CONTRIBUTION OF LIVELIHOOD OPTIONS TO SOCIO-ECONOMIC WELLBEING OF HOUSEHOLDS IN MANDERA EAST SUB-COUNTY, KENYA

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August, 2020

DECLARATION

I declare that this document and the research it describes are my original work and they have not been presented in any other University for academic work.

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DEDICATION

I dedicate this work to my mother, Nuria Api Ibrahim who has always been supportive and always praying for me to achieve all my dreams and to my dear husband, Elmi Osman Abdi, for his immense support

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I thank God, the creator of heaven and earth for granting me health, opportunity, energy, wisdom and patience to undertake this study. I am deeply indebted to my supervisors, Dr. Mark Ndunda Mutinda and Dr. Bernard Kiplangat Kurgat for their inputs, guidance, patience and encouragement in this study. I owe much to Africa Nazarene University for granting me admission to undertake this course and for allowing me to utilize its resources to complete this study. My deep sense of gratitude goes to my parents –Nuria Api Ibrahim and my late father Abdinasir Adan – for their care and decision that I should get education. Thanks to friends and fellow students, who in one way or another offered me valuable advice and encouragement.

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OPERATIONAL DEFINITION OF TERMS

Diversification: The process by which households construct a wide range portfolio of activities and social support capabilities for survival and to improve their standard of living

Household: All those living within the same homestead and typically include children, husband, wife or wives as well as some members of the extended family.

Human capital: Refers to knowledge and skills, education, capability to work and adapt as well as nutrition and good health that enable people to pursue livelihood strategies.

Livelihood: It refers to capabilities, assets and activities required for a means of a living. Assets comprise both material and social resources.

Livelihood Assets: Are resources available to an individual, household or group that form the basis of livelihood activities. They are separated into five forms; namely, natural, social, human, physical and financial capital.

Livelihood strategies/activities: Are the sets of actions through which households gain a means of survival. They are based on available assets. A person may use common – property resources such as fish, pasture or wild berries to supply food or earn income. Other activities include bartering and selling goods and services. A personal asset, such as artistic ability, may form the basis of activities that generate income. Land may be used to grow subsistence crops that earn income. Activities may also be based on knowledge and skills acquired through education, training or even traditional, cultural processes.

Livelihood outcome: What people seek and strategize to achieve through their activities e.g. increase in income, food and water as well as improved security, health, status, increased independence and knowledge.

Natural capital: The natural resource stock from which other resources flow from e.g. land, water, minerals, air, fisheries, trees and forests products, livestock, wildlife, biodiversity,

Social capital: It include a sense of community, family, and social networks as well as membership of groups, relationships of trust and access to wider institutions of society upon which people may draw in the pursuit of their livelihood. It also includes political aspects such as rights of participation and political empowerment

Physical capital: It refers to the basic infrastructure and producer goods that enable people to pursue their livelihood activities. Infrastructure includes transport (roads, vehicles etc), secure shelter and buildings, water supply and sanitation, energy and communication as well as markets, clinics, schools and other tertiary institutions. Producer goods entail technology, tools and equipment.

LIST OF ABBREVIATIONS

ASALs Arid and Semi-Arid Lands

DFID- Department for International Development

FGDs Focus Group Discussions

FAO Food and Agriculture Organization

HHs- Households

KNBS- Kenya National Bureau of Statistics

KES- Kenya Shillings

KII- Key Informant Interviews

SDGs- Sustainable Development Goals

SES Social Economic Status

TSPs- Transforming Structures and Processes

ABSTRACT

Pastoralism has been the main livelihood option in Mandera County for many decades, but currently it has faced many challenges due to shortage of pasture arising from land degradation and frequent droughts brought about by climate change. This has caused loss of animals leading to food insecurity, high poverty rates, and a necessity to diversify to other non-livestock livelihoods. This study aimed at identifying, documenting and analyzing the contribution of livelihood options on the socio-economic wellbeing of households in Mandera East Sub-County. The specific objective of the study were to: (i) assess the contribution of cattle rearing on the socioeconomic wellbeing, (ii) contribution of goat keeping on the socioeconomic wellbeing, (iii) contribution of irrigated crop farming on the socioeconomic wellbeing, (iv) contribution of the provision of unskilled labour by households on the socioeconomic wellbeing, and (v) contribution of small scale business enterprises on the socio-economic wellbeing of households. A descriptive research design was used. A sample of 150 households was selected using the snowball sampling technique. A researcher administered structured questionnaire was used. The data were analyzed using descriptive (frequencies, percentages, cross-tabulations, means, median, mode and standard deviations) and inferential statistics (simple linear regression, chi-square test) in a Statistical Package for the Social Science (IBM SPSS version 26). The study found out that socioeconomic wellbeing of the households in Mandera East Sub County had a mean of 6.42 on a scale of 1 to 10. The wellbeing of the households were affected significantly ($p< 0.05$) by the livelihood options the members of the household were engaged in. The contribution of the different livelihood options to the socioeconomic wellbeing was determined and positive statistical significant relationships were found between cattle rearing ($\beta = 0.987$, $t(150) = 76.18$, $p <0.001$), goat keeping ($\beta = 0.964$, $t = 43.97$, $p < 0.001$), irrigated crop farming ($\beta = 0.694$, $t(150) = 5.10$, $p < 0.001$), and small scale business ($\beta = 0.667$, $t(150) = 10.89$, $p < 0.001$) and socioeconomic wellbeing. Negative contributions to socioeconomic wellbeing were realised from the provision of unskilled labour ($\beta = -0.350$, $t(150) = -4.53$, $p < 0.001$). The livestock based livelihoods were found to have the highest contribution to household socio-economic wellbeing. The importance of livelihood diversification from livestock related livelihoods to non-livestock livelihoods was demonstrated by the study. The results of the study will be useful to stakeholders (households, NGOs, County government) in determining the best options to follow in assisting the communities. The results of the study will contribute to knowledge on household wellbeing in Mandera County.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The study analysed the contribution of livelihood options to socio-economic wellbeing of households in Mandera east sub-county, Kenya. Specifically five livelihood options that are common in the study area were studied, they included: cattle rearing, small stock (sheep and goats), irrigated crop farming, unskilled household labour, and small scale business enterprises. Socioeconomic wellbeing was operationalized as an index that had seven domains and 32 indicators. The seven domains included were as follows: standard of living, access to health care, feeling of safety, improved social relations, spiritual fulfillment, control of the state of environment, emotions and affiliations.

This section of the study deals with statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study, scope of the study, delimitation, limitations of the study, assumptions of the study, theoretical framework, and conceptual framework of the study.

1.2 Background of the Study

Livelihood diversification includes the process by which rural families construct a diverse portfolio of activities and social support capabilities in order to survive and improve their standard of living. According to Eneyew, (2012) state that livelihood diversification among pastoralists as ‘the pursuit of any non-pastoral income earning activity, whether in rural or urban areas’. For purposes of this study, livelihood diversification among pastoralists is thus the process by which pastoralists combine varied livelihood activities and assets for improvement of their welfare.

Ellis (2000) defines a livelihood as the assets (natural, physical, human, financial and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household. On the other hand, livelihood diversification is defined as the process by which rural families construct a diverse portfolio of activities and social support capabilities in order to survive and improve their standard of living (Ellis, 1998). According to Maye, Libery and Watts (2009), several reasons have been advanced to suggest why diversification takes place. Two reasons for diversification are necessity and choice. Poor households succumb to push factors that make them diversify out of necessity so as to survive, while wealthier household take advantage of the pull factors that present them with opportunities of creating wealth (Watete, Makau, Njoka, Adero, MacOpiyo, & Mureithi, 2016).

Diversification is said to have occurred when a household unit adopts or develops a new product or provides a new service at a regular fee without forfeiting production of the existing ones (Fabusoro, Omotayo, Apantaku, & Okuneye, 2010). In some rare cases, a household unit may decide to shift from the original product and adopt two or more new income generating activities. In either case, diversification implies variation in income activities. Hussein and Nelson (2016) notes that diversification can have both positive and negative outcomes, depending on factors that make a household to diversify. Several forces are pushing pastoral households of Mandera East Sub-County in Kenya to diversify. The current resource base is inadequate to support livestock numbers needed to sustain a purely pastoral system and so the need to avail alternative livelihood options to individuals who drop out of the pastoral production system is necessary and urgent. According to Watete et al., (2016) diversification is also

increasing through loss of access to grazing lands and drought-related destitution and proactive cultural change of individuals who wish to grasp new economic opportunities.

Diversification of livelihood strategies attempts to find alternative ways to generate income and diminish environmental challenges that are at the center of development (Samatar, 2015). Pastoralism is the extensive mobile rearing of livestock on communal rangelands (Kassahun, Snyman & Smit, 2008) and the prevailing livelihood and production system practiced in the world's arid and semi-arid lands it is highly depended on accessibility of water, grazing fields and labour to guard the herds (World Bank, 2013). The practice of pastoralism supports the livelihood of one billion people most of who are poor across the world (Wassie, Colman & Fayisaa, 2011).

In Africa, pastoralism is mainly practiced in arid and semi-arid areas (Butt, 2015). In the horn of Africa, arid and semi-arid areas account for more than 60 percent of the total surface area with a pastoral population of between 12 million and 22 million people (World Bank, 2013). Across Africa the livestock sector represents 20% to 25% of agricultural GDP providing most of the meat consumed in these countries (Humanitarian Policy Group, 2009). Pastoralism supports over 20 million East Africans (Abiodun, 2014). Traditionally, pastoralists employed various coping mechanisms to sustain their pastoral economy. To minimize challenges in a variable and unpredictable environment, they adopted four mechanisms - stock mobility, herd maximization, herd diversification and herd dispersion (Kassahun, Snyman, & Smit, 2008). Stock mobility ensured that animals accessed fresh pastures, sufficient minerals, and water supplies and avoided overgrazing, competition and diseases (Kipainoi, 2013). Stock mobility ensures that animals got fresh pastures and minerals; accessed water supplies; avoided

overgrazing resources, human competitors and disease-carrying insects. Its pattern can be trans-human or nomadic.

In Kenya, arid and semi-arid territory constitutes about 82% of the land mass (Greiner, 2016). The pastoralist community forms a relatively small amount (30%) of the entire population but is reported to produce over 70% of all livestock products (African Union, 2012). More specifically, this study intends to show that in Mandera East Sub-County, residents will be diversifying their livelihood into crop farming, trade, wages and salaries and remittances among others. Other areas of diversification will be livestock diversification from the traditional cattle to include sheep, goats, and camels. Diversification entails combining different species under the same management to reduce the challenges of total loss when risks such as diseases strike (Alderman, 2008). In addition, cattle, goats and sheep differ in their rates of producing meat, milk, fat or blood thereby fulfils different purposes. Furthermore, different animal species enable non-competitive grazing and browsing habits. It also increases cumulative productivity (Saranta, 2013).

Kumssa, Jones and Williams (2009) notes that there is notable decrease in production capabilities of traditional livestock keeping in North Eastern. It is no longer enticing communities in Northern Kenya as traditional coping strategies have been affected by climatic and socio-economic changes such as population pressure, infrastructural development, political instability and land tenure disputes (Tangus, Esilaba & Mokua, 2014). As a result, pastoralism in Northern Eastern has increasingly become susceptible to shocks resulting in livelihood unsustainability (Huho, Ngaira & Ogindo, 2009). In response to these shocks, many pastoralists are beginning to diversify their livelihood

strategies to avoid or alleviate poverty as well as to spread the challenges associated with the increasingly vulnerable pastoral livelihood.

Socioeconomic well-being is an important tool developed for use in measuring people's reaction to the implementation of different policies and the evaluation of policies at the national level (Helliwell & Barrington-Leigh, 2010). Jun (2015) observed that the measure has also been used in many places as an alternative measure of the National Gross Domestic Product (GDP). Many predictors have been used in the measurement of subjective well-being (Diener, Suh, Lucas, & Smith, 1999; Jun, 2015). Factors such as health, positive attitude toward life, and being economically self-sufficient are related to high levels of wellbeing (Diener, 2015; Jovanović, & Joshanloo, 2019). The concept of wellbeing was used in this study to determine the contribution of different livelihood options found in Mandera East sub-county.

1.3 Statement of the Problem

Pastoralism makes a significance contribution to the Gross Domestic Product (GDP). In Kenya, over 60% of the livestock in the country is held by pastoralist's, producing about 10% of the GDP. Despite their high development potential, the ASAL regions record the lowest score on many development indicators and record high poverty incidence in Kenya. Mandera East Sub-County is one of the poorest counties in Kenya with poverty level of 89.1% compared to the average national poverty level of 45. Moreover, pastoralists in Mandera East Sub-County have been confronted with extreme climatic conditions, conflicts, over grazing; population growth which has led to overgrazing of the forage resources leading to degradation of the soil and plant resources. This has negatively impacted on the stability of the household as displayed by the high poverty levels in the area and food insecurity.

Due to these risks herders are increasingly diversifying their livelihood strategies from livestock related to non-livestock livelihoods indiscriminately without consideration of the way these livelihoods impact on their lives. This has enhanced their poverty levels and made the communities to be vulnerable to the vagaries of climate change. This study therefore seeks to provide the much needed answers by analyzing the contribution of the different livelihoods to the wellbeing of the households in Mandera East Sub-County.

