

**INFLUENCE OF HOUSEHOLD LIVELIHOOD STRATEGIES ON THE
SOCIOECONOMIC WELLBEING OF COMMUNITIES LIVING ALONG THE
COASTAL STRIP OF MSAMBWENI SUB-COUNTY, KWALE COUNTY, KENYA**

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Degree of Master of Science in Environment and Natural Resource Management in
the Department of Environment and Natural Resource Management and the School
of Science and Technology of Africa Nazarene University.**

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DECLARATION

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

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This research is submitted for examination with our approval as University supervisors.

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DEDICATION

Dedicated to my husband, Nelson Kimathi and son, Kylian Tatua, for their endless love, support and encouragement and to each member of the larger Tatua's family for being the cheerleading squad I have needed.

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I recognize the fact that God through His own wisdom and guidance will make it possible for me to complete my studies successfully. In coming up with this Thesis, I owe immense appreciation to my supervisors, the Chair of Environment and Natural Resources Management (ERM) Department- Africa Nazarene University, Dr. Mark Ndunda Mutinda and co-supervisor Dr. Stanley Maingi Makindi, for their guidance and support.

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LIST OF ABBREVIATIONS AND ACRONYMS

AEZs:	Agro Ecological Zones
DFID:	Department for International Development
FAO:	Food and Agriculture Organization
GDP:	Gross Domestic Product
GoK:	Government of Kenya
IUCN:	International Union for Conservation of Nature
KMFRI:	Kenya Marine and Fisheries Research Institute
KNBS:	Kenya National Bureau of Statistics
MoALF:	Ministry of Agriculture, Livestock and Fisheries
NACOSTI:	National Commission for Science, Technology and Innovation
OECD:	Organization for Economic Cooperation and Development
PERMA:	Positive emotions, Engagement, Relationships, Meaning and Achievement
SOAS:	School of Oriental and African Studies
UK ONS:	United Kingdom Office of National Statistics
UNCCD:	United Nations Convention to Combat Desertification
WB:	Wellbeing
WBT:	Wellbeing Theory

ABSTRACT

Kwale County received enormous support from donors and the government for implementation of development projects. The areas targeted were the improvement of people's livelihoods, these included; small-scale fisheries, agro-pastoralism and the emerging seaweed farming. Despite this kind of support, the number of poor people along the coastal strip has remained high evidenced by the low incomes, low education levels, high incidences of malnourished children, poor housing among others. This situation has been worsened by a deteriorating marine resource base that is suffering from overexploitation and changes in weather and climate. Support for these sectors has been mainly due to consideration of: Gross Domestic Product that informs economic policy; politics and for research purposes, and not from evaluation of people's well-being. The purpose of this study was to assess how different livelihood strategies influence the socio-economic wellbeing of households found along the coastal strip of Msambweni sub-county, Kwale County, Kenya. The study was guided by four objectives: (i) To analyse the influence of agro-pastoralism on socioeconomic wellbeing, (ii) To assess the influence of artisanal fishing on socioeconomic wellbeing, (iii) To assess the influence of seaweed farming on socioeconomic wellbeing and (iv) To determine the influence of livelihood diversification on the socioeconomic wellbeing. A descriptive survey design was adopted for this study. Structured questionnaires were administered to a stratified random sample of 269 households in Gazi and Nyumba sita villages based on the three selected livelihood options. The data was analysed using the Statistical Package for the Social Sciences (SPSS version 25) software for descriptive and inferential statistics. The results indicated that significant positive relationships were found to exist between socioeconomic wellbeing and agro-pastoralism ($\beta=0.751$, $t=18.61$, $p< 0.001$) and livelihood diversification ($\beta=0.910$, $t=35.82$, $p< 0.001$), and artisanal fishing ($\beta=-.322$, $t=5.55$, $p< 0.001$), while non-significant relationship between socioeconomic wellbeing and seaweed farming ($\beta=0.052$, $t=.847$, $p=0.398$) were found to exist. Based on these findings it was recommended that it would be advantageous for the community members to diversify within the livelihoods and to increase their portfolio of economic pursuits to encompass a wider range of productive areas. It is also recommended that it was important for the National and County governments and development actors to improve infrastructure and access to technical skills and training to enhance effectiveness of livelihood strategies. Findings were expected to provide useful recommendations to both national and county governments and development agencies to choose and support public actions and programmes that have the greatest impact on the wellbeing of the people. This study contributes to knowledge of how wellbeing can be used as a measure of societal progress among groups practising different livelihood activities.

DEFINITION OF TERMS

Agro-pastoralism: Agro-pastoralism is the integration of crop production and livestock production, and is practiced amongst settled, nomadic, and transhumant communities. The type of livestock kept by agro-pastoralists varies according to culture, climate, environment, natural resource availability, and geographical area, and includes cattle, camels, goats, sheep, horses among others (UNCCD., 2016)

Artisanal fisheries: Traditional fisheries involving fishing households (as opposed to commercial companies), using relatively small amount of capital and energy, relatively small fishing vessels (if any), making short fishing trips, close to shore, mainly for local consumption (FAO., Fisheries and Aquaculture topics. Small-scale and artisanal fisheries, 2005)

Flourishing: Flourishing accounts emphasise ways of living – literally ‘living well’ or living the ‘good life’ – in which people are able to reach their full potential. Different approaches identify wellbeing with characteristics of life such as, for instance, engagement, meaning, virtue, and authenticity. Flourishing accounts also often emphasise how the individual relates to things (e.g. people, tasks) in the world (Adler, 2016).

GDP: The market value of all final goods and services produced in a particular year

Livelihood diversification: Livelihood diversification is defined as the process by which rural families construct a diverse portfolio of activities and social support capabilities in their struggle for survival and to improve their standards of living (Ellis F. , 1998)

Livelihood: Comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living (Morse, 2009)

Seaweed farming: Is an extractive aquaculture whose very process of production of valuable biomass renders the sea's various ecosystem services with ecological and economic values (Forster & Radulovich, 2015)

Socioeconomic wellbeing: the ability of the people to be free from want of basic necessities and to coexist peacefully in communities with opportunities for advancement (United States Institute of Peace). Economic wellbeing is defined as having present and future financial security. Present financial security includes the ability of individuals, families, and communities to consistently meet their basic needs (including food, housing, utilities, health care, transportation, education, childcare, clothing, and paid taxes), and have control over their day-to-day finances. It also includes the ability to make economic choices and feel a sense of security, satisfaction, and personal fulfilment with one's personal finances and employment pursuits. Future financial security includes the ability to absorb financial shocks, meet financial goals, build financial assets, and maintain adequate income throughout the life-span (Council on Social Work Education, 2016).

Wellbeing: Human wellbeing encompasses objective material circumstances of people's lives such as housing, income, livelihoods, health and the environment, social aspects such as community networks, and a subjective component capturing an individual's assessment of their own circumstances (Woodhouse, et al., 2015)

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This study assessed the influence of household livelihood strategies on the socioeconomic wellbeing of communities living along the coastal strip of Msambweni sub-county, Kwale County, Kenya. The independent variables for this study included four different livelihoods common in the coastal strip of Msambweni in Kwale County. The livelihood strategies included: agro-pastoralism, artisanal fishing, seaweed farming, and livelihood diversification. The dependent variable was subjective wellbeing of the households in Gazi and Nyumba sita villages. This Chapter provides a background of the study, problems addressed, the purpose, specific objectives of the study and the research questions. In addition, the chapter describes the significance of the study. It details the scope, limitations, delimitations, assumptions, theoretical and conceptual frameworks for the study

1.1 Background of the Study

Human wellbeing has become an issue that has generated a lot of concern because of its close relationship with poverty, and more importantly its economic dimension that is used as an indicator for poverty and ill-being (Kasim, 2019). The current world view is that economic growth is synonymous with human well-being and prosperity. This growth is measured using Gross Domestic Product (Braby, 2013).

Wellbeing varies a great deal within and between countries. Factors behind the variation can be divided into; environmental, social, economic, historic and political. For example; the inability to grow enough food to meet the needs of the population has a major impact on wellbeing. India has a population of about 1.2 billion but across much

of the country, the environmental conditions are unsuitable for growing food such that in 19th century, India experienced its worst famines resulting in starvation and deaths of millions of rural Indians (Oxford University, 2019).

The quality of life in many African countries has not been increasing as would be expected despite rapid GDP growth. For instance, in Equatorial Guinea, a country with a fast-growing economy, most people still don't have access to the most fundamental services, such as clean water and sanitation. In fact, the growth seen in recent years is largely the result of a statistical mirage (Braby, 2013).

The contributing factors to the wellbeing of individuals in developing nations are mostly associated with economic background, a person's mental or physical condition and the fulfilment that a person derives from their job (Van praag, Ferrer-i-Carbonell, & Frijters, 2003). Having a paid job, being married, household earnings, household structure, belief in and worship of superhuman power, environmental factors and social relations influence wellbeing (Diener, Oishi, & Lucas, 2003). Social relationships including people working as a team have a remarkable influence on wellbeing as a result of provision of unavoidable assets that people need to satisfy their needs (Lucas & Dyrenforth, 2006).

