group or governmental?)

Personal.....
.....
.....
.....
.

Governmental.....
.....
.....
.....

Farmers.....
.....
.....
.....

NGO s and other
stakeholders.....
.....
.....
.....

Thank you very much for your participation

APPENDIX VI: RESEARCH PERMIT



Ref No: 309922
SCIENCE, TECHNOLOGY & INNOVATION

NATIONAL COMMISSION FOR

RESEARCH LICENSE

Date of Issue: **20/June/2020**



This is to Certify that Ms. TERESA CHEYECH AKUTO of University of Nairobi, has been licensed to conduct research in West Pokot on the topic: INSTITUTIONAL FACTORS INFLUENCING THE SUSTAINABILITY OF DONOR FUNDED DAIRY AGRICULTURAL PROJECT: A CASE OF SIYOL, WEST POKOT COUNTY, KENYA. For the period ending: 20/June/2021.

License No: NACOSTI/P/20/5308

A handwritten signature in blue ink, appearing to read 'Walter Kimani'.

309922

Applicant Identification Number
NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY &
INNOVATION

Director General

Verification QR Code



NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.