1.4 Purpose of the Study

The purpose of the study was to identify, document and assess the contribution of livelihood options on the socio-economic wellbeing of households in Mandera East Sub-County.

1.5 Specific Objectives

The general objective of this study was to document livelihood strategies that the Somali community in Mandera East Sub-county can choose from in addition to the traditional pastoral livelihood strategy. Specifically the study was to:

(i). Examine the contribution of income from cattle rearing to the socio-economic wellbeing of households in Mandera East sub-county,

(ii). Determine the contribution of income from goat keeping to the socio-economic wellbeing of households in Mandera East sub-county,

(iii). Assess the contribution of irrigated crop production to the socio-economic wellbeing of households in Mandera East sub-county,

(iv). Determine the contribution of household income generated from unskilled labour to the socioeconomic wellbeing of households in Mandera East sub-county,

(v). Investigate the contribution of small scale business enterprises to the socio-economic wellbeing of households in Mandera East sub-county,

(vi). Rank the five independent variable in terms of their contribution to the socio-economic wellbeing of households in Mandera East Sub-county.

1.6 Research Questions

This study addressed the following research questions:

(i). How does the income from cattle rearing contribute to the socio-economic wellbeing of households in Mandera East sub-county?

(ii). What is the contribution of income from goat keeping to the socio-economic wellbeing of households in Mandera East sub-county?

(iii). Does the income from irrigated crop production contribute to the socio-economic wellbeing of households in Mandera East sub-county?

(iv). How does household income generated from unskilled labour contribute to the socioeconomic wellbeing of the households in Mandera East sub-county?

(v). What is the contribution of small scale business enterprises to the socio-economic wellbeing of households in Mandera East sub-county?

(vi). Which Livelihood Option has the highest Contribution to the Socio-Economic Wellbeing of the Households in Mandera East Sub-County?

1.7 Significance of the Study

This study produced information on pastoral livelihood strategies and the challenges faced in their pursuit of the same. Practically, this information is vital in identifying

appropriate interventions, which can enhance the capacity of Somali households in Mandera and make them more food secure. Indirectly, this tackled the issue of poverty and vulnerability and thus contributed to the attainment of goal number one of Sustainable Development Goal (SDGs) – to end poverty. In terms of knowledge, the identified diversity of livelihood strategies and challenges faced by Somali households in Mandera. It also increases our understanding of how the community can survive under the adverse conditions. This information will also help build a balanced picture of pastoralists as they struggle to adjust to the livelihood challenges they face. The results of this study will inform planning at both the County Government Level through County Integrated Plans.

1.8 Scope of the Study

Geographically the study covered Mandera East Sub-County in Mandera County. It is one of the six Sub-Counties in Mandera County, located on the North-Eastern tip of the county bordering Ethiopia on the North and Somalia on the East. The entire region is settled by Somali ethnic communities that are predominantly Muslims. Mandera East Sub-county has population of 178,831 and the Constituency's area is approximately 2,793.10 square Km^2. Mandera East Sub-County has five Wards namely: Khalalio, Township, Neboi, Arabia and Libehia.

The area has low and unreliable rainfall that averages less than 225 mm annually and evaporation that far exceeds precipitation estimated at 2600 mm/year, Mandera East Sub-County is classified as one of the Sub-Counties of Kenya. Temperatures are high, ranging between 28°c to 38°c, reaching peak levels in March and September. Water sources consist of boreholes, shallow wells, earth pans, infiltration galleries, roof catchments, water trucking and direct abstractions from river Dawa.

Livelihood is derived principally from three food economy zones namely irrigation cropping along the riverine zone, pastoral and urban livelihoods. The irrigation cropping is practiced along the alluvial belt of the river Dawa which flows for nine months annually. The pastoralists keep camels, cattle, sheep, goat and donkeys. The urban livelihoods are confined to Township Ward where there are a variety of petty trade and some formal employment. Over 80% of the local population depend on livestock and livestock products for their livelihoods and therefore highly vulnerable to the effects of environmental shocks.

1.9 Delimitation of the Study

The theoretical perspective the study will adapt is Sustainable Livelihood Framework where the concept of livelihood includes increased incomes, reduced vulnerability, increased capacity to self-reliance, increased food security, increased wellbeing and sustainable use of natural resources among others. The study will be limited to Mandera East Sub-County. The limitations become necessary because of the limited capacity of the researcher to undertake a comprehensive survey owing to limits in funding.

1.10 Limitations of the Study

The major limitation of this study was that the researcher is a student and at the same time an employee with a limited time span to carry out research activity. Other limiting factors included budget constraints, long distance to cover in a wide geographical terrain, poor road network, insecurity and poor communication network in the region. Despite the limitations the researcher did put in place a good work-plan way before the study began and recruited research assistants locally who had vast knowledge of the research area.

1.11 Assumptions of the Study

It was assumed that the respondents gave facts and were honest. The study also assumed that the selected households for the interview were a good representation of the households in Mandera East sub-county.

1.12 Theoretical Framework

Over the years, various theoretical frameworks have been used in analyzing household's livelihoods. However, most were microeconomics models not adequate to cover factors shaping household livelihoods. In the 1960s studies on rural livelihoods took the form of peasant studies. They examined all spheres of a household economy and incorporated Marxian concepts of surplus extractions, differentiations and class formation (Start & Johnson, 2004). These studies were followed by the new households' economics and agricultural models which argued that the behavior of a household is motivated by its tendency to acquire utility goods using labour and other resources. Thus, if preference, resources and technological capabilities of a household are known, it would be possible to predict accurately the behavior of a household (Becker, 1965 quoted by Start & Johnson)

The Sustainable Livelihood Framework (SLF) as formulated by the Department for International Development (DFID) (1999) guided this study. The framework argues that people have objectives (livelihood outcomes) that they desire to achieve in their lives. In striving to achieve them, they undertake certain activities (livelihood strategies) using certain resources (livelihood assets) that they can access. However, this Endeavour is mediated by structures and processes, which determine access, terms of exchange and returns. The interplay of these processes takes place in a wider external environment of vulnerability.

The sustainable livelihoods approach is a holistic approach that tries to capture, and provide a means of understanding, the fundamental causes and dimensions of poverty without collapsing the focus onto just a few factors like economic issues and food security. In addition, it tries to sketch out the relationships between the different aspects (causes, manifestations) of poverty, allowing for more effective prioritization of action at an operational level. The Sustainable Livelihood approach (or approaches – given that there is no set way of doing things) aims to help poor people achieve lasting livelihood improvements sustainable livelihoods measured using poverty indicators that they, themselves, define (Sustainable Livelihoods Support Office, 1999).

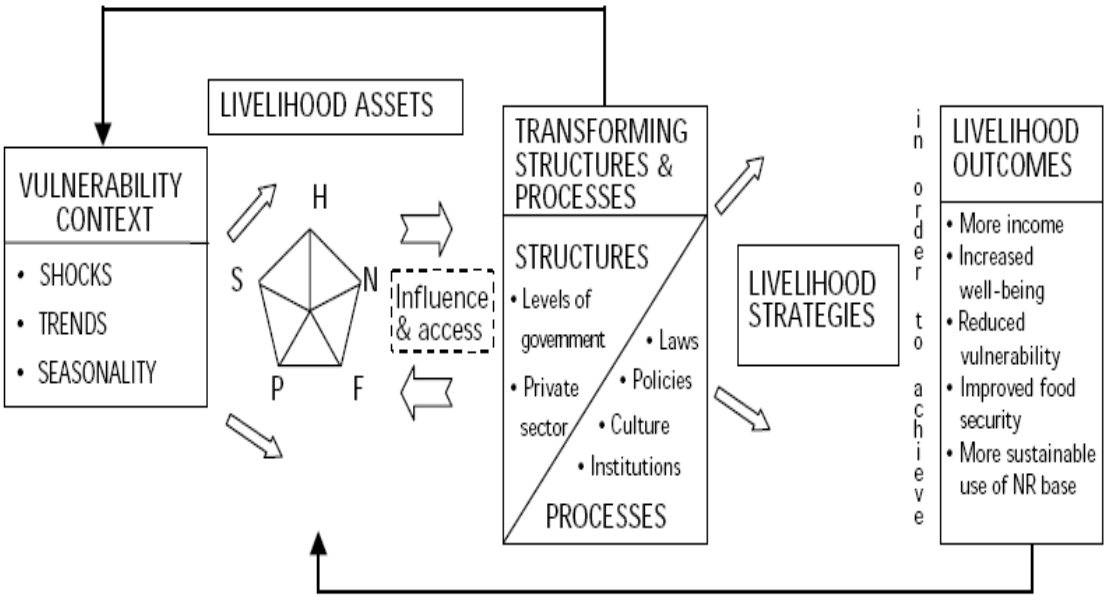


Figure 1.1: Sustainable Livelihood Framework (
Source: DFID, 1999.

1.13 Conceptual Framework

This study conceived diversification of livelihoods as a mechanism that the pastoral Somali Community had consciously adopted to ensure their survival and improve their standard of living as livelihood components that supported their pastoral livelihood had been altered.

The study conceptualizes that five livelihood options which include camel keeping, cow keeping, crop production, goat keeping and small scale enterprise currently undertaken by the Somali community and they form the independent variables. The dependent variable is the socio-economic wellbeing of households in Mandera East sub-county which is indicated by seven indicator items namely: improved standard of living, access to health-care, feeling of safety, improved social relation, spiritual fulfillment, control of the state of environment, emotions and affiliations. Government interventions and conflicts may intervene between the independent and the dependent variables of the study. The relationship is depicted in Figure 2.

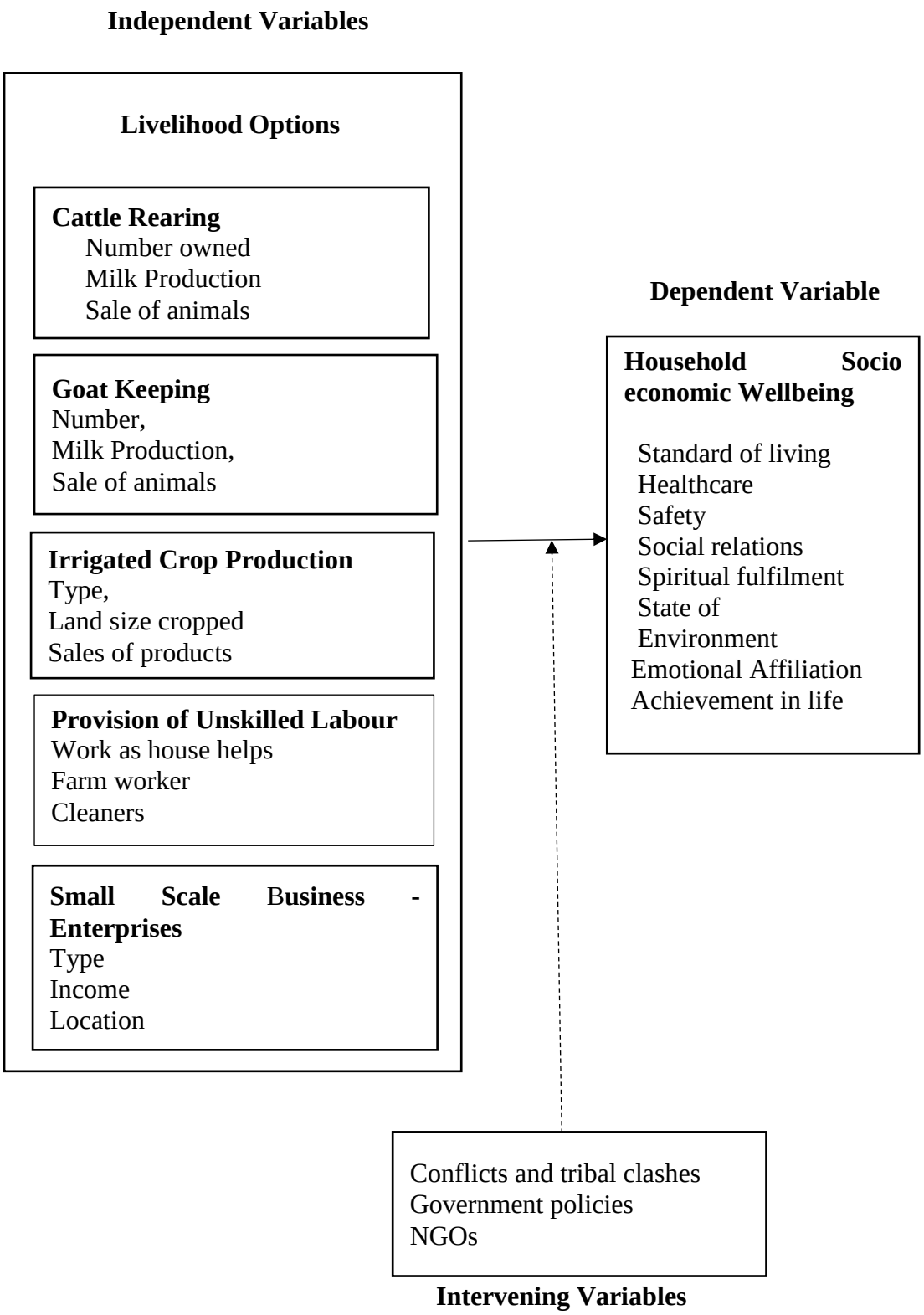


Figure 1.2: Conceptual framework showing relationship between livelihood options and Socio-Economic wellbeing of households

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents and overview of livelihood options among Somali community in Mandera East sub-county. The livelihood options include Camel keeping, Cow keeping, Goat keeping, Crop production and Small Scale Enterprise. It also covers the done work by other researchers and culminates with summaries and literature information gaps as perceived by the researcher.