Most of the 12.3 million Africans engaged in aquaculture and fisheries are from the artisanal fishing sector: Over 7.5 million artisanal fishermen and 2.3 million women in fisheries provide income for millions of families in Africa. The contribution of fisheries to the GDP of all African countries reached about 1,910,000 million US dollars in 2014, with a contribution of marine and inland artisanal fisheries accounting for more than half of this figure. This shows that artisanal fishing stimulates local economies,

particularly when it is associated with policies to ensure social protection and promote the well-being of coastal communities (CAOPA & REJOPRAO, 2016)

Artisanal fishing is the principal form of livelihood for a greater number of communities along the Kenyan coastline. Artisanal fishing uses simple methods such as traditional equipment and self-made traps. They fish either using small crafts that are controlled using a sail or manually or by gleaning of fish while walking in shallow areas. The artisanal fishers in Kenya undertake fishing of fish and other fishery resources for subsistence and/or commercial purposes. According to a country brief prepared by FAO in 2016, Kenya's fisheries sector accounts for about 0.54% to the GDP of the country (FAO, 2016). Marine fisheries and aquaculture make significant contribution to the growth and stabilization of communities living in rural coastal and riparian areas of Kenya. Fisheries sector is a source of food, income and occupation for many women, youths and men and it provides social unity to families and societies (FAO, 2016). Despite the considerable importance that artisanal fisheries contribute to the economy of Kenya, the fishers have been stuck in dejected economic and social status, indicative of the poverty that affects them (Plan International Kenya, 2018).

The agricultural sector plays a significant role in household income despite recurring challenges associated with climate shocks such as drought and floods, and productivity shortcomings such as food shortages and insecurity. Agriculture in Sub Sahara Africa (SSA) contributes 33% of the region's gross domestic product (GDP), 66% of its labour force and 40% of its exports. Kenya's rural economy is dependent on rain fed agriculture which is susceptible to climate variability (Mogaka, 2006).

Kwale County consists of a number of agro-ecological zones (AEZs) based on their potential for agricultural production that includes; the coastal uplands (wet), the sub-humid foot plateau, the coastal and dry hinterland and the coastal plain, hot and humid, and where crop production and fishing activities predominate. The coastal plain includes areas near the shoreline up to Vanga before the Kenya-Tanzania border including Msambweni, lower Diani and Ramisi. 82.4 % of the population live in the rural area. Subsistence agriculture contributes 80.6 % to the household income of the communities living in rural areas. Subsistence farming employs 62,681 people (MoALF, 2016). The main occupation for most households is agro- pastoralism (GoK, 2014).

Despite dependency in agro- pastoralism, the County is facing food insecurity with approximately 14% of the households having inadequate food and therefore relying on food relief. At least 13% of the households headed by males, 10% of households headed by females, and 7% of youth-headed households lack adequate food (GoK., 2014). The situation is worse between April and June when all the food reserves have been exhausted. The effects of malnutrition are observed among the community in the high incidence of stunted growth (35 %), underweight (2 %) and acute malnutrition (6 %) (GoK., 2013). The rate of absolute poverty is estimated at 74.9 %, with only 10.6 % of the households having access to electricity and 80.2 % relying on fuel wood for cooking (GoK., 2013). 57% of the County's population can read and write compared to the national average of 61.5%. The levels of literacy among females stands at 47.4 %, while that of males stands at 66.6 % (GoK, 2014).

Approximately 27.3 million tonnes of seaweed (wet weight) were produced worldwide in 2014. The largest contributors to global production are: China (48.8%), Indonesia

(36.9%), Philippines (5.7%), and North Korea (4.0%) (FAO, 2016). Seaweed in Zanzibar is a well-entrenched activity that generates money from foreign countries and gives coastal people, especially women, an opportunity to earn income for themselves and their families. Seaweed farming in Tanzania began in the 1930s when seaweed was harvested from the wild and exported to European and U.S. markets (Ephraim, 2018).

Seaweed farmers in Zanzibar have used the income generated from seaweed farming to fend for daily needs including food, medicine, consumer items, and services. The farmers are now able to buy school uniforms and books and pay school fees for their children. Similar ability of farmers to pay school fees was reported in Indonesia (Murphy, 2002).

In Kwale County, seaweed farming was introduced in 2010 with the aim of evaluating its viability and ability to provide financial gains by targeting the global market. This resulted to the Kenya Marine and Fisheries Research Institute (KMFRI) undertaking feasibility research for the past fifteen years. Policies were developed to provide a guide to execution of the pilot projects, to regulate conservation of the marine ecosystem and to ensure equity in utilization of these resources. The take up of seaweed farming in Kenya is a tactical move to enhance economic development through income earning and creation of jobs. Several people are benefitting directly or indirectly from seaweed farming. Women especially have been employed by the sector. The weed has variety of uses and can fetch good returns. It can be used as fish feeds and can be processed to generate homogenisers and thickeners in pharmaceutical, cosmetic and food industry. It can also be used as a soil conditioner and fertiliser (Nyundo, 2017). Yet with all these uses, the growers under Kibuyuni Seaweed Farmers group, are not reaping where they sow due to lack of market for their products (Mutheu & Fadhili, 2018) .

To evaluate whether societal growth equates with development, there is need to have a measure that tells us whether the development is improving the wellbeing of the people or not. Comprehension of the interests or concerns and ambitions of the poor, often left out in decision and policy making processes, is absolutely necessary to making growth and development that is more aligned to fair results related to the people (McGregor, 2015).

This study therefore focuses on understanding the effects of different livelihood strategies common at the coast on the socio-economic wellbeing of the people of Gazi and Nyumba sita villages in Msambweni, Kwale County in Kenya.

1.3 Statement of the Problem

The livelihoods of the communities living at the coastal areas of Msambweni in Kwale County are mainly subsistence in nature. They include fishing, crop growing, agro-pastoralism and ecotourism. These livelihoods have low outputs and, in most cases, lack markets therefore providing very little income to the people, leading to poverty.

The government of Kenya and non-governmental organizations for many years and currently the County government have planned for and implemented projects aimed at revitalizing these livelihoods, such as; projects in agriculture and animal husbandry, fishing gear exchange, use of Fish Aggregation Devices (FAD), value addition for seaweed among others. However, these changes have caused minimal improvement to the socioeconomic wellbeing of the people and the individual household poverty rates have remained high.

Studies conducted in the area, for example; tourism, poverty and poverty reduction in Msambweni and factors influencing the sustainability of donor aided projects in Msambweni Constituency, Kwale County, have looked at the effects of developments on the poverty levels, but none has addressed the effects of the different livelihood activities on the socioeconomic wellbeing of the communities, which is the essence of this study.

1.4 Purpose of the Study

The purpose of this study was to analyse the influence of selected household livelihood strategies on the socioeconomic wellbeing of the people living in Gazi and Nyumba sita villages in Msambweni sub-county, Kwale County in Kenya

1.5 Specific Objectives of the Study

The objectives of the study were:

- (i) To analyse the influence of agro-pastoralism on socioeconomic wellbeing of people living in Gazi and Nyumba sita in Msambweni sub county, Kwale county, Kenya
- (ii) To assess the influence of artisanal fishing on socioeconomic wellbeing of people living in Gazi and Nyumba sita in Msambweni sub county, Kwale county, Kenya
- (iii) To assess the influence of seaweed farming on socioeconomic wellbeing of people living in Gazi and Nyumba sita in Msambweni sub county, Kwale county, Kenya
- (iv) To determine the influence of livelihood diversification on the socioeconomic wellbeing of people living in Gazi and Nyumba sita in Msambweni sub county, Kwale county, Kenya

1.6 Research Questions

The study sought to answer the following research questions

- (i) What is the influence of agro- pastoralism on socioeconomic wellbeing of people living in Gazi and Nyumba sita in Msambweni sub county, Kwale County, Kenya?
- (ii) How does artisanal fishing influence the socioeconomic wellbeing of people living in Gazi and Nyumba sita in Msambweni sub county, Kwale County, Kenya?
- (iii) What is the influence of seaweed farming on the socioeconomic wellbeing of people living in Gazi and Nyumba sita in Msambweni sub county, Kwale County, Kenya?
- (iv) How is socioeconomic wellbeing influenced by livelihood diversification among people living in Gazi and Nyumba sita in Msambweni sub county, Kwale County, Kenya?

1.8 Significance of the Study

Microeconomic theory derives the conclusion that human wellbeing rises with earnings (Fuentes & Rojas, 2001). Consequently, the growth and development of an economy becomes a significant goal of economic policy in any nation.

GDP is currently the overarching measure of performance for most economies, despite the original developer of the concept, Simon Kuznets, stating in 1934 that “the welfare of a nation can scarcely be inferred from a measurement of national income”. The concept of GDP has been critiqued on many fronts in recent years; for example, the European Commission’s GDP and beyond communication and the Stiglitz-Sen-Fitoussi Report. The Stiglitz-Sen-Fitoussi Report (2009) explicitly calls for a focus on wellbeing

within a context of sustainability: A crucial communication of the report is that it's the suitable time to adapt to measuring the wellbeing of the people rather than economic performance of a country and ensuring sustainability of the wellbeing (Warhurst, 2014).

Melamed (2011) notes that there is always a detachment between the perspectives and priorities of the people and especially the poor and the decision makers. This therefore proposes that in the interest of enhanced transparency and responsibility in development and for improved efficiency of funding there is need for adoption of practises that enhances mutual understanding between the two groups. Melamed argues that if the push for results is to provide the good to the impoverished, and desirable proof for politicians to prove spending of tax payer's money and donor aid, there is need for a better measurement for measuring results in a standard manner, and determine which of the results would be most satisfying to the poor and the marginalized (McGregor, 2015).