2.2 Socio-Economic Wellbeing of Households.

Socio-economic wellbeing of households will be the dependent variable for this study. It's also discussed here under the following sub-topics: concepts and definitions, measurement of socio-economic wellbeing of pastoralists.

2.2.1 Concepts and Definitions

Despite the fact measures of economic production and national income such as Gross Domestic Product (GDP) poorly depict socio-economic wellbeing they are still the most frequently tracked and commonly used indicators of welfare at nearly all spatial scales. GDP is a nearly universal indicator of socio-economic wellbeing despite its inclusion of welfare reducing activities as positive and failures to account for well enhancing economic benefit of eco-system services (Aitken, A 2018). It's essentially a gross measure of national income and spending a tally of goods and services produced, regardless of their effect of wellbeing-and as such, it has been broadly criticized as a measure of welfare.

Well-being is a positive outcome that is meaningful for people and for many sectors of society, because it tells us that people perceive that their lives are going well. Good living conditions (e.g., housing, employment) are fundamental to well-being. Tracking these conditions is important for public policy. However, many indicators that measure living conditions fail to measure what people think and feel about their lives, such as the quality of their relationships, their positive emotions and resilience, the realization of their potential, or their overall satisfaction with life—i.e., their "well-being." Well-being generally includes global judgments of life satisfaction and feelings ranging from depression to joy (Rawat 2014). The concept of Social well-being is given by David M Smith. The concept of social wellbeing and the quality of life seems to be synonymous. But the 'quality of life' implies a rather personalized concept, whereas the concept of social well-being addresses the welfare of some social group. The research conducted by Bradburn and Caplouitz in 1965 a happiness has indicated possibilities for the analysis of levels of psychological wellbeing or self-esteem. Stagner in1970 proposed a set of 'psychological urban indicators' that would focus on the frequency and intensity of satisfaction/dissatisfaction with the aspects of urban life perceived as important by the inhabitants of the city. The use of Massive surveys to find out what the people themselves think of the quality of life and the criteria and conditions impinging on it may be the only way to avoid introducing the biased values of the academicians and government officials concerned professionally with social indicators (Rawat 2014)

2.2.2 Measurement of Socioeconomic Wellbeing

As Oakes and Rossi noted in 2003, there is a substantial gap between studies that evaluate how Socio Economic Status (SES) is measured and studies that include SES as a variable of interest, and this situation has not changed appreciably in the past

decade. There is no standard method for measuring or deriving SES, and researchers use a variety of approaches depending on the conceptual model study design being employed and the data available (Braveman, Cubbin, Marchi, Egerter, & Chavez, 2005). The traditional indicators of SES are described below.

Income: Gross household income is the most common measure of income used in calculations of SES. Rather than reporting salary as a continuous variable, most researchers define low, medium, and high income categories, often using the official Federal poverty line as a reference point (McLaughlin, Costello, Leblanc, Sampson, & Kessler, 2012) or dividing them into textiles or quartiles, depending on the distribution of the sample.

Education: Education is often considered a critical indicator of SES because it conveys information regarding earning potential across the lifespan, whereas income and occupation provide a snapshot of an individual's social and economic situation (Shavers, 2007). Educational attainment does not only relate to gaining knowledge in a formal sense but also to the general desire to expand one's knowledge and to be exposed to new ideas. For many respondents educational opportunities not only related to their own professional development, but it was important to have the financial means to send their children to the schools they would like them to attend (Rawat 2014).

Occupation: Occupation, irrespective of salary, is a traditional indicator of SES because it is believed to convey information regarding an individual's power, income, and educational requirements associated with various positions in the occupational structure (APA, 2007). Most SES calculations using occupation specify categories of labor and

rank those categories. For example, the Registrar General's Scale categorizes and ranks occupations as follows, from lowest to highest SES: Unemployed, Unskilled Manual Labor, Skilled Manual Labor, and Professional Labor (Szreter, 1984).

When used in analyses, SES characteristics such as income and occupation are frequently used as potential confounders, correlates, or controls for examining certain phenomena. SES related measures are sometimes used as single items or combined to create composite or index measures that can be applied to individuals, households, or both (Braveman et al., 2005; Cirino et al, 2002; Shavers, 2007). For example, some of the most commonly used SES scales (e.g., Hollingshead, Nakao and Treas, and Blishen scales) use averages or medians for determining the income in two-income households. In studies using single items as SES indicators, the main earner's occupation, educational attainment, income, or some combination of these have been used to represent the family or household (Lewis, Rice, Harold, Collishaw, &Thapar, 2011). Other studies that have examined SES in the context of families or households have taken both parents' educational attainment and occupation into account (Magklara et al., 2012).

Good personal health was regarded as a very important influencing factor on well-being and respondents defined health in a number of ways. It was seen as the absence of illness, suffering or any weakening or break with social life. Related to a person's health is their physical fitness and exercise which affects one's level of energy, heart, fitness and physical shape. Similarly, nutrition has an influence on a person's health and consequently on well-being. The influence of nutritional intake on well-being includes having something to eat, eating quality food, what you eat, and the relationship between

food and money. Respondents see it as a contributing factor to well-being to be able to get health care when they need it. This is also regarded as the closest connection between health and money - more money means access to better services, medication and nursing homes, which can, at least to some extent, influence health itself. While considering the health condition, the entire area has a small dispensary or clinic situated Kotwaali which has been serving the village as a means of first-aid medical facility and is still serving the village. There is one Primary Health Centre (PHC) in the entire area which is supplying free medical or first aid facilities to the people (Rawat 2014)

2.3 Camel Keeping

Trade in live animals (cattle, sheep, goats and camels) between the Horn of Africa countries, Middle East countries as well as North African countries, has been ongoing for centuries. Such trade has also been on-going between the Horn of Africa and the Indian Ocean Island of Mauritius (AU-IBAR and NEPDP, 2006). According to Mahmoud (2012), the involvement of camels in the Horn of Africa livestock trade was not very significant in the past. Camels were valued in the pastoralist communities as pack animals and a source of meat and milk, but not as a saleable commodity. Prices paid for pastoralists' camels were historically poor, earning no more than a single cow. About seven years ago, new markets for camels were established in Ethiopia and this transformed camel marketing in the region. In northern Kenya, more animals are taken, via the border town of Moyale, to camel ranches near Addis Ababa, Mojo and Nazareth. This trade has boomed in recent years with prices for camels rising as much as ten-fold and as a result, pastoralists' attitude to their animals has changed. Demand for a cheap source of protein in the Middle East has soared, prompting massive exports from the Horn of Africa. As more camels are diverted to Moyale market for export in the Middle East, regional markets such as Garissa have been deprived of their share of camels due

to this diversion. This has a serious implication on camel meat consumption in Kenya's major urban centres. Mahmoud (2012) found out that whereas cattle largely remained for local consumption, camels were being exported in large numbers to Middle Eastern countries. There has been a general decline in the number of cattle offered in the markets following prolonged droughts. However, the number of goats and camels offered in the market continued to rise (GoK, 2011). This implies that browsers are drought tolerant and therefore, they could be of importance in sustaining pastoralist's household income in this changing environment.

2.3.1 Contribution of Camel Rearing to the Wellbeing of households

Camels play an important role in the local economy of the Somali community. They provide milk and meat within the subsistence economy and are used as beast of burden for transporting milk to the market, water from wells and household belongings (Farah et al., 2004). Camels are the only means of payment of blood money to the lineage of the deceased during feuds (Hussein, 1993; Farah et al., 2004). Camels are recognized for providing long-term security to beneficiaries in terms of milk production and improved social status (Belayneh, Wondimu, Simachew and Stevens, 2009). This study assessed both the short and long- term contribution of camels in the household income focusing on camel sales among the beneficiaries. A regression analysis was done to determine the significance of camels on the household monthly income on the short and long term basis. Anolei women group in Isiolo with 64 members collects camel milk, stores it in freezers and sells the milk in Nairobi (FAO, 2012 and Africa Procasur, 2012). On daily basis, the group sends up to 5,000 litres of milk to Nairobi, where the milk is sold at Ksh. 100 per litre. The venture has been so lucrative that members of the group earn up to Ksh 60, 000 a month, which led to a complete change in their lifestyle. Africa Procasur (2012) documented that traders in Isiolo County bring in more than

Ksh. 19,000,000 annually from the trade. Lumadede, Owuor, Laqua and Gluecks (2010) noted that Anolei members deal with suppliers and customers on individual basis but benefits as a group in terms of infrastructure and trainings. However, they also mentioned women group milk traders in Elwak (Mandera Central Sub -county) who pool their milk and sell it jointly in a milk bar business.

2.4 Goat Keeping and Its Effects on Socio-Economic Wellbeing of Households

Small ruminants (sheep and goats) production contributes to livelihood of pastoral communities (Abdilatif, Onono, & Mutua, 2018). Imana (2009) describes the management and production details of goats in the arid areas of Kenya. There are many challenges that face small ruminant production in Mandera County, the major ones are drought (Hussein, 2015) and diseases (Abdilatif et al., 2018). The common diseases include Peste des petits ruminants (PPR) is a novel virus found in small ruminants in Madera County (Nyamoita, 2018) Goats play an important role in the food and nutritional security of the rural poor especially in the rain fed regions where crop production is uncertain, and rearing large ruminants is restricted by acute scarcity of feed and fodder. Goat rearing has distinct economic and managerial advantages over other livestock because of its less initial investment, low input requirement, higher prolificacy, early sexual maturity, and ease in marketing. Goats can efficiently survive on available shrubs and trees in unfavorable environments (Imana, 2009). In pastoral societies in India, goats are kept as a source of additional income and as an insurance against income shocks of crop failure. In addition, the rural poor who cannot afford to maintain a cow or a buffalo find goat as the best alternative source of supplementary income and milk. This is one reason why poor rural households maintain a few number of goats. Unlike a cow or buffalo, a few goats can be maintained easily and can be easily liquidated in times of distress. In recent years, goat enterprise has also shown

promise of its successful intensification and commercialization (Kumar, 2007). Owing to their greater socio-economic relevance, the growth in goat population in India over the past five decades (1951- 2003) has been steady adding 1.484 million goats annually. About 70 per cent of the landless agricultural laborers, marginal and small farmers in the country are associated with goat husbandry. They are not only an important source of income and employment for them, but also a vital source of animal protein for the family. In spite of having potential of good economic returns from goat rearing, goat farmers have very poor income levels. There may be a number of reasons responsible for such a situation. The productivity of goats under the prevailing traditional extensive production system is low (Singh and Kumar, 2007) mainly because of feed scarcity and lack of adoption of improved technologies and management practices. Goat rearing, which is one of the most widely adopted livestock activities in the country, has the potential to emerge as a very good source of income and employment for the rural people especially in the less favored environments. However to harness this potential, the productivity and profitability of existing goat production systems needs to be improved substantially. A comprehensive understanding of the socio-economics of goat production would however be a pre-condition for any intervention for its improvement. In this background, the paper aims to analyze the socio-economics of goat production, resource flows, constraints and its role in livelihood security of the poor in semi-arid regions of the country.

2.5 Small Scale Business Enterprises as a Livelihood Option

Commercialization was defined by Negassa et al. (2011) as the degree to which households are connected to the market and that it can be represented as the proportion of households who participated in the market and the percentage of the output they sold. In common usage however, the term is taken to mean a higher degree of market

connection than needed for purely subsistence purposes. The main reason for selling livestock is to earn income to meet needs that cannot be met by direct livestock and products consumption or utilization such as other types of food, clothing, travelling, education and even capital for income diversification. Thus, Adugna (2008) underscored the importance of livestock markets and price levels to pastoralists‟ livelihoods and welfare. The author noted that prices affect livestock keepers in their levels and also in their variation over time and citing Jabbar and Ayele (2003) further added that prices are an important measure of livestock market performance and efficiency and are an indicator and basis of incentives to producers and Government revenues. Barret (2001) reported that low and unstable livestock prices are among the high ranking problems of pastoralists in the Greater Horn of Africa. Knowledge of factors determining formation of livestock prices is thus important in developing interventions to increase the trade share of pastoralists and also to motivate pastoralists to make production and marketing decisions such as quality of animals, herd composition, and when and to whom to sell (Adugna, 2008; Teklewold, 2009). The distribution of livestock among households, and the herd sizes and composition determine the role of livestock and the commercialization potential (Negassa et al., 2011). The major limitation of small scale business enterprises in rural setting within Mandera County and elsewhere in the world, is that they are normally managed by women and they lack capital and are generally hindered by cultural factors within the community that affect women (Farah, 2014; Hossain, Siddique, & Jamil, 2018). Tadesse, (2020) in his study on women entrepreneurs, concluded that inadequate access to training and low educational background and conflicting gender roles, social acceptability and, network with outsiders were the major social factors that affected women entrepreneurs.