A reliable measure of wellbeing can strongly bring the attention of policy makers to the circumstances affecting the way in which people live. If the people are statistically visible, it is very difficult to ignore them. Measuring wellbeing is essential if it will be included in policy discussions and decisions. Governments and development agencies can decide and support policies, programmes and actions that provide good/ satisfaction to the general public by using wellbeing to determine the development of the people. Aid agencies and institutions such as the World Bank can effectively deploy their scarce resources by targeting development activities/policies and plans that will positively impact on people's wellbeing.

1.9 Scope of the Study

The study covered the two villages (Gazi and Nyumba sita) that practised the 3 strategies of livelihood of focus in this study (agro- pastoralism, artisanal fishing and seaweed farming) in Kinondo ward, Msambweni sub- county, Kwale County. Due to time and budget constraints, the study did not extend to other areas beyond Kinondo ward.

1.10 Delimitations of the Study

The study did not intend to cover other sources of livelihood since their contribution to livelihoods of the people living in both Gazi and Nyumba sita was smaller compared to agro- pastoralism, fisheries and seaweed farming. The study only focused on livelihoods derived from natural resources use. Some sources of livelihood that were not being practised in both villages were not studied since their inclusion would affect results of this study.

1.11 Limitations of the Study

Due to the cross-sectional nature of the data, the interpretation of results should be limited to the groups examined at the time of this research.

1.12 Assumptions

The assumptions were that respondents would be transparent and would answer the survey questions truthfully.

1.13 Theoretical Framework

Two theories were used; the wellbeing theory and the sustainable livelihood theory.

1.13.1 Wellbeing Theory (WBT)

McGregor et al., suggested the main point of convergence is embracing the perspective that the wellbeing of the people should be perceived as ‘multi-dimensional’. For this reason, wellbeing can’t be apprehended adequately by taking into consideration a single measure such as ‘happiness’ (McGregor, 2015).

An ensuing basic idea in the increasing concurrence is the importance of taking into consideration of both the subjective and objective aspects of wellbeing in a consolidated framework (UK ONS, 2011; OECD, 2011a; UN, 2012). It is necessary to be aware of what people have or have realized in an unprejudiced perception and to comprehend how they assess their achievements. These assessments are very important for comprehending why people behave in the manner that they do (McGregor, 2015).

Unlike the other theories, the Seligman’s Wellbeing theory, incorporates two components: eudemonic (i.e., living a purposeful life) and hedonic (i.e., living a life rich in joy and pleasure). In addition, the theory includes components such as engagement and achievement (Seligman & Csikszentmihalyi, 2000).

Diener, Seligman and Csikszentmihalyi (2000) asserts that people all over the world pursue “good life” in different ways. They argue that while one might seek affluence and stardom, another might seek trustworthy relationships and making a difference in the community they live in. The question as to what exactly advances wellbeing is open and has forced interest in both conceptual and actual work. Comprehension of the determinants that enables one to flourish is a clear stride to help others to live the good life. For the WBT Seligman selected 5 aspects that are pursued by the people all over the world as indicators for wellbeing even though there are many indicators. This is

because people find them naturally rewarding. These aspects include positive emotions, engagement, relationships, meaning, and achievement (a.k.a. PERMA) (Branand, 2014).

Positive Emotions: These include the good things that people feel. For example, joy, happiness, hope among others. Diener (2003) expresses that positive emotions are the main objectives being pursued by people all over the world. Documented evidence shows that positive emotions are the main indicators of wellbeing and are associated with a person's state of physical health, satisfaction in life, resilience, a state of mindfulness, positive work results and social rewards (Diener, Oishi, & Lucas, 2003).

Engagement: This is the act of participating in life activities. Engagement is associated to other wellbeing indicators including enhanced positive result after engagement, satisfaction in life and being satisfied with the work one does and enjoying free time. In addition, engagement leads to increased commitment and achievement in academics in high school students (Rogatko, 2009).

Relationships: Another important indicator is the feeling of being valued and having close satisfying relationships with others. Bagwell et al. (2005) notes that self-esteem is related with relationship with friends. In addition, increased quality of friendships results to increased levels of wellbeing (Bagwell, Bender, Andreassi, & Montarello, 2005). In a study conducted in 55 nations with a sample representation of three quarters of the population of the world, it was found that the only common determinant of happiness was good relationships (Diener, Oishi, & Lucas, 2003).

Meaning: This refers to having a sense of purpose obtained from something seen as bigger than the self. Meaning is pursued because it gives people a feeling of fulfilment and therefore it makes life worth living. It is related with other wellbeing indicators in the entire life of an adult. In addition, it is associated with more happiness, less psychological issues and greater satisfaction to life (Seligman, 2018)

Achievement: This refers to the constant desire to accomplish something for one's sake. Therefore, this indicator should be put in operation by scrutinizing the desire people have to accomplish something (Seligman, 2011).

The 5 different aspects of the wellbeing theory work in harmony to produce a higher-level idea of wellbeing which can be used as a predictor of flourishing of people, societies, nations or organizations. When WBT was tested among a sample of school employees, Kern (2014) established significant relations between the 5 aspects and satisfaction with one's job, satisfaction in life, good state of physical health and commitment to one's organization (Kern, Waters, Adler, & White, 2014).

Supposing communities endeavour to live a good life, the authorities could strive to support activities that ensure positive affect, relationships, engagement, meaning, and achievement to enhance people's wellbeing. To offer policy and programmatic support for wellbeing, authorities and development agencies could benefit from understanding the aspects of the WBT and promote flourishing among the communities (Layous, Nelson, Oberle, Schonert-Reichl, & Lyubomirsky, 2012).

1.13.2 Sustainable Rural Livelihood Theory

Sustainable livelihoods is a model profoundly rooted in structures and concepts developed by Ian Scoones for the Department for International Development (DFID) in the early 1990's (Scoones, 1998).

The theory assumes that people pursue several avenues in an attempt to reduce vulnerability and increase livelihood assets. Based on the theory livelihood assets are categorized into financial, social, natural, physical and human capital. The model pays attention to the institutional processes that are formal and informal organizations.

This framework considers the household as the reference for social scope. In the context of the developing nation, this includes household members who live away from their homes but support the homesteads by sending remittances. In the European countries, the household includes those people who are away but continue to depend on the nuclear household.

Livelihoods results from assets that individuals and households use to meet their needs and wants. The assets are divided into five and include; human, natural, financial, social and physical capital (Ellis, 2000). External risks and shocks, seasonality and trends threaten the sustainability of livelihoods. Formal and informal institutions and policies affect the way people access and use these assets. Livelihood strategies are put together by individuals and households based on the vulnerabilities they face and the assets that they can access in relation to the operating environment and the opportunities and limitations therein (Ellis, 2000).

Livelihoods should lessen the vulnerabilities and enhance the standards of living of the people and in addition, protect and conserve the environment for them to be sustainable. In our case, the marine environment and land resources. For this to happen, it's necessary for households to establish their capital asset base (Ellis, 2000). The sustainable livelihood framework proposes therefore that for livelihoods to be supported, there needs to be enabling environment (policies and institutions), reduction of vulnerabilities and enhancing the assets base for individuals or households as depicted in Figure 1.1.

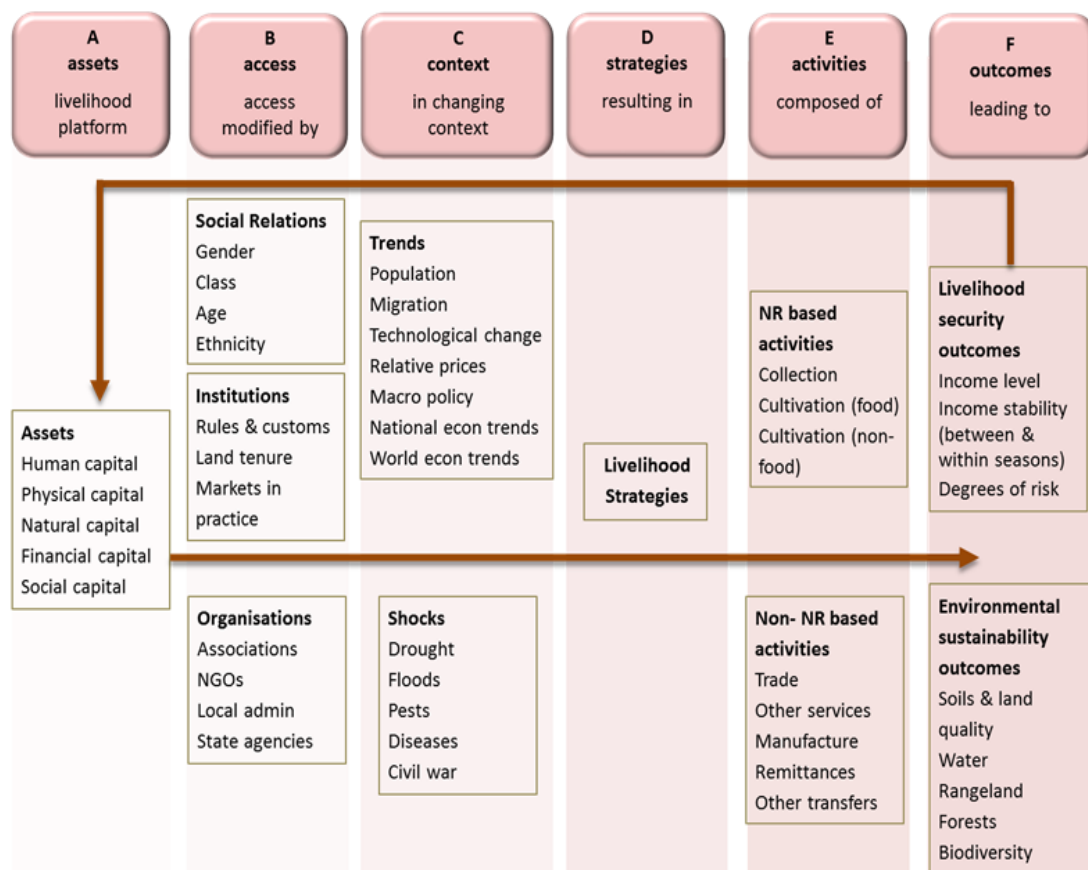


Figure 1.1: A framework for micro policy analysis of rural livelihoods (SOAS University, n.d.)