2.6 Crop Production

Despite the unfavorable climate conditions in Mandera, agriculture is the major livelihood in the County employing over 90% of the population. The livestock sub-sector is predominant, engaging over 84% of the county's population, and contributing approximately 72% to household incomes (KNBS, 2014; KNBS, 2015). There is almost an equal engagement in agriculture of adult female- and male-headed households in the county and a significantly lower engagement of the youth-headed households according to the Agriculture Sector Development Support Programme (ASDSP) of 2014. The difference may be due to the fact that the youth may be involved in alternative off farm livelihood activities. Crop production on the other hand contributes to employment of less than 30% of the population and is mostly concentrated along the Daua River. The high dependence of the agriculture sector on rainfall compounded with institutional factors such as weak land tenure regulations render the county very vulnerable to acute food insecurity in the event of droughts. Food insecurity in Mandera County is high with 78% of the households reportedly being food insecure (GoK, 2014) while approximately 31.8%, 18.6% and 41.2% of children in the county are stunted, wasted and underweight respectively (GoK, 2013). Low food diversity, partly caused by limited production of diverse crops due to harsh weather conditions is one of the contributing factors to the high malnutrition levels in the county. Unavailability of food especially during the dry periods results in low caloric intake as people skip meals.

Livestock production and production of crops under rain fed conditions take place in all the sub-counties, whereas crop production under irrigation is mostly done in Mandera east, Mandera north, Banisa and Lafey. The main livestock types are goats (Galla breeds), camels (Somali breeds), cattle (Boran breeds), sheep (Somali black head

breeds) and donkeys (Somali breeds). According to the County Directorate of Livestock Production, in 2016 it was estimated that there were 863,625 cattle, 1,016,700 camels, 3,415,440 goats, 1,164,280 sheep, 56,874 chicken, 13,068 beehives and 208,126 donkeys in the county. The livestock are kept for meat and/or milk production. The major crops produced under irrigation especially along the river Daua are maize, sorghum, simsim, kales, cowpeas, onions, tomato, spinach, mango, banana, lemons and watermelon. This river, traverses the county (150 Km) and provides an irrigation belt of about 20,000 ha. However only 4000 ha representing 20% of the irrigation potential is exploited (GoK, 2013). Maize and cowpeas are the main crops under irrigation taking up approximately 51% and 30% of the irrigated area respectively. The huge irrigation potential in the County therefore remains untapped with only 18% of the households using irrigation water as an input (GoK, 2014). Capitalizing on this huge irrigation potential would ensure that crop productivity is increased to supplement livestock production and to improve the food security status of the county in general. Input use in crop production is generally low attributable to various factors including high poverty levels, high input prices and long distances to input markets among others. According to the ASDSP Household survey, 97% of the households who grow grains use the local seed (GoK, 2014). Other management practices include the use of basal fertilizer and manure. However, manure is only used by less than 10% of the households in the county. The low use of manure can be linked to the non-sedentary nature of the inhabitants of the county who frequently move with livestock in search of pasture and water. High poverty levels and the long distances to input markets negate any efforts by the farmers to increase the use of inputs.

2.7 The livestock production system in the NEP

The majority of the population of the NEP practice nomadic pastoralism. They maintain herds of camels, cattle, sheep and goats. Indigenous cattle breeds such as Boran and the small East African Zebu are the main breeds kept in the province. Dairy (improved) breeds constitute less than 1% percent of the cattle population. Indigenous breeds are resistant to most diseases e.g. tick borne diseases and others. Orma Boran breed is resistant to Trypanosomiasis. The indigenous breeds are also drought tolerant, able to walk long distance and are able to feed on rough pasture. However, their milk production capacity is very low hence they are mainly kept for sale as beef cattle while milk production is mainly for local consumption. The other hindrance of cattle milk is the brucellosis infection in animals which can be transmitted to humans (Abdalla, 2019)

Animals are fed through natural grazing using open grazing livestock management practice, supplementary feeding is uncommon in the province. The population practice seasonal migration to access pasture, settling near to water sources and good pasture for a few weeks before moving on. Distress migration is practised in times of hardship. Because of the prolonged drought many pastoralists have been forced to migrate long distances with herds in search of pasture (Rioba, Sheikh & Stevens, 2000). The most common livestock reproduction method is through natural breeding. In most cases management of diseases is by natural ways. Government/ public extension including veterinary service has for a long time been inadequate in the NEP as it is the case in many Arid and Semi-Arid areas of Kenya. Reports indicate that despite the fact that more than 75% of Kenya's livestock are in the ASAL areas, they are served by fewer than 10% of livestock service staff. This is mostly because the ASAL areas are considered a hardship post and few veterinary staff want to work there (Young, Kajume

& Wanyama, 2003). Due to inadequate or lack of animal health services in ASAL/Pastoral areas, various private service delivery initiatives, including community-based animal health service delivery systems facilitated by various NGOs, have emerged as an alternative option (Okwiri, Kajume & Odondi, 2001; Riviere-Cinnamond & Eregae, 2003). Even with a combination of private and public extension providers, extension delivery in the pastoral areas is still challenging because of conditions such as insecurity, poor infrastructure, low cash economy, high cost of service delivery, vastness of the areas, and lack of veterinary personnel among others (Okwiri, Kajume & Odondi, 2001).

2.8. Summary of Literature Review

Livelihood diversification among Somali Community in Mandera East Sub-County has Complex Origins and profound Implications for Somali Socio Organization, Culture and Demography. Somali Community are attempting to craft new sustainable livelihoods in response to increasing population pressure, a fluctuating livestock population, reductions in grazing areas and modernization process that places increased emphasis on monetary economy.

The reasons behind livelihood diversification in pastoral community are many. Currently, the resource-base of the production system cannot accommodate and absorb the human and livestock resources, and, consequently, calls for livelihood diversification. Increased human population and urbanization; increased in livestock marketing opportunities which stimulate diversification, pastoral households themselves will continue to diversify to include waged employment, agriculture where this is feasible and trading activities as supplements to livestock based incomes. Small

and medium-sized towns will continue to grow in pastoral regions, outpacing the growth in rural populations, and will help to spur an increasingly diversified economy.

2.9 Literature Gap

Somali people in East Africa are attempting to craft new strategic and sustainable livelihoods in response to increasing population pressure, fluctuating livestock populations, reductions in grazing areas, and a modernization process that places increased emphasis on a monetary economy. The adoption of alternative sources of livelihood by pastoral Somali community living in Mandera East over the last 40 years has been the most significant step in this livelihood diversification. The rapid social and economic changes that have accompanied diversification have challenged current attempts to integrate people into conservation efforts, especially in Mandera East constituency, Mandera county, that is increasingly inhabited by people not Somalis who purchase land from other communities hence cultural change?. The area is also experiencing effects of climate change and its proximity to Somalia border has impacted both business and human labour. This paper examines the effects of livelihood diversification on the wellbeing of Somali in Mandera Sub County.

There is evident for the role of diversification in building household capacities to stabilize income and food consumption over time (Reardon 1992; Block &Webb, 2001). Communities are diverting form their traditional livelihood sources to diverge into other activities. But there is no specificity to check on the impact of the strategy to their livelihood especially to those in Mandera County, Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines generally how the study was undertaken. This chapter is organized into the following sections: research design, description of the study site, target population, sample size, sampling method, research instruments, data collection procedure and data analysis. In addition, field experiences and ethical considerations in social research have been addressed at the end of this chapter.

3.2 Research Design

This study will employ a descriptive research design which is characterized by systematic collection of data from members of a given population through interview schedule guide. This design will follow procedures such as identifying target population, development of interview schedule guides, selection of relevant sample and administering the interview schedule guide in person (Orodho, 2003).

Kothari (2004), states that the design is concerned with existing relationships or conditions, opinions, ongoing processes and emergent trends in the society. The design is considered suitable since it allows collection of qualitative data such as those measuring thoughts and opinions (Mugenda & Mugenda, 2003).

In the study, quantitative method will encompass heads of households. The approach will bring out clear answers to the research questions that will in turn bring out complete understanding on the contribution of livelihood options to the wellbeing of households in Mandera East Sub-County.

3.3 Description of the Research Site

Mandera County is located in the North Eastern part of the Country. It has an area of 26,470 square Kilometers. There are six sub counties namely: Mandera East, Mandera North, Mandera South, Mandera West, Banissa and Lafey with total population of 1,025,786 persons (KNBS, 2009).

The study site was Mandera East Sub-county with a population of 178,831 and the Constituency's area is approximately 2,793.10 square Km^2. The Mandera East Sub-County has five Wards namely: Khalalio ward with population size of 20,580 with area approximate 494.20Km^2, Township Ward with Population size of 35,080 with area approximate of 68.00 Km^2, Neboi North with population of 52,612 with area approximate of 34.40 Km^2, Arabia ward with population size of 30,990 with area approximate of 1,238.00 Km^2 and Libehia ward with population size of 39,569 with area approximate of 958.50 Km^2.

The Study focused on two wards (Khalalio and Township) from the five wards in Mandera East Sub-County. The households in Khalalio ward were found in Garba Qoley sub ward. In Township ward the households selected were in Border point one and Township sub-wards. These sub-wards were selected due to their proximity to the Dawa (or Daua) river. The study area had various livelihoods represented among the households. Figure 3 shows Mandera East Sub-County

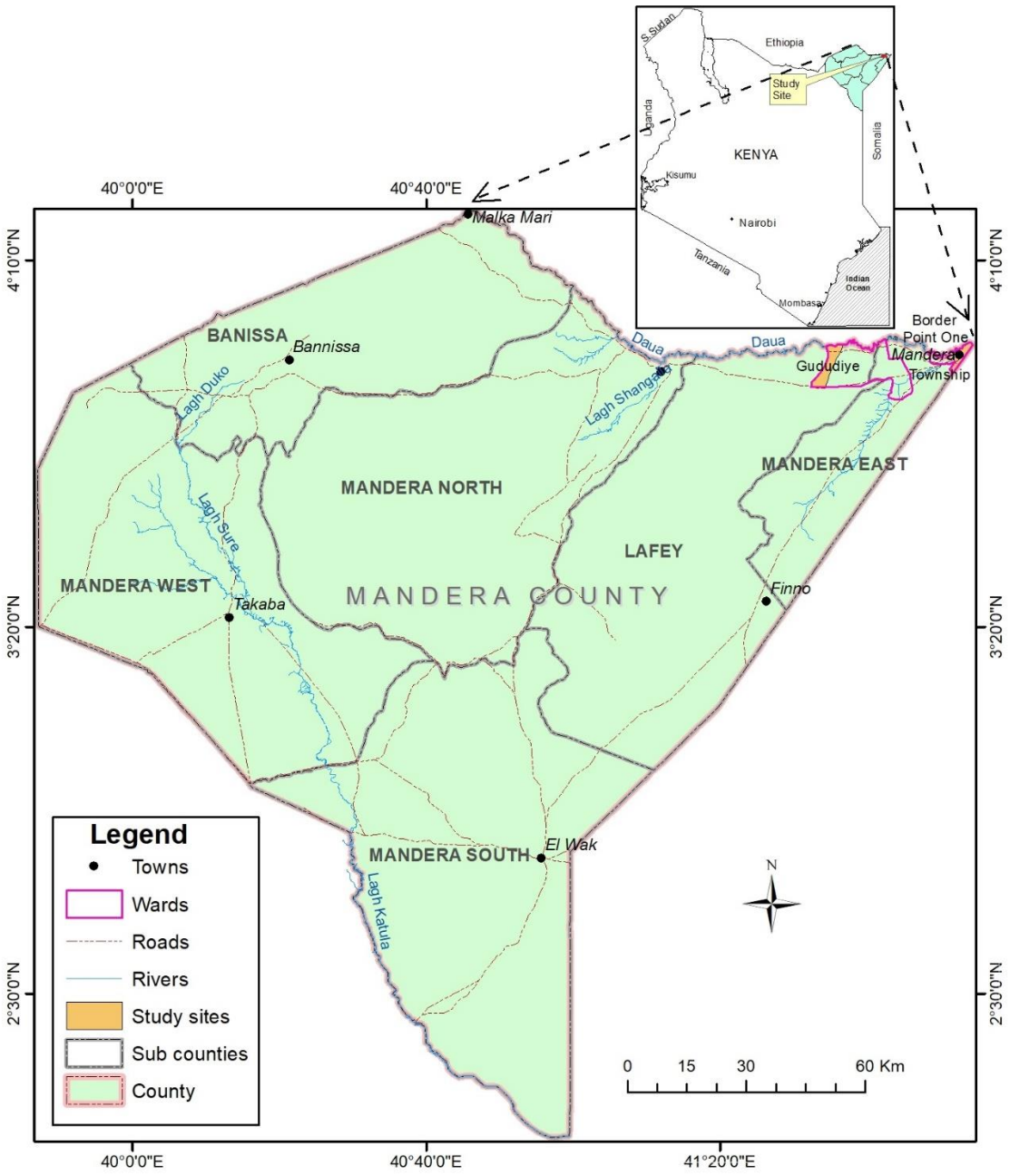


Figure 3: Map showing the wards in Mandera East Sub-County

3.4 Target Population

The target population included all the heads of Households (whether men or women) that practiced one of the five main livelihood options in the area, these included: cattle raring, goat keeping, irrigated crop production, provision of unskilled labour, and small scale businesses in Garba Qoley, Border Point one and township sub-wards in Khalalio Ward and Township Wards. Bless (2006), defines target population as the set of

elements that the research focuses upon and to which the results obtained by testing the sample should be generalized.

3.5 Study Sample

A sample is a representative subject of the population and sampling is the process of identifying a given number of individuals for a study in that the individual singled out represents the group drawn (Mugenda & Mugenda 2003).