Livelihood framework applies the vulnerability context such as found in the agro-displaced community. In this community, the sustainability context refers to adaptation

to shocks and trends such as loss of income and property. The theory negates the possibility that poverty reduction can be achieved through traditional methods; instead, it applauds the role played by formal programmes in ensuring sustainable livelihoods. As explained by Krantz (2001) for a program to successfully contribute towards sustainable livelihood, it should: (i) Capture the importance of micro-level mediation on the impacts of macro-level economics on the wellbeing of individual members. (ii) Situate assets in an extensive surrounding based on their ability to achieve positive livelihood results for the poor and the marginalized in the society and, (iii) Encapsulate the entire dimension of poverty. It is not just material and financial lacking but also includes deprivation, powerlessness and social marginalization.

Through an understanding of the livelihood's frameworks, this study will be enriched in terms of understanding how the programs come to explicit choices and possible trade-offs in planning and executing development activities (Krantz, 2001).

1.14 Conceptual Framework

The framework centres on the links between livelihood strategies which households can engage in, and the mediating processes (culture, ethnicity, government policies and donor focus etc.) that lead to socioeconomic wellbeing.

The Livelihood Strategies are made up of a variety and combination of pursuits and choices that are made or undertaken by people or households so as to realize fruits of their livelihood strategies for instance improved standards of living, improved food security, increased earnings, improved social relations, access to health care, and personal security among others. They are all influenced by the mediating processes.

The conceptual framework provides a way comprehensively understanding the different limitations and opportunities affecting livelihoods to improve the situation.

Independent Variables

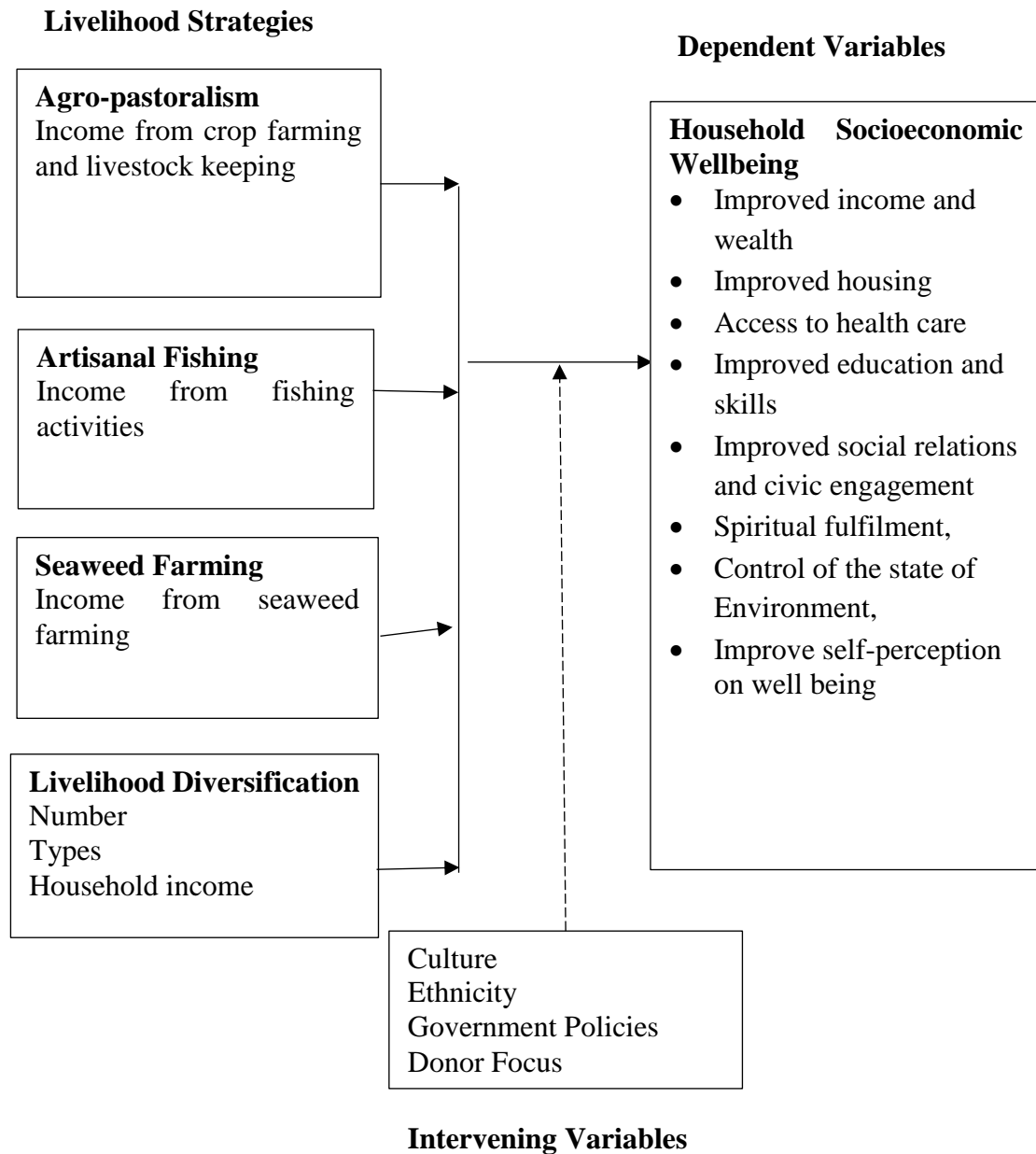


Figure 1.2: Conceptual framework showing the influence of Livelihood strategies on the household socioeconomic wellbeing of communities living in Gazi and Nyumba sita villages

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter gives a document analysis of the independent and dependent variables and a summary of gaps.

2.2 Socioeconomic Wellbeing of Households

Microeconomic theory derives the conclusion that human wellbeing rises as the individual earnings increase. Consequently, the growth of the economy becomes an important goal for public policies in all the countries (Fuentes & Rojas, 2001)

Gross Domestic Product (GDP) is currently the overarching measure of performance for most economies, despite the original developer of the concept, Simon Kuznets, stating in 1934 that “the welfare of a nation can scarcely be inferred from a measurement of national income”. GDP has been critiqued on many fronts in recent years; for example, the European Commission’s GDP and Beyond Communication and the Stiglitz-Sen-Fitoussi Report. The Stiglitz-Sen-Fitoussi Report (2009) explicitly calls for a focus on wellbeing within a context of sustainability (White & Abeyasekera, 2014).

Recognizing what individuals' inclinations are and what objectives drive them is a test from the very start of the policy process. While participatory approaches have made some progress in reflecting some of the concerns that people care about, in their own turn of events, creating records that are adequately standards for prosperity, this is just a single piece of what may be required in an evaluation of the main thing that individuals care about. To make the investigation of 'what is important for individuals'

applicable for strategy/policies and practice, there are three distinct things that must be done.

First and foremost is to recognize efficiently what is critical to individuals for them to carry on with their lives well, and in a manner that is generally understandable yet is sensitive to specific socio- cultural and economic settings. Second is to discover methods of evaluating how well individuals are getting along in their accomplishments in regard of the things that they see as significant for them to live well. Third is to build up methods of seeing how the various things that are significant for wellbeing identify with one another. This may include comprehending how they are organized and what compromises may exist between them. From the point of policy this identifies with the problem of establishing weightings in regard to the various things that matter (Adler, 2016).

The study of wellbeing has advanced in the course of the last recent 30 years, and wellbeing can now be dependably estimated at both the individual and national levels. Wellbeing information about people and countries can give valuable data to policy and decision makers and authorities. This information may help adjust analysis of costs versus benefits with measures that more precisely speak to changes in people's personal satisfaction and in what they esteem. Measuring wellbeing and the growth and development of economies at the same time, governments can evaluate all- inclusive national advancement past material expectations for everyday comforts and in this way be better positioned to promote society wellbeing (McGregor, 2015).

One of the upsides of wellbeing measures for prompting public policy is simply the idea of self-report instruments. Abstract pointers of inclinations – which mirror

individuals' own qualities and life objectives – furnish policy and decision makers with one majority rule and reasonable instrument to settle on choices even on ethically charged issues (Adler, 2016).

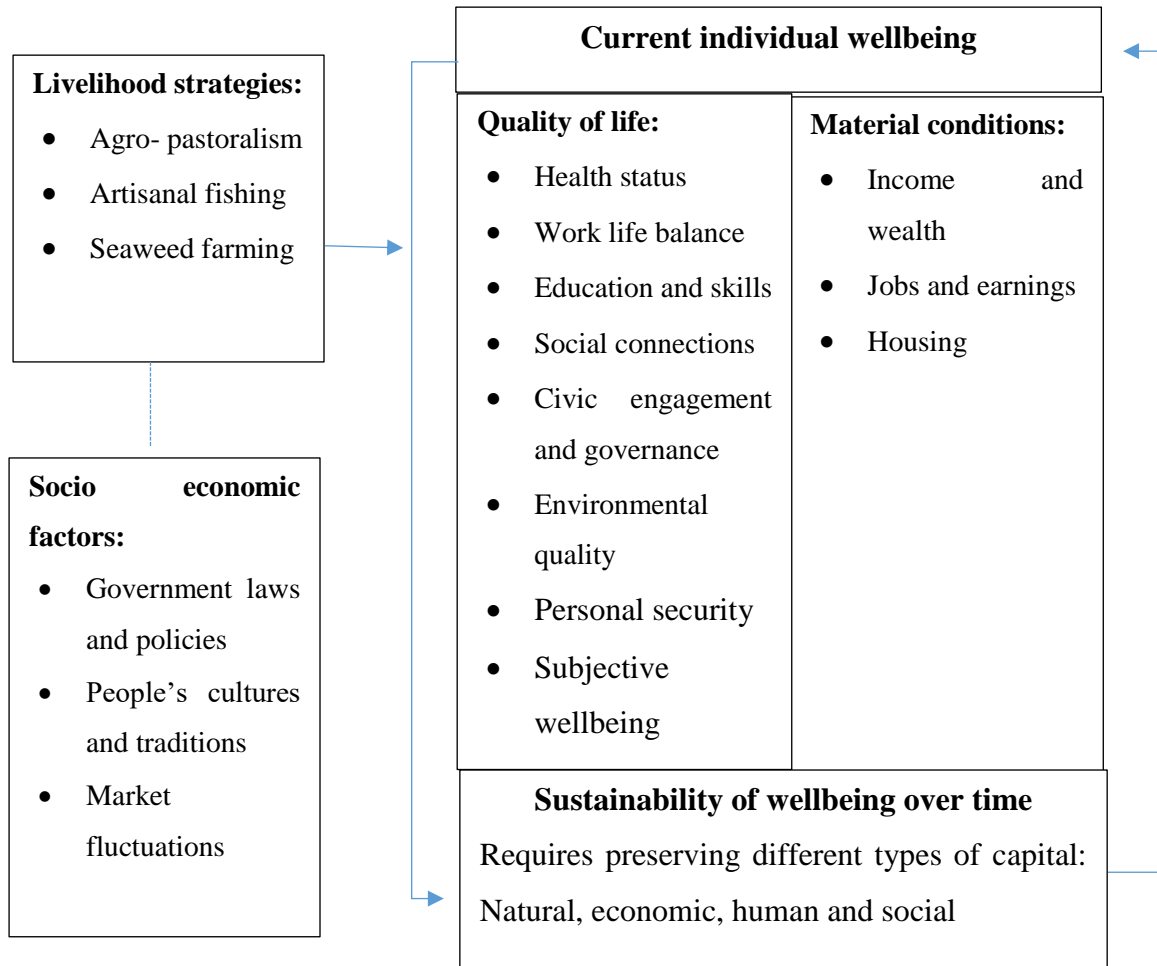


Figure 2.1: Conceptual framework Adopted and Modified from The Organization for Economic Cooperation and Development (OECD, 2013)

Financial conditions impact family choices to participate in different occupation techniques. Along these lines, various methodologies can bring about various wellbeing results as featured in the graph above. Earnings and riches measure the financial assets that individuals can utilize today or later on to fulfil different human needs and that ensure that they are not vulnerable to different risks. Both the accessibility and nature of employments are significant for individuals' prosperity, not just on the grounds that

quality occupations leads to increased command over assets yet in addition, in light of the fact that these occupations offer the chance to satisfy one's own aspirations, to create aptitudes and capacities, to feel valuable to society and to build confidence (OECD, 2013).

Access to proper housing satisfies individuals' fundamental needs. Past its natural significance, quality housing is likewise significant determinant of overall physical and mental condition of an individual and individual's own assessment, just as of social associations and access to employments and services by the government. Individual's state of health is significant in itself for individuals' wellbeing since it permit them to do various individual or communities activities that result to wellbeing (OECD, 2011).

Training and abilities can be viewed as both a fundamental need and a desire of all human beings, besides being instrumental to accomplish numerous other financial and non-monetary wellbeing results. Work-life balance is significant for individuals' prosperity as far as family life is concerned; all the more for the most part, the time that individuals can commit to recreation, individual care and to other non-work duties assist people with staying sound and profitable fruitful (OECD, 2013).

Public involvement matters, as having a voice in the political context permits one to voice their concerns in political decisions which influence their lives and to add to consultations that shape the prosperity of societies; likewise, great administration is expected to incorporate individuals' voice into strategies that help their desires for a decent life. Social associations are significant in themselves because a large number of individuals report that the most fun activities are done together with other people; however they are additionally instrumental in accomplishing various other significant

objectives, for example, getting a new line of work, or backing up if there should be an occurrence of need (OECD, 2013).

Where individuals live and work is significant in its own. Likewise, the environment matters for individuals' physical and mental health conditions and their capacity to embrace various duties (for example bringing up kids, social activities and so on.). For similar reasons, Staying in a safe area, for example where the dangers of being looted or attacked are low, is imperative to produce wellbeing (OECD, 2011).

At long last, other than personal satisfaction and the quality of life one enjoys, it is important to consider how individuals feel about their life and experience (OECD, 2013).

Four assets that can be estimated and that are important for future wellbeing include: natural, human, social and economic assets. Through the amassing or consumption of capital stocks, the decisions made by one generation can impact the other generations in terms of opportunities. Decision and policy makers, residents and institutions/agencies need data about what supports wellbeing, to assist in decision making (OECD, 2013).

2.3 Livelihood Strategies

The study considered four livelihood strategies common at the coastal areas of Kenya. The livelihood strategies include: small scale Artisanal fishing, agro-pastoralism, seaweed farming, and livelihood diversification.

2.3.1 Small Scale Fisheries or Artisanal Fisheries

Over 90% of fishers all over the globe depend on small scale artisanal fisheries as an occupation even though it creates relatively less pay than large- scale fisheries (FAO, 2008). Fisheries especially small scale are not only done for economic benefits rather, a lifestyle for many communities living along the coastline. Fishing is significant in shaping fishers' lives which is likewise part of the social structures and is obviously seen in fishing societies (Thompson, 1983).

In spite of longstanding acknowledgment that small- scale fisheries make several contributions to societies, evaluating these contributions and including them into strategies and policies has been lacking (Weeratunge & Foale, 2013).

10,000 individuals are employed by small scale fisheries in Kenya. Of the total marine catch, small scale fisheries contribute 95%, generating around US\$ 3.2 million every year. In relation to the country's total fish production, small scale fisheries account for between 2% - 6%. Approximately 60,000 people living along the coastline rely on the sector. The degree of reliance is higher in areas with low growth and development, people undertaking lowly salaried jobs and in areas with high levels of poverty.

While capture and aquaculture fisheries contributes 0.5% to national GDP, it is an important sector for the coastal communities (Mirera, Ochiewo, & Munyi, 2014).

A large portion of the marine fishing in Kenya is artisanal and small scale, working in the shallow areas. Fishing is restricted within the reef in a small area of 2.5 to 3.0 (Toda, Oporwa, & Waweru, 2012). According to FAO ; artisanal or small scale fisheries are traditional fisheries involving fishing households (as opposed to commercial companies), using relatively small amount of capital and energy, relatively small

fishing vessels (if any), making short fishing trips, close to shore, mainly for local consumption. Artisanal fisheries can be subsistence or commercial (FAO, 1999). Numerous coastal inhabitants think about fishing as a lifestyle that is passed down from one generation to the other. This is even though small scale contributes to local economies and is key in meeting people's needs. (Plan International Kenya, 2018). Notwithstanding a lot of income that marine small-scale fisheries contribute to the economy of Kenya, the fishers have been suffering from poverty evidenced by poor socio-economic conditions that they live in (UNDP, 2012). A large portion of Kenya's small-scale marine fishers live in miserable conditions brought about by poverty (Fondo, 2004). This is portrayed by low earnings, which most of the fishers' attribute to inappropriate low technology gear and equipment. As a result, the subsequent small income, results to serious hardship in their families, evidenced by poor socio-economic conditions that they live in. the reduction of fish in the ocean is forcing fishers to embrace other forms of livelihood (Bryceson, 2002).

The coastal region is among the least developed in the country, with more than 60 percent of the population living below the poverty line, with most of the people depending on the coastal and marine ecosystems for to earn a living and for their nutrition needs (WorldBank, 2017).

2.3.2 Agro-Pastoralism

Agriculture has been identified as one of the key sectors under the economic pillar of Kenya's vision 2030. Over 70% of the inhabitants are farmers. However, the agricultural production has remained low in the coastal areas due to frequent depressed rainfall trends and practicing of subsistence farming (Ministry of Agriculture, 2015). Over 75% of the coastal area is semi-arid and is dependent on rain fed agriculture

(Jaetzold & Schmidt, 1983). Coastal areas contribute to production of varied food and cash crops (cashew nuts, bixa, coconut, cotton, sisal, sugarcane, rice, mango, cassava, maize, beans, sweet potatoes, tomatoes, watermelon, banana and a number of vegetables and horticultural products). The region also supports livestock for provision of various products (milk, eggs and meat). Thus, the sector significantly supports livelihoods and economy of the coastal region (NEMA, 2017).

The Agricultural Sector Development Support Program notes that, about ten million people in Kenya suffer from chronic food insecurity and nutrition. Out of this number, between two and four million people require emergency food assistance at any given time. Majority of these people are found in the arid and semi-arid lands (ASAL) of the country (Gacheha, 2015). Kwale County is a semi- arid land (GoK, 2019).