3.5.1 Study Sample Size

According to Mugenda and Mugenda (2003), a representative sample is one that is at least 10%-20% of the population. The population size of the researchers study is 8,599 people. The sample size is 10% of the population which is 859 persons. Each household have average of 10 people which makes the final sample to be 86 heads of households in total.

3.5.2 Sampling Procedure

The sampling methods used to select the respondents for this study will be the snowball sampling procedure. The rational for choosing snowball sampling was to ensure representativeness of the sample as well as enable generalization of the findings to the entire population. Snowball sampling will be used since personal judgment of the researcher will not be necessary in order to collect the appropriate data to address the research objectives. The researcher will be in consultation with the chiefs and village elders to identify the different households with different livelihood options.

The contribution of livelihood options on the wellbeing of households in Khalalio ward (sub-ward Garba Qolay) and Township Ward (sub-ward Border Point one) in Mandera East Sub-County.

3.6 Data collection

Is the process of acquiring information, Research instrument, data collection procedure and data analysis is discussed.

3.6.1 Data Collection Instrument

The main data collection tool used was a structured questionnaire. The questionnaire was administered by the researcher. A sample of the questionnaire is shown in Appendix A. It has several sections, which include: characteristics of the respondents, socio economic wellbeing, income from cattle, goats, small scale enterprises, and irrigated crops.

3.6.2 Pilot Testing of Research Instrument

A pilot study is defined as "a small scale version or trail run in preparation for major study" (Polit, Beck & Hungler, 2001). One of most important component of research is the research instrument, as it provides a means of gathering the information for the study.

3.6.3 Instrument Reliability

Reliability of instruments measures consistency of the instrument (Best & Khan, 2001). Researchers consider reliability to be the degree of consistency that the instruments or procedure of measurement demonstrates. The interviews administered the questionnaire to 10 respondents and a repeat was done after an interval of a week. Data collected was subjected to data analysis.

3.6.4 Instrument Validity

Validity is the extent to which instrument measures what it is supposed to measure and performs as it is designed to perform. It is nearly impractical that an instrument be 100%

valid, so validity is measured in degrees. Validation involves collecting and analyzing data to evaluate the accuracy of instrument (Mason & Bramble). Validity of the finding was done with the help of university supervisors. This will help in providing data that is not biased.

3.6.5 Data Collection Procedure

The researcher obtained a letter of permission from Africa Nazarene University then proceeded to National Commission for Science, Technology and Innovation (NACOSTI) to obtain a research permit to do the research then proceeded to the study area. The researcher first approached the office of the Governor of Mandera County and was given a go ahead to seek permission from the ward administrator who then referred the researcher to the chiefs of Khalalio Ward and Township ward who identified village elders and directed the researcher to the different households.

3.7 Data Analysis

Data analysis is examining what has been collected and making inference based on it. During the field work, field notes and all completed interview schedule were crosschecked daily and data was cleaned to ensure completeness, consistency and accuracy. The researcher then developed a template using codes used to enter data in Statistical Package for Social Sciences (IBM SPSS version 26.0) for analysis. Frequencies will be done to identify and correct any possible coding and data entry errors. Descriptive and inferential statistics were used to analyse the data. Data were presented using frequencies and percentage tables. Summary of analytical procedures is as shown in Table 3.1.

3.8 Legal and Ethical Considerations

Mugenda and Mugenda (2003) argues that the welfare of people and the environment of the study need to be protected by ethically bounded researchers. Researchers have to take into account to ensure that all ethical matters pertaining to the research which includes honesty, fairness, transparency and respect are met. Confidential information collected should be protected. Voluntary informed consent was observed where participants understand and agreed to participate without any duress prior to commencement of the research.

Table 3.1: Summary of Data Analysis

Study Questions		Variable involved	Statistical method used
(i).	What is the contribution of income from cattle rearing to the socio-economic wellbeing of households in Mandera East sub-county?	Independent: Cattle Keeping Dependent: household socioeconomic wellbeing	Descriptive statistics (frequency distribution, mean, mode, median) and inferential (linear regression)
(ii).	What is the contribution of income from Goat Keeping to the socio-economic wellbeing of households in Mandera East Sub-County	Independent: Goat Keeping Dependent: household socioeconomic wellbeing	Descriptive and statistics (frequency distribution, mean, mode, median) and inferential (linear regression)
(iii).	What is the contribution of crop production to the socio-economic wellbeing of households in Mandera East sub-county?	Independent: Crop Production Dependent: household socioeconomic wellbeing	Descriptive statistics (frequency distribution, mean, mode, median) and inferential (linear regression)
(iv).	How does household income generated from unskilled labour contribute to the socioeconomic wellbeing of households in Mandera East sub-county?	Independent: Income from unskilled labour Dependent: household wellbeing	Descriptive statistics (frequency distribution, mean, mode, median) and inferential (linear regression
(v).	What is the contribution of small and micro-enterprises on the socio-economic wellbeing of households in Mandera East Sub-County	Independent: small and micro-enterprises Dependent: household socioeconomic wellbeing	Descriptive statistics (frequency distribution, mean, mode, median) and inferential (linear regression)

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter entails data presentation and analysis on the influence of livelihood options on the socio-economic wellbeing of household in Mandera East sub-county. It comprises data presentation and analysis which has been derived from responses from questionnaires. Results are presented in tables and the findings of the study are organized based on the specific objectives.

4.2 Response Rate

The interview schedule for this study was administered to family heads in Mandera East sub-county, Border point one, Khalalio and Koromey wards. The response rate was calculated and the information is presented in the Table 4.1

Table 4.1: Participants Response to the Survey

Strata	Target Population	Sample Size	Percent
Border point Ward	70	20	13.3
Khalalio Ward	100	88	58.7
Koromey Ward	80	42	28.0
Total	**250**	**150**	**100.0**

The sample size for the study was 150 respondents. The response rate was 60 %. According to Babbie (2010), a response rate of 50% is believed to be adequate for analysis and reporting. That of 60 % is considered good while above 70% response rate is said to be very good.

4.3 Demographic Characteristics of the Household Heads

The household heads were asked to provide their background information which included; Gender, age, marital status and level of education.

4.3.1 Age of Household Heads

The household heads were asked to state their age during the interview, the information was then analysed and is presented in Table 4.1.

Table 4.1 Age of the Household Heads

Age(years)	Frequency	Percent
Below 29	6	4.0
30-39	10	6.7
40-49	90	60.0
50-59	25	16.7
Above 60	19	12.6
Total	**150**	**100.0**

The majority (60 %) of the household heads were aged between 40-49 years. This implied that the household leaders were mature enough to be able sustain the family. In patriarchal system, male are the main household heads and hence only few women were found in homes since the male had gone out to be able to provide to the family. The least (4 %) are below 29 years which implies that only few family heads had families at an early age yet they indulged themselves in different livelihood activities to sustain their well-being.

4.3.2 Gender of the Household Heads

The gender of the household head was noted during the interview and the information is summarized in Table 4.2

Table 4.2: Gender of the Household Head

Gender	Frequency	Percent
Male	110	73.3
Female	40	26.7
Total	**150**	**100.0**

The majority (73.3 %) of the household heads were male, while 26.7 % were female. This indicates that in the study area, households are patriarchal. In patriarchal system, male are the main household heads and bread winners of the family to sustain the well-being. The least (26.7%) were women who were found in homes at the absence of the man and played a role of a family heads.

4.3.3 Marital Status of the Household Head

The household heads were asked to state their marital status during the interview. The information received was analysed and the frequency distribution is shown in Table 4.3.

Table 4.3: Marital Status of the Household Head

Marital status	Frequency	Percent
Married	70	46.7
Divorced	30	20.0
Widowed	20	13.3
Total	**150**	**100.0**

The results show that, 46.7 % of household heads were married. The families (both men and women) in the region worked together for the wellbeing of the family in terms of livelihood activities to enhance their socio-economic well-being. The divorced (20%) were women who had properties and businesses to be able to sustain their well-being in the family. For the men who are polygamists have no status of being widowed or

divorced. The least (13.3 %) are widowed, who are women in the region and they had families to take care of. They also participated in livelihood activities to improve the socio-economic well-being of the families.

4.3.4 Highest Level of Formal Education Attained by the Household Heads

The household heads were asked to state their highest level of formal education they had attained. The information was analysed and is presented in Table 4.4.

Table 4.4: Highest Level of Formal Education Attained by the Household Heads

Level of Education	Frequency	Percent
Illiterate	60	40.0
Primary	52	34.7
Secondary	18	12.0
College	13	8.7
Bachelors	6	4.0
Post-graduate	1	0.7
Total	**150**	**100.0**

The majority (60 %) of the household heads were found to be literate having at least the primary level of education. The remaining 40 % was illiterate, a figure that was found to be high. This was due to the cultural practices and belief of the region. The region is dominated by pastoralist who relocates from time to time thus acquiring formal education is a rare phenomenon.

4.4 Socio-economic Wellbeing of Households in Mandera East Sub-County

The socioeconomic wellbeing of the households in Mandera East sub-county was conceptualized as a multi-indicator variable with 32 indicators. The scores for indicators were summed up to form an index. The index had seven (7) domains, as follows: (i) standard of living, (ii) access to health care, (iii) feeling of safety, (iv)

improved social relations, (v) spiritual fulfillment, (vi) control of the state of environment, (vii) emotions and affiliations.

These seven domains had 32 indicators as follows: (i) standard of living with six indicators (provision of food, shelter, clothing, capital, assets and work), (ii) access to health care with 2 indicators (provision of health services and cost of health), (iii) feeling of safety with 3 indicators (peace of mind, absence of fear and worry), (iv) improved social relations with 3 indicators (community connections, good family and community relations), (v) spiritual fulfillment with 2 indicators (belief in God and attendance), (vi) control of the state of environment with 8 indicators (control of political situations, material situations, acquisition of services, skills, resources, knowledge loans and information), (vii) emotions and affiliations with 5 indicators (social respect, part of community, fulfill social obligations, listened to, provision of help to others).

The household heads in each of the surveyed household within the three wards covered by this study (Border point one, Khalalio and Koromey) were asked to rate their household level of wellbeing based on the 32 indicators of socioeconomic wellbeing using a 10 point semantic differential scale, which ranged between 1 and 10 (1 being Very Low level and 10 Very High level). The scores for each indicator item were added together and a mean calculated. Then all the scores for all the indicators were added together to form an index of socioeconomic wellbeing of the households in Mandera East sub-county. The internal reliability of the created socioeconomic wellbeing index using Cronbach's alpha (α) was calculated and found to be .888, which was acceptable. The descriptive statistics for the scores of the 32 indicators items are given in appendix

C. The descriptive statistics for the seven (7) domains and the index of wellbeing are presented in Table 4.5.

Table 4.5: Descriptive Statistics for the Wellbeing Domains of the Households in Mandera East Sub-county

Indicator Items	Rating by the Mikoko Pamoja Members					
	Mean	**Median**	**Mode**	**Std. dev**	**Min**	**Max**
Standard of living	4.12	4.33	1.00	2.31	1.00	10.0
Good health	5.13	5.00	1.00	3.08	1.00	10.0
Safety	6.46	7.33	10.0	3.07	1.00	10.1
Social Relations	6.50	6.66	6.00	1.33	10.0	.822
Spiritual fulfilment	7.38	10.00	10.00	3.58	1.00	10.0
Environment	4.22	4.25	1.00	2.08	1.00	10.0
Emotions and Affiliations	4.12	4.28	4.21	1.36	0.76	6.76
Wellbeing index	**6.42**	**6.41**	**6.12**	**1.154**	**4.13**	**8.81**

n=150. 1=Very low and 10= Very High.

The mean of the wellbeing index was 6.42 on a scale of 1 to 10. The index ranged between 4.13 and 8.81, with a standard deviation of 1.154. These descriptive statistics were found to be relatively high. The index was then divided into five categories and frequency distribution are presented in Table 4.6.

Table 4.6: Frequency Distribution of Wellbeing Categories of the Households in Mandera East Sub-county

Wellbeing Categories	Frequency	Percent
1.0 - 2.99	-	-
3.0 - 4.99	21	14.0
5.0 - 6.99	84	56.0
7 – 8.99	45	30.0
9.0 – 10.0	-	-
Total	**150**	**100.0**

n=150

The majority (56 %) of the households in Mandera East sub-county rated their wellbeing to be between 5 and 6.99 on a scale of 1 to 10. The chi-square test was used to test the equality of the wellbeing categories and the results are presented in Table 4.7.

Table 4.7: Chi-square Test for Equality of the Categories of Wellbeing Index of Households in Mandera East Sub-county

Categories	Observed N	Expected N	Residual	Statistics
1.0 – 2.99	-	-	-	χ^2 = 40.44
3.0 – 4.99	21	50.0	-29.0	*df*= 2
5.0 – 6.99	84	50.0	35.0	*p*= .001
7.0 – 8.99	45	50.0	-5.0	
9.0 – 10.0	-	-	-	
Total	**150**			

The chi-square test indicates that the majority of the households in Mandera East sub-county had a wellbeing index of between 5 and 6.99. This result was found to be statistically significant (χ^2 40.440, *df* 2, *p*<. 001). This level of wellbeing can be described as medium level.