The agriculture division assumes an essential role in ensuring food and sustenance security, contributing to the reduction of poverty, and creating jobs in Kwale County whereby 80% of the household earnings are from agro- pastoralism. Most of the farmers in the County farm the following crops; cowpea, cassava, fruits and keep the following animals; goats, poultry and a few dairy cattle. These enhance household food security. Notwithstanding the significance of farming, food insecurity is a major issue in the County. Approximately 70% of the family units are viewed as food poor and 14% report lack of adequate food to cater for their needs. As a result, the incidences of malnourishment evidenced by the number of children with stunted growth are high. Dependence on rainfall by farmers to undertake farming leaves them vulnerable to environmental shocks and risks (MoALF, 2016).

Growth in the agriculture sector at the coast region is driven by the demand for food from increasing human population leading to the conversion of land into settlement and agricultural production. Other climate related pressures are due the dependency on seasonal rainfall that is becoming sporadic.

2.3.3 Seaweed Farming

Seaweed culture in the Philippines, could offer better yields than any other work. Investigations from seaweed farmers showed that earnings from the cultivation of seaweed had resulted to increased annual earnings. The margin of increase was by USD632–1 895, and hence they were able to meet their day to day needs including paying for education for their young ones. Seaweed is cultivated in a period of 66 days and its far much less compared to mariculture for species such as finfish, lobster or abalone or growth of crops such as cassava or rice. While asked, the seaweed farmers in the Solomon Islands, regarded cultivating of seaweed as an enhanced food security, provided employment hence improving their earnings and standards of life. Albeit small scale fisheries could be increasingly rewarding on an hourly basis, cultivation of seaweed is a more secure source of livelihood, giving more pay to family units on a yearly basis than fisheries, which relies on reducing number of fish stocks (Valderrama, 2013).

Seaweed farming in India resulted in higher and steadier earnings to farmers when compared to fishing. The earnings from growing of seaweed increased the affluence of farmers and resulted to improved social relations including travelling to attend or participate in social functions. Many seaweed farmers in the United Republic of Tanzania, regarded farming of seaweed as an activity that enhanced economic benefits

as well as their ability to acquire assets, improve their housing and meet their day to day needs (Valderrama, 2013).

Seaweed farming industry is the third foreign earner in Zanzibar seconded by tourism and the clove trade. Seaweed farming constitutes approximately 90% of the marine products. Besides, around the world, Tanzania is the third principle producer of *Spinosum*, as it follows Philippines and Indonesia. The seaweed farming sector in Tanzania provides employment to 26,000 farmers (Kyewalyanga, 2016).

Notwithstanding its immediate contribution to creation of jobs for the coastal communities, seaweed farming offers other benefits to the coastal people. In a survey conducted among seaweed farmers in the Solomon Island, most of them reported that seaweed had resulted to togetherness of the community members through improving of social services such as schools and places of worship (Valderrama, 2013).

It is important to note that the most workforce (approximately 70%) in seaweed farms are women. The earnings from seaweed farming has empowered them to feel increasingly significant, as supporters of the everyday needs of their families. In certain cases, the women have become nearly the sole providers for the family, and this is unusual based on the traditions of the coastal communities in Tanzania. As a result, the status of women has been enhanced and they are more valued in their communities (Kyewalyanga, 2016).

Doctor. Flower Msuya, from Zanzibar was driving a Seaweed Cluster Initiative that worked in a triple-helix way which involved: the business side including farmers and buyers; the government and the academia. The purpose of this initiative was to provide

a platform whereby the stakeholders in the sector including the government, farmers and researchers met to discuss and offer solutions to problems or challenges that affected the sector. As a result, the initiative was supportive in reviewing and developing new policies to reduce conflicts between seaweed farmers and other users of coastal and marine resources (Kyewalyanga, 2016).

An organization called Act Change and Transform (Act!) introduced seaweed farming for commercial basis in 2010. This was done through the financing from the European Union (EU) via Regional Program for the Sustainable Management of the Coastal Zones of the Indian Ocean Countries (ReCoMap) (Nyundo, 2017).

The adoption of seaweed farming in Kenya is a deliberate move to promote economic growth and development through creations of jobs and hence incomes for the coastal population. Most women have benefited from seaweed farming as farming is mainly done by them. To ensure protection and conservation of the environment, the government ensured compliance with existing laws. As at 2017, there were no existing guidelines for seaweed farming in Kenya that provided for safeguarding of environmental and social factors (Nyundo, 2017). Feasible development of seaweed sector in Kenya could result to wellbeing of the people through employment (Buschmann, 2017).

Regardless of some development in the area, there have not been many social and economic benefits from the mariculture sector in Kenya and the potential has not been fully exploited. This is as a result of several reasons including: inadequate policies, lack of capital investments, inadequate access to the market (international), limited technological expertise and the fact that most conservation projects are driven by donor funding. In most mariculture produce were not included in the production statistics of

Kenya. Most of the production was for sold to tourists' hotel and consumed as food (Plan International Kenya, 2018).

2.4 Socioeconomic Wellbeing

In the past, financial experts and policy and decision makers have expected that most work can be measured in terms of costs and benefits related to monetary use. Additionally, they have also assumed that GDP reflect the social objectives that people desire. The discussion on whether social thriving is a downstream impact of GDP has been there for more than four decades. It was in 1974 when Richard Easterlin published information that questioned whether GDP resulted to wellbeing. His investigations uncovered that GDP and life fulfilment are unequivocally associated for developing nations. He however noted that past a certain threshold, the correlation was minimal between GDP and life fulfilment (Adler, 2016).

Wellbeing can be understood as the assets that an individual has the ability to command, what they can accomplish with those assets, and the necessities and objectives they can meet; and the value they give to the objectives they accomplish and the procedures for engagement. A key component of this last element of significance, and an essential driver of future plans and desires of the individual, is simply the personal satisfaction that they see themselves as accomplishing.

Wellbeing should consolidate the 'objective' conditions of an individual and their 'own' view of their condition. Moreover, wellbeing can't be thought of just as a result, however as a condition that emerges from the interaction of results and processes. This interaction of results and processes must be comprehended as solidly situated in the

society and moulded by cultural, social, political, economic and psychological processes. (Aradda, 2016).

Evidence progressively underpins that wellbeing may be used to evaluate and contribute to policy aspects including moral debates, unemployment, social capital and trust, externalities and tax structures. Despite the fact that a large portion of the current evidence depends on individuals own assessment of wellbeing as opposed to multidimensional measures of both living a life rich in joy and pleasure and living a purposeful life, the information available indicated that using wellbeing as a measure was desirable and feasible (Adler, 2016).

Incorporating measures of benefits and costs through the wellbeing of individuals may help policy and decision makers prevent negative effects of risks and shocks, and to set aside resources to the most beneficial practical options (Adler, 2016).

Factors about individual personal growth and development, satisfaction and happiness are inward facing. Research shows that these aspects are affected by how people behave in their daily lives. This includes how they engage with the government and the services provided by the state (Warhurst, 2014).

Wellbeing was declared as the main objective of existence of human beings by Aristotle. He saw wellbeing as significant in its own and not just as a means to an end (Robinson, 1989; Irwin, 1985). At the same time, wellbeing is the lack of disabling experiences including anger, anxiety, fear, depression among others and the existence of promoting experiences such as healthy relationships, achievements, meaning, positive emotions, engagement and self-actualization (Adler, 2016).

Policy and decision makers use the indicators of progress to evaluate and develop policies, plans and programmes. The standard measures of the progress of the economy should be accompanied with measures of wellbeing to portray the changes occurring in quality of life of individuals and the society.

2.4.1 Measurement of Socioeconomic Wellbeing

It features both objective and subjective data, recognising that to understand people's wellbeing you need to know both their objective circumstances and how they feel about their lives.

Income and Wealth: Earnings and riches are basic parts of the wellbeing of people and the society at large. Both extend individuals' consumption prospects, giving them the assets to fulfil their requirements and needs. Riches likewise permits people to spend resources over time and to shield them from unforeseen circumstances that could result to impoverishment. Earnings and riches additionally bring non-financial advantages, for example, higher life fulfilment and the chance of living in more secure and cleaner areas, good mental and physical health conditions, higher education levels among others (OECD, 2011).

Education: Gaining knowledge through education and training is normally viewed as a method for enhancing individuals' wellbeing with education in high school giving better returns/benefits, particularly for women (Cornia & Court, 2001). There is significant proof that even in settings where individuals are denied of other fundamental services like adequate clean and safe water, children whose mothers are educated have more possibilities of endurance and survival over those of mothers who are not educated. Acquiring knowledge through education and training is subsequently

normally seen as an amazing element in smoothing the one's chances as it gives people the ability to acquire a higher salary and way of life. By being literate and getting specialized or proficient aptitudes, individuals increases their odds of acquiring conventional, better-paying occupations. Imbalances in quality and access to training and education regularly results into differentials in work, occupation, pay and social class. These variations are common and will in general be controlled by financial and family foundation. Since such disparities are commonly transferred from one generation to another, access to education and work opportunities are in a specific way acquired, with portions of the populace systematically marginalized or excluded.

Housing Conditions: Housing conditions are a pointer of how much individuals live in humane state. Building and materials utilized in the development of the floor, rooftop and wall dividers of a house are additionally characteristic of the degree to which they shield inhabitants from the components and other natural risks and dangers. The State of housing also affects provision of other services including access to electricity, piped water, garbage disposal and management. Similarly, the state of the housing affects the security, the physical and mental conditions and the overall wellbeing of individuals. Inadequate access to key services results to higher occurrence of illnesses, less opportunities for conducting business and unfavourable learning environment (OECD, 2011).