4.5 Contribution of Cattle Rearing to the Socio-economic Wellbeing of Households in Mandera East Sub-county

The first objective of this study was to examine the contribution of cattle rearing to the socio-economic wellbeing of households in Mandera East sub-county.

4.5.1 Income from Cattle Rearing

The independent variable for this objective, cattle rearing was operationalized as the number of cattle kept by the household and all the products sold in a year, these included live animals and milk. The total figure was then divided by 12 to get the monthly

household income from cattle rearing. The descriptive statistics and frequency distribution for the variable is summarized in Table 4.8.

Table 4.8: Descriptive Statistics and Frequency Distribution of the Income Generated from Cattle Rearing by Households in Mandera East Sub-county

Income in K.Shs	Frequency	Percent
Below 5,000	1	.7
5001 - 10,000	23	15.3
10,001 - 20,000	28	18.7
20001 - 30,000	54	36.0
30001 - 40,000	38	25.3
Above 40,001	6	4.0
Total	150	100.0

Mean 23,916±922, Median 24,000, Mode 37,000, Std. dev. 11,295, Range 44, 000.

The mean monthly income generated from cattle rearing by the households in Mandera East sub-county was K.Shs 23,916 with a standard deviation of K.Shs 11,295. The range was K.Shs 44,000, which was found to be high. The households earning less than K.Shs 10,000 were 16 %, while those earning more than 40,000 were 4 %.

A chi-square test for equality of categories for the income from cattle rearing was conducted and the results are shown in Table 4.9.

Table 4.9: Chi-square Test for the Equality of Categories for Household Income from Cattle Rearing

Income in K.Shs	Observed N	Expected N	Residual	
Below 5,000	1	25.0	-24.0	χ^2=78.40
5,001 - 10,000	23	25.0	-2.0	*df*=5
10,001 - 20,000	28	25.0	3.0	*p*<.001
20,001 - 30,000	54	25.0	29.0	
30,001 - 40,000	38	25.0	13.0	
Above 40,001	6	25.0	-19.0	
Total	150			

The chi-square test revealed a statistical ($p < .001$) significant differences among the different categories of household income generated from the rearing of cattle. The category between 20,000 and 30,000 was significantly (χ^2=78.40, $df = 5$, $p < .001$) higher than the other categories, indicating that the majority of the households generated high income from the rearing of cattle.

4.5.2 Contribution of Income from Cattle Rearing to Socio-economic Wellbeing of Households in Mandera East Sub-county

The first research question for this study, sought to answer the question what is the contribution of the income from rearing cattle to the socioeconomic wellbeing of households in Mandera East sub-county. This question was answered by testing the relationship between farmer's income generated form cattle rearing and the index of household socio-economic wellbeing using simple linear regression analysis. The independent variable was farmer's income generated form cattle rearing and the dependent variable was the household socio-economic wellbeing. The results of the regression model are shown in Table 4.10.

Table 4.10: Regression Model Summary for Farmers Income from Cattle Rearing and Household Socio-economic Wellbeing

R	R Square	Adjusted R Square	Std. Error of the Estimate
.987[a]	.975	.975	1.827

Predictors (constant), Income from cattle rearing
Dependent: Household socio-economic wellbeing

The model indicates an adjusted R^2 value of 0.975, meaning that the independent variable farmer's income from cattle rearing explained approximately 97.5 % of the variation in the dependent variable household socioeconomic well-being. The F test for the regression model is shown in the ANOVA Table 4.11.

Table 4.11: ANOVA Table for the Regression Testing the Fit of the Model

	Sum of Squares	*df*	Mean Square	*F*	*p*
Regression	193.776	1	193.776	5803.66	.001
Residual	4.942	148	.033		
Total	198.717	149			

The overall regression equation was found to be significant (F (1,148) = 5803.6, p < .001). The regression coefficients of the model showing the beta, t, and the tolerance levels is shown in Table 4.12.

Table 4.12: Regression Coefficients for Income from Cattle Rearing and Household Socio-economic Wellbeing

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics
	B	Std. Error	*Beta*	*t*	*p.*	*VIF*
(Constant)	4.005	.035		114.334	.001	
Cattle income	.001	.001	.987	76.182	.001	1.000

The regression analysis shows that farmer's income from rearing cattle has a positive significant influence (β = .987, t = 76.18, *p* <.001) on the household socio-economic wellbeing. It can therefore be concluded that as the farmers income from cattle rearing increased the household socio-economic wellbeing also increased significantly.

4.6 Contribution of Income from Goat Keeping to the Socio-economic Wellbeing of Households in Mandera East Sub-county

The second objective of this study was to determine the contribution of income from goat keeping to the socio-economic wellbeing of households in Mandera East sub-county.

4.6.1 Income from Goat Keeping

The independent variable for this objective, income from goat keeping was operationalized as the number of goats kept by the household and all the products sold in a year, these included live animals and milk. The total figure was then divided by 12 to get the monthly household income from cattle rearing. The descriptive statistics and frequency distribution for the variable is summarized in Table 4.13.

Table 4.13: Descriptive Statistics and Frequency Distribution of the Income from Goat Keeping by Households in Mandera East Sub-county

Income in K.Shs	Frequency	Percent
10001 - 20,000	22	14.7
20001 - 30,000	32	21.3
30001 - 40,000	49	32.7
40001 - 50,000	40	26.7
Above 50,001	7	4.7
Total	**150**	**100.0**

34,070±962, Median 34,000, Mode 47,000, Std. Dev. 11,793, Range 47,000

The mean monthly income generated from goat keeping by the households in Mandera East sub-county was K.Shs 34,070 with a standard deviation of K.Shs 11,793. The range was K.Shs 47,000, which was found to be high. The households earning less than K.Shs 20,000 were 14.7 %, while those earning more than 40,000 were 31.4 %. Goats were found in every household and they generated more income compared to cattle.

A chi-square test for equality of categories for the income from goat keeping was conducted and the results are shown in Table 4.14.

Table 4.14: Chi-square Test for the Equality of Categories for Household Income from Goat Keeping

Income in K.Shs	Observed N	Expected N	Residual	
10001 - 20,000	22	30.0	-8.0	χ^2=35.267
20001 - 30,000	32	30.0	2.0	*df*=4
30001 - 40,000	49	30.0	19.0	*p*<.001
40001 - 50,000	40	30.0	10.0	
Above 50,001	7	30.0	-23.0	
Total	150			

The chi-square test revealed a statistical ($p < .001$) significant differences among the different categories of household income from goats. The category between 30,000 and 40,000) was significantly (χ^2=35.26, $df = 4$, $p < .001$) higher than the other categories, indicating that the majority of the households generated high income from the keeping of goats.

4.6.2 Contribution of Income from Keeping Goats to the Socio-economic Wellbeing of Households in Mandera East Sub-county

The second research question for this study, sought to answer the question what is the contribution of the income from keeping of goats to the socioeconomic wellbeing of

households in Mandera East sub-county. This question was answered by testing the relationship between farmer's income generated form goat keeping and the index of household socio-economic wellbeing using simple linear regression analysis. The independent variable was farmer's income from goat keeping and the dependent variable was the household socio-economic wellbeing. The results of the regression model are shown in Table 4.15.

Table 4.15: Regression Model Summary for Farmers Income from Goat Keeping and Household Socio-economic Wellbeing

R	R Square	Adjusted R Square	Std. Error of the Estimate
.964[a]	.929	.928	.30898

a. Predictors: (Constant), income from Goats

The model indicates an adjusted R^2 value of 0.928, meaning that the independent variable farmer's income from goat keeping explained approximately 92.8 % of the variation in the dependent variable household socioeconomic well-being. The *F* test for the regression model is shown in the ANOVA Table 4.16.

Table 4.16: ANOVA Table for the Regression Testing the Fit of the Model

	Sum of Squares	df	Mean Square	*F*	*p*
Regression	184.588	1	184.588	1933.491	.001[b]
Residual	14.129	148	.095		
Total	198.717	149			

a. Dependent Variable: socioeconomic wellbeing
b. Predictors: (Constant), income from goats

The overall regression equation was found to be significant (F (1,148) = 1933.4, $p <$ .001). The regression coefficients of the model showing the beta, t, and the tolerance levels is shown in Table 4.17.

Table 4.17: Regression Coefficients for Income from Goat Keeping and Household Socio-economic Wellbeing

	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**t**	**p.**
(Constant)	3.205	.077		41.426	.001
Goats income	9.438E-5	.000	.964	43.971	.001

The regression analysis shows that farmer's income from goats has a positive significant influence ($\beta = .964$, $t = 43.97$, $p < .001$) on the household socio-economic wellbeing. It can therefore be concluded that as the farmers income from goats contributed significantly to the household socio-economic wellbeing.

4.7 Contribution of Income from Irrigated Crop Production to the Socio-economic Wellbeing of Households in Mandera East Sub-county

The third objective for this study was to assess the contribution of irrigated crop production to the socio-economic wellbeing of households in Mandera East sub-county.

4.7.1 Household Income from Irrigated Crop Farming

The independent variable for this objective, household income from irrigated crop farming was operationalized as the output from the irrigated plots multiplied by the market price of the produce. The total figure was then divided by 12 to get the monthly household income from irrigated crop farming. The descriptive statistics and frequency distribution for the variable is summarized in Table 4.18.

Table 4.18: Frequency Distribution and Descriptive Statistics of the Monthly Income from Irrigated Crop Farming

Income Categories	Frequency	Percent
60,000 – 70,000	4	13.3
71,000 -75,000	11	36.7
76,000 – 80,000	10	33.3
Above 81,000	5	16.7
Total	**30**	**100.0**

Mean 75,833±1075, Median 75050, Mode 81,600, SD 5,892, Range 27,100

The mean monthly income generated from irrigated crop farming by the households in Mandera East sub-county was K.Shs 75,833 with a standard deviation of K.Shs 5,892. The range was K.Shs 27,100, which was found to be high. The households earning less than K.Shs 75,000 were 50 %, while those earning more than 76,000 were 50 %. Crop farming generated a reasonable amount of income to the participating households.

A chi-square test for equality of categories for the income generated from irrigated crop farming was conducted and the results are shown in Table 4.19.

Table 4.19: Chi-square Test for the Equality of Categories for Household Income from Irrigated Crop Farming

Income Categories	Observed N	Expected N	Residual	Statistics
60,000 – 70,000	4	7.5	-3.5	χ^2=4.93
71,000 -75,000	11	7.5	3.5	df=3
76,000 – 80,000	10	7.5	2.5	p=.177
Above 81,000	5	7.5	-2.5	
Total	**30**			

The chi-square test revealed a non-significant (p >.05) statistical differences among the different categories of household income from irrigated crop farming. All the income categories were not significantly significant (χ^2=4.93, df = 3, p > .05) from each other.

4.7.2 Contribution of Income from Irrigated Crop Farming to the Socio-economic Wellbeing of Households in Mandera East Sub-county

The third research question for this study, sought to answer the question what is the contribution of the income generated from growing of irrigated crops to the socioeconomic wellbeing of households in Mandera East sub-county. This question was answered by testing the relationship between farmer's income generated form irrigated crops and the index of household socio-economic wellbeing using simple linear regression analysis. The independent variable was farmer's income from irrigated crops and the dependent variable was the household socio-economic wellbeing. The test for significance of whether the overall regression model is a good fit for the data was performed using the *F* test. The ANOVA table showing the *F*-ratio and significance levels is shown in Table 4.20.

Table 4.20: ANOVA Table for the Regression Testing the Fit of the Model

	Sum of Squares	df	Mean Square	F	p
Regression	4.167	1	4.167	26.078	.001[b]
Residual	4.475	28	.160		
Total	8.642	29			

Dependent variable: socioeconomic wellbeing
Predictors: (constant), irrigated crops

The overall regression model equation was found to be a good fit for the data. The independent variable (income from irrigated crops) statistically significantly predicted the dependent variable, household socioeconomic wellbeing (F (1, 28) = 26.07, p < .001). The regression model is a good fit of the data.

To determine how well the regression model fits the data. The results of the regression model are shown in Table 4.21.

Table 4.21: Regression Model Summary for Farmers Income from Crops and Household Socio-economic Wellbeing

R	R Square	Adjusted R Square	Std. Error of the Estimate
.694[a]	.482	.464	.39976

a. Predictors: (Constant), crops

The quality of the prediction of the dependent variable was measured using R^2 (coefficient of determination), which shows the proportion of variation accounted for by the regression model. The model indicates an adjusted R^2 value of 0.464, meaning that the independent variable farmer's income from irrigated crops explained approximately 46.4% of the variation in the dependent variable household socioeconomic well-being. The regression coefficients of the model showing the beta, t, and the tolerance levels is shown in Table 4.22.

Table 4.22: Regression Coefficients for Household Income from Irrigated Crop Farming and Household Socio-economic Wellbeing

	Unstandardized Coefficients		Standardized Coefficients			Collinearity statistics
	B	Std. Error	Beta	t	p.	VIF
(Constant)	1.755	.958		1.831	.078	1.00
crops	6.433E-5	.000	.694	5.107	.001	

a. Dependent Variable: socioeconomic wellbeing

The regression analysis shows that farmer's income from irrigated crop farming has a positive significant influence (β = .694, t = 5.10, p <.001) on the household socio-economic wellbeing. It can therefore be concluded that as the farmers income from crops contributed significantly to the household socio-economic wellbeing.