Health Status: Individuals' physical and mental health condition is one of the most esteemed parts of individuals' life. Individuals put their physical and mental health conditions, along with occupations, as the most factors that influences their day to day environments. Individuals' physical and mental health conditions matter in itself, yet to

also accomplish different elements of wellbeing, for example, having steady employments and sufficient pay, an individual must have the ability to participate fully in civil rights as well as in social activities and to acquire education (OECD, 2011).

Social Connections: People are social animals. The recurrence of their contacts with others and the nature of their own connections with others are critical determinants of wellbeing. Individuals get joy from investing time and energy with others, including their family, companions or workmates. Work is all the more fulfilling when done together with other people. Moreover, social relations can offer support (material and emotional) in the midst of hardship, just as giving access to employments and different opportunities. Social connections additionally have more extensive ramifications past the group of friends, affecting degrees of trust inside their communities, which is a significant driver of different results including physical and mental health conditions, participation in civil rights and engagement in criminal activities (OECD, 2011).

Work Life Balance: Finding harmony between the duties of work and those of private life is vital to individuals' wellbeing. If the work is little, it can prevent individuals from gaining enough income to accomplish the quality of life that is desired. On the other hand, an excessive amount of work can likewise negatively affect wellbeing if individuals' physical and mental health conditions suffer as a result, or if the ability to do other tasks, for example, caring for their young ones and different family members, having time for recreation activities is affected (OECD, 2011).

Civic Engagement: Taking an interest in civic roles and responsibilities through for example voicing political concern or interest, is important to a person's wellbeing.

Expressing political interest or voicing political concern is a fundamental human right that is beneficial to all people, however it additionally increases the responsibility and the viability of policies and plans meant for the public. This has thusly a solid effect on wellbeing as policies meant for the public good has a solid bearing on people's lives, for example through provision of services by the government, the establishment of institutions and markets and legal system and so forth. Notwithstanding these advantages, taking an interest into community life permits people to build up a feeling of belonging and to trust others (OECD, 2011).

Environmental Quality: The nature of the environment where individuals live is an important segment of individuals' personal satisfaction and quality of life. The effect of ecological pollutants on physical health conditions is substantial, with approximately one fourth of the burden of diseases in the world linked with bad or poor state of the environment. In any case, nature likewise matters naturally when individuals attach significance to the magnificence and the tidiness of where they live (OECD, 2011).

Social Capital: There are 4 primary ways of thinking through and measuring social capital and they include the following (Scrivens & Smith, 2013): Personal relationships, social network support, civic engagement, trust and cooperative norms. Personal relationships refer to individual networks for example family members and workmates and how people behave to build those relationships and maintain them including interacting and communicating regularly through the different means. Social network support refers to the immediate result of individual's close relationships and refers to the factors that are at hand to each one through their networks, these factors include professional, emotional, financial, material or intellectual. Civic engagement includes

participation in civic duties and responsibilities and in community life. For example; membership in groups including political groups, volunteering in the community among others.

Trust and cooperatives norms refer to the values that are shared and the prospects that foster proper functioning of a society to promote reciprocal benefits for all. The most important measurement for the sustainability of wellbeing over a period is trust and co-operative norms. There are 2 primary purposes behind this core interest. To begin with, trust and co-operative norms pileup gradually and are generally constant after some time and would thus be transferred from one generation to another. Second, trust and co-operative norms have solid and wide-going important worth, adding to the working of cultural frameworks; social solidness, market and state infrastructure and the aggregate activities which thusly support economic growth and other key parts of social advancement (OECD, 2011).

Subjective wellbeing: Ideas of "satisfaction", "utility", or "wellbeing" have long been considered as part of a good life. They tend to give a view that what is important in a good life isn't the availability of favourable set of conditions, rather the effect these have on how individuals feel about their life. Life fulfilment captures an intelligent appraisal of how things are going in one's own life, and permits evaluating which life conditions and circumstances are significant for wellbeing as assessed by oneself (Kahneman and Krueger, 2006). Taking a gander at life fulfilment measures likewise helps in comprehending the gap between everyday living conditions of individuals and their own assessment of these conditions (OECD, 2011).

2.5 Summary of Review of Literature and Research Gap(s)

Donor aid and government support has been provided based on donor's interest, political interest or consideration of GDP as opposed to people's interest. There is growing realization that GDP is a measure of economic quantity and not economic quality or welfare. All research work and surveys done in the study area have focused on poverty reduction. As evidenced in the literature review, the people are still suffering from high levels of poverty. A key reason for measuring wellbeing is to understand whether, where and how life is getting better for the people. According to Adler 2016, data still indicate that measuring wellbeing is feasible and desirable.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research design, target population, study sample, study instruments, data collection, analysis and presentation.

3.2 Research Design

The research employed descriptive research design. Descriptive research design uses both qualitative and quantitative research approaches to describe a population, phenomenon or situation in a systematic and accurate manner. In descriptive research, the researcher does not control or manipulate any of the variables, but only observes and measures them (Nassaji, 2015).

3.3 Research Site

Kwale County is one among the 5 counties of the coastal region that borders the Western Indian Ocean. It borders Taita Taveta County to the North West, Kilifi County to the North East, Taita Taveta and Kilifi to the North, Mombasa County and Indian Ocean to the East and United Republic of Tanzania to the South. The County is located at around 4°10'28" South 39°27'37" East. Kwale County is in the southern coastal region of Kenya and has four sub counties namely: Matuga, Msambweni, Kinango and Lunga Lunga (Kwale). The project site is based at Gazi and Nyumba sita in Msambweni sub-county. The researcher was interested in livelihoods derived from natural resources along the coastal strip which includes small- scales fishing, seaweed farming and agro-pastoralism. The two villages of Gazi and Nyumba sita were chosen because they are along the coastal strip and the households in both villages were practising the three livelihood strategies that were of interest to this research. Secondly, because the two

villages were adjacent to each other and this enabled the research to be conducted without much constraints on time and finances. The other 2 villages that practised seaweed farming in Kenya (Funzi and Kibuyuni) were in a different sub- county and far from each other.

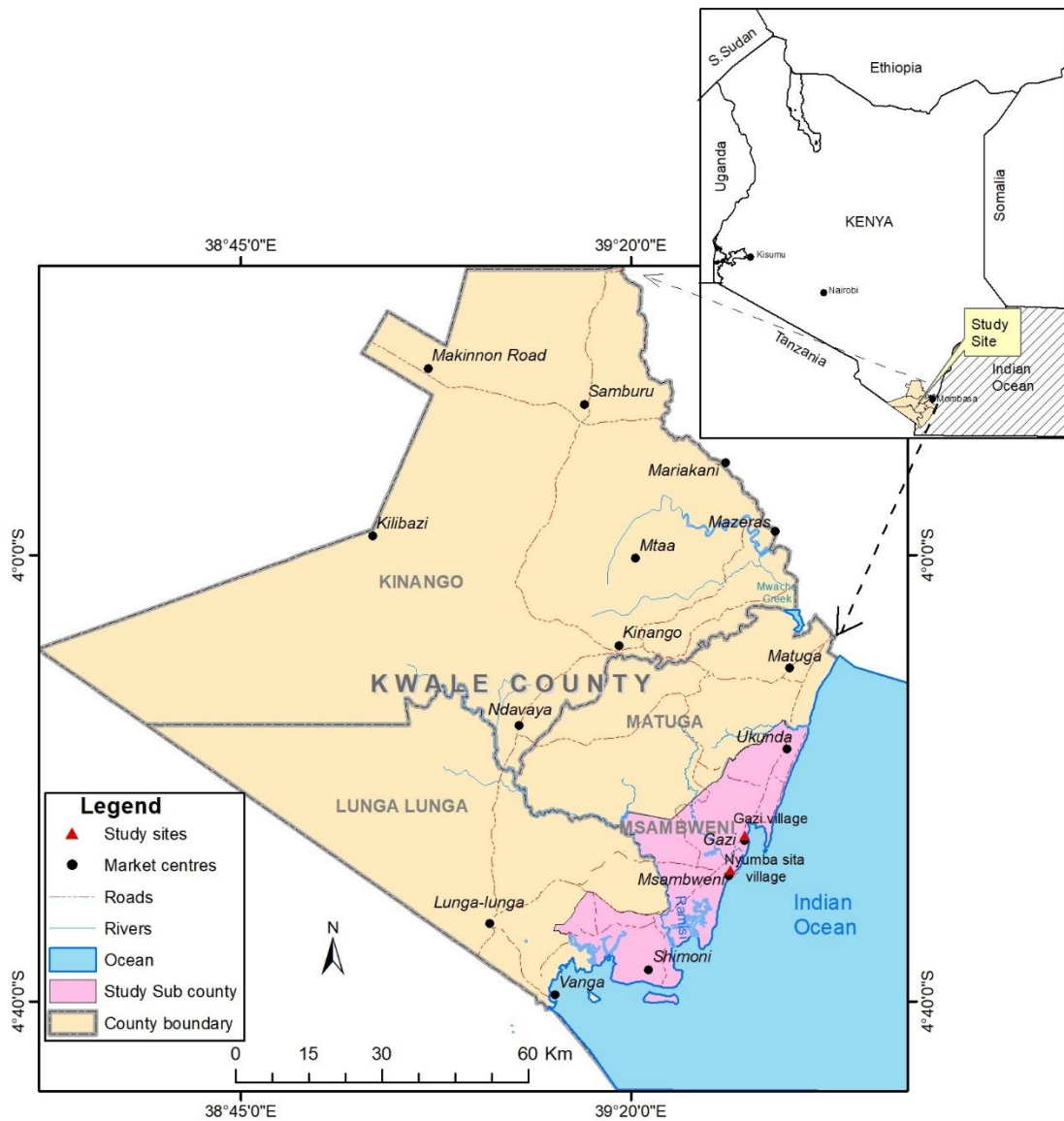


Figure 3.1: Map showing study area

3.4 Target Population

The study targeted the farmers engaged in seaweed, agro- pastoralists and fishers along the coastline at Gazi and Nyumba- Sita, Msambweni sub- County, Kwale County. From the records by the Chairmen for Beach Management Units and village chairmen in both

villages the target population was 905 households. A target population refers to a group of individuals with a common observable characteristic (Ruane 2005). This is the population that the researcher uses to generalise the results of the study (Mugenda, 2003).