4.8 Contribution of Household Income Generated from Unskilled Labour to Socioeconomic Wellbeing of Households in Mandera East Sub-county

The fourth objective of this study was to determine the contribution of household income generated from unskilled labour to the socioeconomic wellbeing of households in Mandera East sub-county.

4.8.1 Household Income Generated from Unskilled Labour

The independent variable for this objective was household income generated from unskilled labour. This variable was operationalized as all income arising from the provision of unskilled labour, which does not require any special knowledge, training or learning and included activities such as house work for women, casual employment in farms, laborers in various construction activities. The income arising from these activities were added together to form household income from unskilled labour and the descriptive statistics of the variable and frequency distribution are shown in Table 4.23.

Table 4.23: Household Income from the Provision of Unskilled Labour

Income in K.Shs	Frequency	Percent
No hired labour	120	80.0
3,000.00	6	4.0
4,000.00	9	6.0
5,000.00	2	1.3
6,000.00	5	3.3
7,000.00	4	2.7
11,000.00	1	.7
13,000.00	1	.7
14,000.00	1	.7
15,000.00	1	.7
Total	150	100.0

Mean 1,166±224.9, Median 0, Mode 0, Std. Dev. 2,754, Range 15,000

The remuneration from unskilled labour was found to be relatively low with a maximum of K.Shs 15,000. The mean was 1,166 with a standard deviation of 2,754. This is characteristic of this sector as it is one which is lowly paid.

A chi-square test for equality of categories for the income from goat keeping was conducted and the results are shown in Table 4.24.

Table 4.24: Chi-square Test for the Equality of Categories for Household Income from Unskilled Labour

	Observed N	Expected N	Residual	Statistics
.00	120	15.0	105.0	χ^2=821.067
3000.00	6	15.0	-9.0	*df*=9
4000.00	9	15.0	-6.0	*p*<.001
5000.00	2	15.0	-13.0	
6000.00	5	15.0	-10.0	
7000.00	4	15.0	-11.0	
11000.00	1	15.0	-14.0	
13000.00	1	15.0	-14.0	
14000.00	1	15.0	-14.0	
15000.00	1	15.0	-14.0	
Total	150			

The chi-square test shows a statistical ($p < .001$) significant differences among the different categories of household income from unskilled labour. The category of households earning K.Shs 3,000 was significantly ($\chi^2 (9, 150) = 821.06, p < .001$) higher than the other categories, indicating that the majority of the households earned this figure per month form unskilled labour.

4.8.2 Contribution of Income from Unskilled Labour to the Socio-economic Wellbeing of Households in Mandera East Sub-county

The fourth research question for this study, sought to answer the question: how does household income generated from unskilled labour contribute to the socioeconomic wellbeing of the households in Mandera East sub-county? This question was answered by testing the relationship between farmer's income generated form unskilled labour and the index of household socio-economic wellbeing using simple linear regression analysis. The independent variable was farmer's income from unskilled labour and the

dependent variable was the household socio-economic wellbeing. The results of the regression model are shown in Table 4.25.

Table 4.25: Regression Model Summary for Farmers Income from Provision of Unskilled Labour and Household Socio-economic Wellbeing

R	R Square	Adjusted R Square	Std. Error of the Estimate
.350[a]	.122	.116	1.08566

The model indicates an adjusted R^2 value of 0.116, meaning that the independent variable household income from unskilled labour explained approximately 11.6 % of the variation in the dependent variable household socioeconomic well-being. The *F* test for the regression model is shown in the ANOVA Table 4.26.

Table 4.26: ANOVA Table for the Regression Testing the Fit of the Model

	Sum of Squares	df	Mean Square	F	.
Regression	24.277	1	24.277	20.598	.001[b]
Residual	174.440	148	1.179		
Total	198.717	149			

a. Dependent Variable: socioeconomic wellbeing average
b. Predictors: (Constant), hired labour

The overall regression equation was found to be significant (F (1,148) = 1933.4, $p <$ .001). The regression coefficients of the model showing the beta, t, and the tolerance levels is shown in Table 4.27.

Table 4.27: Regression Coefficients for Income from Unskilled labour and Household Socio-economic Wellbeing

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	p
(Constant)	6.591	.096		68.432	.001
Unskilled labour	.000	.000	-.350	-4.538	.001

The regression analysis shows that household income from unskilled labour has a negative significant influence (β = -.350, t (150) = -4.53, p <.001) on the household socio-economic wellbeing. It can therefore be concluded that income from unskilled labour contributed negatively to the household socio-economic wellbeing.

4.9 Contribution of Household Income Generated from Small Scale Business Enterprises to Socioeconomic Wellbeing of Households in Mandera East Sub-county

The fifth objective of this study was to determine the contribution of household income generated from of small scale business enterprises to the socioeconomic wellbeing of households in Mandera East sub-county.

4.9.1 Household Income Generated from Small Scale Business Enterprises

The independent variable for this objective was household income generated from of small scale business enterprises. This variable was operationalized as all income arising from the engagement in small businesses selling farm products such as fruits and vegetables, milk, and other household goods. The income generated from these activities were added together to form household income from of small scale business enterprises and the descriptive statistics of the variable and frequency distribution are shown in Table 4.28.

Table 4.28: Household Income from Small Scale Business Enterprises

	Frequency	Percent
.00	120	80.0
55000.00	1	.7
56000.00	4	2.7
57000.00	11	7.3
58000.00	8	5.3
59000.00	1	.7
67000.00	3	2.0
68000.00	2	1.3
Total	150	100.0

Mean 11,773, Median 0, Mode 0, Std. dev. 23,690, Range 68,000

The income generated by the households from small business enterprise ranged between K.Shs. 55,000 and 68,000 and a standard deviation of K.Shs 23,690.

4.9.2 Contribution of Household Income from Small Scale Enterprise to the Socio-economic Wellbeing of Households in Mandera East Sub-county

The fourth research question for this study, sought to answer the question: how does household income generated from Small Scale Enterprise contribute to the socioeconomic wellbeing of the households in Mandera East sub-county? This question was answered by testing the relationship between household income generated form Small Scale Enterprise and the index of household socio-economic wellbeing using simple linear regression analysis. The independent variable was household income from small scale enterprise and the dependent variable was the household socio-economic wellbeing. The results of the regression model are shown in Table 4.29.

Table 4.29: Regression Model Summary for Household Income and Small Scale Enterprise to Socio-economic Wellbeing

R	R Square	Adjusted R Square	Std. Error of the Estimate
.667[a]	.445	.441	.86337

a. Predictors: (Constant), business

The model indicates an adjusted R^2 value of 0.441, meaning that the independent variable household income from small scale enterprises explained approximately 44.1 % of the variation in the dependent variable household socioeconomic well-being. The *F* test for the regression model is shown in the ANOVA Table 4.30.group

Table 4.30: ANOVA Table for the Regression Testing the Fit of the Model

	Sum of Squares	df	Mean Square	F	p.
Regression	88.396	1	88.396	118.586	.001[b]
Residual	110.322	148	.745		
Total	198.717	149			

a. Dependent Variable: socioeconomic wellbeing
b. Predictors: (Constant), small scale business

The overall regression equation was found to be significant (F (1,148) = 118.58, p < .001). The regression coefficients of the model showing the beta, t, and the tolerance levels is shown in Table 4.31.

Table 4.31: Regression Coefficients for Income Generated from Small Scale Business and Household Socio-economic Wellbeing

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	p.
(Constant)	6.037	.079		76.642	.001
Business	3.251E-5	.000	.667	10.890	.001

The regression analysis shows that household income from small scale business has a positive significant influence (β = .667, t (150) = 10.89, p <.001) on the household socio-economic wellbeing. It can therefore be concluded that income from irrigated crops contributed positively to the household socio-economic wellbeing.

4.10 Ranking the Livelihoods in Relation to their Contribution to the Socioeconomic Wellbeing of the Households in Mandera East Sub-County

The fifth objective of this study was to rank the five independent variable in terms of their contribution to the socio-economic wellbeing of households in Mandera East Sub-county.

The ranking of the independent variables as to their contribution to the socioeconomic wellbeing of the households was analysed by comparing the means of the different livelihoods (goat keeping, cattle keeping, provision of unskilled labour, small scale business and irrigated crop agriculture). The descriptive statistics (means, standard deviation, standard error and minimum and maximum values) of the five livelihood options are shown in Table 4.32.

Table 4.32: Descriptive Statistics for Livelihood Options for Households in Mandera East Sub-county

Livelihoods	n	Mean	Std. Deviation	Minimum	Maximum
Goat Keeping	30	6.04	.938	4.13	7.92
Small Businesses	30	7.93	.382	7.58	8.81
Unskilled Labor	30	5.15	.640	4.21	6.51
Irrigated Crops	30	6.63	.545	5.10	7.71
Rearing Cattle	30	6.33	.937	4.56	8.32
Total	**150**	**6.42**	**1.154**	**4.13**	**8.81**

The results (Table 4.32) for the five livelihood options indicate that small scale businesses had the highest mean, followed by irrigated crop farming, cattle rearing, goat keeping and finally provision of unskilled labour.

A one way ANOVA was conducted to compare the means of the five livelihood options. The main purpose of running the one-way ANOVA was to establish whether there were any statistically significant differences on the dependent variable (socioeconomic wellbeing) among the five independent variables (goat keeping, cattle keeping, provision of unskilled labour, small scale business and irrigated crop agriculture). The research question that was addressed was whether the independent variables were

significantly different statistically. The result of the one-way ANOVA for the mean comparisons is shown in Table 4.33.

Table 4.33: ANOVA Table for Mean Comparisons Showing the F-test

	Sum of Squares	df	Mean Square	F	p
Between Groups	122.926	4	30.731	58.793	.001
Within Groups	75.792	145	.523		
Total	198.717	149			

The *F*-test (Table 4.33) results indicate that there was a statistically significant difference in the five livelihood options, $F(4, 145) = 58.79$, $p < .001$). We can therefore conclude that statistically significant differences do exist in the five livelihood options (goat keeping, cattle keeping, provision of unskilled labour, small scale business and irrigated crop agriculture) in their contribution to the socioeconomic wellbeing of the households found in Mandera East sub-county.

A post hoc test was then conducted to determine the means that were statistically significant different from the others. Post hoc analysis was performed using Bonferroni post hoc tests. The comparison of the mean pairs for goat keeping (I) and other livelihood options (J), the 95 % confidence interval for the difference between group I and J, statistical significance value (*p* value) and standard error are given in Table 4.34.

Table 4.34: Pairwise Comparisons for the Goat Keeping and other Livelihoods

Comparison between Goat keeping (I) and other livelihoods (J)	Mean Difference (I-J)	Std. Error	p	95% Confidence Interval	
				Lower Bound	Upper Bound
Small Scale Business	-1.887*	.186	.001	-2.419	-1.355
Unskilled Labor	.896*	.186	.001	.364	1.428
Irrigated Crop farming	-.585*	.186	.021	-1.118	-.053
Cattle rearing	-.287	.186	1.00	-.819	.244

Dependent Variable: socioeconomic wellbeing of the households

The mean comparison results for the mean pairs in Table 4.34, indicate that the contribution of four mean pairs (goat keeping and small business, unskilled labour and irrigated crop farming) were statistically ($p<.05$) significantly different from each other. The difference between mean pair goat keeping and cattle rearing was not significant ($p>.05$) statistically.

In comparing the mean differences for goat keeping and small scale business, unskilled labour and irrigated crop farming, crop farming and small scale business had significantly higher mean differences -.585 (95% CI,-1.118 to -.053), $p < .021$ than the goat keeping and -1.88 (95% CI, -2.41 to 1.35), $p < .001$ for small scale businesses. Goat keeping when compared to provision of unskilled labour, goat farming had significant higher mean difference .896 (95% CI, .364 to 1.42), $p < .001$ than provision of unskilled labour. This implies that household diversification to other livelihoods other than natural resource based livelihoods has both positive and negative impacts, as apart from small scale business they remained to be higher contribution to the socioeconomic wellbeing.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATION

5.1 Introduction

This chapter presents the summary of the findings, their discussion, conclusions and recommendations.

5.2 Discussion

The study findings for this study are discussed based on the specific objectives stated in section 1.4 of this thesis.

5.2.1 Household Socio-demographic Factors of the Households in Mandera East Sub-County

Female headed households formed 33 % of the households this included 20 % of the women who were divorced and 13 % were widows. This .can have a significant influence on the wellbeing of the households they lead. It has been shown in a study in Ethiopia and Nigeria that female-headed families are poorer and indeed less food secure than the male headed households (Akadiri, Nwaka & Jenkins, 2018; Muleta & Deressa, 2014). The household heads who were illiterate accounted for 40 %, which was termed as high, this high rate of illiteracy was due to challenges of education access, which include nomadism, poverty and harsh climatic conditions (DEPS, 2018).

5.2.2 Contribution of Income from Cattle Rearing to the Socio-economic Wellbeing of Households in Mandera East sub-county.

The household income derived from cattle rearing was found to contribute significantly to the socio-economic wellbeing of the households in Mandera East sub-county. Livestock is significantly contributing to livelihood and food security of more than a billion people in different parts of the world (Hegde, 2019). This can be attributed to

nature and social set up of the people who are mainly pastoralists and their environment is suited to this kind of land use (DEPS, 2018). This is in line with the findings of Omotesho, Akinrinde, Ogunlade and Egbugo (2020), who concluded that as the households concentrate on a particular livelihood, this enhances their livelihood status. The households in Mandera East are mainly pastoralists and are advanced in the management of the cattle as a livelihood, especially in developing strategies for mitigating against the risks (Tawane & Mugalavai, 2018; Opiyo, Wesonga, Nyangito, Schilling, & Munang, 2015).

Cattle have multiple and changing livelihood roles in African rural households (Chaminuka, Udo, Eilers, & Zijpp, 2014), they can act as means of exchange, dowry payments, work animals, and social capital in a pastoral society (FAO, 2018). The list can be expanded to include: food supply, source of income, asset saving, source of employment, soil fertility, livelihoods, transport, agricultural traction, agricultural diversification and sustainable agricultural production (Bettencourt, Tilman, Narciso, Carvalho & Henriques, 2015). In many communities' cattle are the main contributors to the household livelihood, as shown in a study in Cambodia cattle were the main livelihood contributor providing 85 % of the on-farm income (Ashley, Harrison, Chan, Sothoeun, Young, Windsor, & Bush, 2018). In western Maharashtra, India it was found that livestock contributed 33.9 % of the household livelihood (Biradar, Desai, Manjunath & Doddamani, 2013).

5.2.3 Contribution of Household Income from Goat Keeping to the Socio-Economic Wellbeing of Households in Mandera East Sub-County

The household income from goat keeping was fond to have a statistical significant contribution to the socioeconomic wellbeing of households in Mandera East sub-county. The households were found to keep goats and sheep combined, but the number of goats was normally higher than the sheep (DEPS, 2018). Generally the small stock (sheep and goats) are generally taken to be women animals as they are left to the women and young girls to manage them (Farm Africa, 2020). Women and children are responsible for many goat production related activities, but they are not allowed to participate in decision making related to the animals (Byaruhanga, Oluka, & Olinga, 2014).

Farm Africa organization has initiated programmes in Turkana and South Omo dealing with women and goats. The programme; Livestock for Livelihoods programme seeks to ensure that livestock and rangeland systems are productive, sustainable and appropriate for female pastoralists. The programme is building women's economic assets using a revolving goat fund, as well as improving women's access to livestock extension services, developing women's business skills and financial literacy (Ibid). Projects aimed at improving goats have increased income from sales of milk and improved breeding and slaughter stock increased, while food security improved as a result of daily milk consumption and improved crop yields resulting from use of the rich goat manure (Peacock, Ahuya, Ojango, & Okeyo, 2011).

Analysis of smallholder farmers strongly suggests that the highest priority 'breeding intervention' should be the provision of appropriate genotypes in a sustainable manner, Efforts to improve/refine breeding skills of smallholders should proceed in parallel.

Institutional arrangements and enabling policies are critical for the success in identifying and applying appropriate genetic technologies, improving access to input services and facilitating access to markets in order to translate productivity gains into incomes (Rege, Marshall, Notenbaert, Ojango & Okeyo, 2011).

5.2.4 Contribution of Irrigated Crop Production to the Socio-Economic Wellbeing of Households in Mandera East Sub-County.

Household income from irrigated crops had statistical significant contribution to the socioeconomic wellbeing of households in Mandera East sub-county. Irrigation water from the river Daua, enables the plot owners to grow a variety of crops such as horticultural crops, fruits and food crops (DEPS, 2018). These crops are sold commercially earning the households income. The irrigation water enables the communities to adapt to climate change problems (Mburu, Kung'u, & Muriuki, 2015). The major hindrances to this livelihood system is lack of farm inputs for growing the crops (Ali, Muturi, Mberia, 2018). In the provision of food security to residents of Mandera County, crop production is one of the key livelihoods to enhance as observed by Ngugi and Mwangi (2017).

5.2.5 Contribution of Household Income Generated From Unskilled Labour to the Socioeconomic Wellbeing of Households in Mandera East Sub-county

Household income generated from the provision of unskilled labour was found to have a negative contribution to the socioeconomic wellbeing of the households in Mandera East Sub-county. These households fit well to the description of Sanford and Ashley (2008) of "pastoral drop-outs", a group of poor households found in pastoral areas who are without assets, other than their labour. They are usually pastoralists who have lost their herds and often migrate to urban and peri-urban areas and rely on famine relief and selling their labour. Provision of labour was identified as one of the livelihood

sources available to the poor pastoralists in both Mandera and Turkana Counties (Watete, Makau, Njoka, MacOpiyo, Wesonga, 2016b).

5.2.6. Contribution of Small Scale Business Enterprises to the Socio-Economic Wellbeing of Households in Mandera East Sub-County.

The income derived by the households from small scale businesses was found to have a significant positive contribution to the socioeconomic wellbeing of the households. This is a viable non non-natural resource based livelihood, which in most cases is a diversification from the main income sources to strategize from risk involved in the natural resource based livelihoods (Modupe, Oluwagbenga & Adeolu, 2020). Small scale business enterprise could act as one of the alternative livelihoods the community could adopt in order to diversify their livelihood options (Omar & Ndayala, 2018). The strategy of diversification can be used to strategize during periods of droughts, when natural resource based livelihoods are affected (Watete, Makau, Njoka, MacOpiyo, & Mureithi, 2016a). The major limitation of business enterprise in Madera County and elsewhere in the world is lack of finance to put up the business and cultural hindrances, especially where women are involved (Farah, 2014; Hossain, Siddique, & Jamil, 2018). Tadesse, (2020) in his study on women entrepreneurs, concluded that inadequate access to training and low educational background and conflicting gender roles, social acceptability and, network with outsiders were the major social factors that affected women entrepreneurs.

5.3 Summary of Main Findings

(i) The household income derived from cattle rearing was found to contribute significantly to the socio-economic wellbeing of the households in Mandera East sub-county.

(ii) The household income from goat keeping was fond to have a statistical significant contribution to the socioeconomic wellbeing of households in Mandera East sub-county.

(iii) Household income from irrigated crops had statistical significant contribution to the socioeconomic wellbeing of households in Mandera East sub-county

(iv) Household income generated from the provision of unskilled labour was found to have a negative contribution to the socioeconomic wellbeing of the households in Mandera East Sub-county

(v) The income derived by the households from small scale businesses was found to have a significant positive contribution to the socioeconomic wellbeing of the households.

5.4 Conclusions

The following were the conclusions of this study:

(i) Household income generated from cattle rearing has a statistical significant contribution to the socio-economic wellbeing of households in Mandera East sub-county.

(ii) Household income derived from goat keeping has a statistical significant contribution to the socio-economic wellbeing of households in Mandera East sub-county.

(iii) Household income acquired from irrigated crop production has a statistical significant contribution to the socio-economic wellbeing of households in Mandera East sub-county.

(iv) household income generated from the provision of unskilled labour did not contribute significantly to the socioeconomic wellbeing of households in Mandera East sub-county

(v) Household income generated from small scale business enterprises has a statistical significant contribution to the socio-economic wellbeing of households in Mandera East sub-county.

(vi) The natural resource based livelihoods (cattle rearing, goat keeping, irrigated crop farming) were found to have a lower contribution to socioeconomic wellbeing compared the other livelihoods (business, provision of unskilled labour).

5.5 Recommendations

Based on the study findings the following recommendations were suggested:

(i) The pastoralists be encouraged to diversify their livelihoods. The diversification should take care to combine activities that are synergistic to each other, such as cattle and small stock (sheep and goats) rearing.

(ii) Household provision of labour through providing unskilled labour is a livelihood option that had the no positive contribution to the household wellbeing. There is need therefore for the government through the labour department ensure that the ones involved in this livelihood are paid as per the labour laws of Kenya.

(iii) Irrigated crop farming along the Daua River should be expanded to cover other areas other than the river. There can be irrigation schemes that utilize water from dams and seasonal surface run-off water.

(iv) Livestock improvement programmes to improve the animal genetic makeup, local markets for animals should be built and improvement of disease control.

(v) The wellbeing assessment of livelihoods be used in assessing the impact of development programmes meant to benefit the community. This will ensure an added value to the community evaluation to ensure that people's needs are met and not just economic figures that cannot be translated to the wellbeing of the households.

5.6 Recommendations for Further Research

The following are recommended to be done for further research:

(i) The present study was limited to the Mandera East sub county, a study can be therefore be done to cover other areas of the County.

(ii) The female headed households in the study area are significantly many and a research directed to their welfare may contribute to the way they can be assisted.

(iii) Do a monitoring and evaluation of county development projects using the socioeconomic wellbeing of the people involved.

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APPENDICES

Appendix A: Interview Schedule for Household Survey

Introduction

My name is Rahma Abdinasir. I am conducting a research to Assess influence of Livelihood options on the Socio-Economic wellbeing of Households in Mandera East Sub-County Kenya. This Study is formulated to help, identify, document, asses and analyze the influence of livelihood diversification to the wellbeing of households in Mandera East Sub-county. You have been identified and selected for this study and I therefore request you to participate in this study by providing the information sought through this interview. The information obtained is strictly for research purpose and shall be treated with utmost confidentiality.

Instructions

Please answer all questions appropriately and tick in all that apply.

Part 1: Personal data

Age……or year born _____

Marital Status:

single ( ), married ( ), divorced ( ), widowed ( ).

Size of household? How many members……

Highest level of education attained:

Illiterate ( ), primary-level ( ), secondary-level ( ), middle-level college ( ), Bachelor's level ( ), post graduate level ( ).

What is your main source of income:

Formal employment ( ), informal employment/casual labor ( ), self-Employment/business ( ), any other, specify……..

Residence (homestead)

Ownership of a house

own a house _____; rental house _____

Type of house

Material (mud, stone, grass)

Number of rooms…….

Distance from town……

Part 2: Sources of livelihood

What are your main sources of livelihood?

Goat keeping ( ), business ( ), hired labor ( ), camel keeping ( ), crop production ( ), cow keeping ( ).

Income generated from the livelihood activity per month ……

How well can you rate the benefit from the livelihood?

Very high ( ), high ( ), moderate ( ), low ( ), very low ( ).

Part 3: Individual livelihood

Type of crops grown

Crop	Area	Production per Month

Type of animal kept

Type of Animal	Number	Production per Month
Camel		
Cow		
Goat		

Business

Type	What do you sell	Income per Month.
Kiosk		
Retail Shop		
Small scale supplier		
Market vendor		

Labor exports

Type	Location	Production per Month.
Formal Employment		
Self-employed		
House help		
Hired labour (kibarua)		

Section 3: Wellbeing of the people. Has the diversification of livelihood assisted you in any of the following? If it has rate the assistance on a scale of 0 not assisted /contributed to 10 highly assisted / contributed.

Statement ***Has the resettlement programme assisted you in the following***	**0** **Not assisted / contributed**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10** **Highly Assisted / Contributed**
1.Improved your standard of living (Material Provision)											
Food,											
Shelter,											
Clothing											
Capital											
Provision of Assets											
Work (paid labour, employment)											
2.Assisted in your health (Good Health)											
Provision of health services											
Cost of health services											
3.Made you to feel more safer (Safety)											
Peace of mind											
Absence of constant fear											
Absence of constant worry											
4.Improved your Social Relations											
Connection with the other community members											
Good relations with family											
Good relations with community,											
5.Assisted in your Spiritual Fulfilment											
Belief in God											

Attendance to Worship areas (Church, Mosque, Shrines)											
6.Assisted you in Controlling the State of your Environment											
Ability to Control Political situations											
Ability to Control Physical situations (Material situations)											
Ability to Acquire Services											
Ability to Acquire Resources											
Ability to Acquire Skills,											
Ability to Acquire Knowledge,											
Ability to Acquire Loans											
Ability to Acquire Information											
7. Assisted in your Emotions and Affiliations											
Social Respect											
Being part of the Community											
Fulfil Social Obligations											
Listened to by others											
Help Others											
8. Life achievement (what you are achieving in life)											

8 domains. Omitted personal relations

THANK YOU

Appendix B: Photographs Showing Different Features of the Study Site



Goats outside a *boma* made of thorn bushes



Goat eating *Balanites aegyptiaca* fruits



River Daua during the rainy season. Photo shows flooded fields



Water intake structures. Water is pumped into the canal for transmission to the irrigation plots



Irrigation canal channeling water to the fields



Irrigated crops in the field



An Lemon plant in the irrigation system



Banana plants growing in the irrigation scheme



Women selling milk in an open air market

Appendix C: Approval Letter from ANU

AFRICA NAZARENE
UNIVERSITY

12th June, 2018

RE: TO WHOM IT MAY CONCERN

Rhama Abdinasir Adan 18J03EMEV003 is a bonafide student at Africa Nazarene University. He/She has finished his/her course work and has defended his/her thesis proposal ***entitled "Assessment of influence of livelihood options on the socioeconomic wellbeing households in Mandera East sub-county, Kenya***

Any assistance accorded to him/her to facilitate data collection and finish his/her thesis is highly welcomed.

Prof. Rodney Reed
Deputy Vice Chancellor, Academic Affairs

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Appendix D: Research Permit from NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **691482**

Date of Issue: **16/August/2019**

RESEARCH LICENSE



This is to Certify that Ms.. Rahma Abdinasir of Africa Nazarene University, has been licensed to conduct research in Mandera on the topic: Assessment of Influence of Livelihood Options on the Socio-Economic Well being of Households in Mandera East Sub-County. for the period ending : 16/August/2020.

License No: **NACOSTI/P/19/180**

691482

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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