Table 3.1: Number of Fishermen, Seaweed Farmers and Agro- Pastoralists in Gazi and Nyumba Sita

Activity	Gazi	Nyumba sita	Total
Fishermen	230	57	287
Seaweed farmers	25	32	57
Agro- pastoralists	350	211	561
Total	605	300	905

Data provided by the Chairmen of the Beach Management Units and villages chairmen

3.5 Study Sample

Study sample is the smaller group of population to be studied drawn from the entire population (Leedy & Ormrod, 2005). For this study the sample was drawn from agro-pastoralists, seaweed farmers and small-scale fishers in Gazi and Nyumba sita villages.

3.5.1 Study Sample Size

The study sample for the 905 households was 269. The sample was determined based on the formula of Kjerchie and Morgan (1970) which is the same as using the Krejcie and Morgan's sample size determination table. The sample size determination table is derived from the sample size calculation using the formula below (Krejcie & Morgan, 1970).

$$s = \frac{X^2 NP(1-P)}{d^2 (N-1) + X^2 P(1-P)}$$

Where,

s= required sample size.

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (0.05 = 3.841).

N = the population size.

P= the population proportion (assumed to be 0.50 since this would provide the maximum sample size.)

d= the degree of accuracy expressed as proportion (0.05).

Table 3.2: Krejcie and Morgan's Sample Size Determination Table

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Where,

N= Population Size

S= Sample Size

The sample size for households in the two villages were as shown in Table 3.2

Table 3.3: Study Sample Size

Activity	Study sample in	Study sample in	Total
	Gazi	Nyumba sita	
Small scale fishers	72	18	90
Seaweed farmers	15	23	38
Agro- pastoralists	84	57	141
Total	171	98	269

3.5.2 Sampling Procedure

Stratified random sampling procedure was used in this study. The livelihoods in the two villages of Gazi and Nyumba sita formed the strata. Within the livelihoods the respondents were selected using simple random procedure. Gazi and Nyumba sita villages were selected purposively to answer to the objectives of our study.

3.6 Data Collection

Data was collected from households in Gazi and Nyumba sita villages in Msambweni.

3.6.1 Data Collection Instruments

The instrument which was applied in this study was questionnaires. Questionnaires had both quantitative and qualitative questions which the respondents would respond to with the aim of drawing as much information as possible for analysis. The questionnaires were administered through KOBO digital platform to enhance accuracy by minimizing errors resulting from data entry. The questionnaires were administered by research assistants. The research also undertook document review (secondary data) as a method of inquiry.

3.6.2 Pilot Testing of Research Instruments

The research instrument was pilot tested prior to administering the questionnaire in the field. The pilot team included all the field assistants who administered the survey for the main data collection to gain “hands-on” experience with the study tools prior to commencing field work. At the close of testing, upon receipt of comments from the field assistants, the changes were implemented to the study tools for final review and approval. According to Connelly (2008), extant literature suggests that a pilot study sample should be 10% of the sample projected for the larger parent study (Connelly, 2008). In this study, 28 participants from both villages were used to pilot test the tool; 12 fishermen, 10 mixed farmers and 6 seaweed farmers. The 28 participants did not form the actual respondent sample thereafter.

3.6.3 Instrument Reliability

To ensure reliability of the instrument in the study, the same questionnaire was administered to all the respondents. The researcher trained all the research assistants on how to use the tool and to familiarize with the questionnaire. The research assistants got to understand all the questions. Cronbach’s Alpha was used to analyze the piloted data to test reliability of the instrument using the formula;

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N - 1) \cdot \bar{c}}$$

Where:

- N = the number of items.
- \bar{c} = average covariance between item-pairs.
- \bar{v} = average variance.

3.6.4 Instrument Viability

The study questionnaire had questions consistent with the research objectives and the variable under the study.

3.6.5 Data Collection Procedures

The questionnaires were administered to randomly selected persons in the study area, who were undertaking one or more of the 3 strategies of livelihood of focus in this study. The questionnaires captured respondents' views on opinions based the objectives of the study. The research assistants guided the respondents through the questionnaires to ensure standardisation in asking of questions. This also ensured that respondents who needed further clarification were assisted to ensure qualified responses.

3.7 Data Processing and Analysis

Quantitative and qualitative data collection was carried out using questionnaires and document review. The raw data was imported on Microsoft Excel for cleaning and analysed using Statistical Package for the Social Sciences (SPSS version 26) as the main program for data analysis. Descriptive (means, median, mode and frequency distribution) and inferential (Linear regression, ANOVA and post hoc test, t-test measurements for mean comparison) statistics were used to analyse the data. A linear regression is defined by the equation;

$$y = bx + a + \epsilon$$

Where:

- x is an independent variable.
- y is a dependent variable.
- a is the *Y-intercept*, which is the expected mean value of y when all x variables are equal to 0. On a regression graph, it's the point where the line crosses the Y axis.
- b is the *slope* of a regression line, which is the rate of change for y as x changes.

- ε is the random error term, which is the difference between the actual value of a dependent variable and its predicted value.

The analysed data was presented in the form of single-variable and multi-variable frequency tables, pie-charts and graphs.

3.8 Legal and Ethical Consideration

All the study participants consented to the study before the research was undertaken. The respondents were notified that participation was voluntary and hence no compensation was provided. Interviewees could end to their participation during the survey at any time without having to justify why they took the decision. The researcher made adequate arrangements to ensure the information provided was held in confidence.

The researcher sought for a license from NACOSTI to allow the research to be undertaken. In addition, the researcher also sought for permission from the County Government of Kwale to allow for the research to be undertaken in Kwale County. The authority was provided with a written request expressly stating the value of the study, reassurance on safety and ethics. While the cooperation of the authorities or gatekeepers was of paramount importance, the researcher did not allow them to be the final decision-makers on the selection and composition of the study participants to eliminate bias from this end.

Table 3.4: Summary of Data Analysis and Statistical Tools

Objectives	Variables	Method of Data analysis
(i) To analyse the influence of agro-pastoralism on socioeconomic wellbeing of people living in Gazi and Nyumba sita in Msambweni sub county, Kwale county	Independent variable: agro-pastoralism Dependent: Social economic wellbeing	Descriptive statistics Linear regression t- test
(ii) To assess the influence of small-scale fisheries on socioeconomic wellbeing of people living in Gazi and Nyumba sita in Msambweni sub county, Kwale county	Independent variable: small scale fisheries Dependent: Social economic wellbeing	Descriptive statistics Linear regression t- test
(iii) To assess the influence of seaweed farming on socioeconomic wellbeing of people living in Gazi and Nyumba sita in Msambweni sub county, Kwale county	Independent variable: seaweed Dependent: Social economic wellbeing	Descriptive statistics Linear regression t-test
(iv) To determine the influence of livelihood diversification on the socioeconomic wellbeing of people living in Gazi and Nyumba sita in Msambweni sub county, Kwale county	Independent variable: diversified livelihoods Dependent: Social economic wellbeing	Descriptive statistics Linear regression t-test Comparisons (Post hoc tests)

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter presents results and their interpretation on how livelihoods influence the socioeconomic wellbeing of households found along the coastal strip of Msambweni area in Kwale County. The chapter is divided into the following sections: (i) characteristics of the residents of the coastal strip of Msambweni, (ii) livelihood characteristics of the coastal strip of Msambweni, (iii) socioeconomic wellbeing of the households along the coastal strip of Msambweni, (iv) influence of agro-pastoralism on the socioeconomic wellbeing of the households in Gazi and Nyumba sita villages, (vi) Influence of artisanal fishing on the socioeconomic wellbeing of households in Gazi and Nyumba sita villages . (vii) Influence of seaweed farming on the socioeconomic wellbeing of households in Gazi and Nyumba sita villages (viii) influence of livelihood diversification on the socioeconomic wellbeing of people living in Gazi and Nyumba sita villages.

4.2 Characteristics of the Residents of Gazi and Nyumba sita Villages

The study determined the characteristics of the residents of the study area found along the strip of the coastal area of Msambweni. The households of Gazi and Nyumba sita villages formed the study sample. The section presents results on the sex, age, marital status, education level and religion of the respondents.

4.2.1 Sex of the Household Heads in Gazi and Nyumba sita Villages

The household heads sex was noted during the household survey and the data was summarized and is given in Table 4.1.

Table 4.1: Sex of Household Heads in Gazi and Nyumba sita Villages

Sex	Frequency	Percent
Male	151	56.1
Female	118	43.9
Total	269	100.0

The majority (56.1 %) of the household heads in Gazi and Nyumba sita villages were male.

4.2.2 Age Distribution of the Household Heads in Gazi and Nyumba sita Villages

The age of the household heads was asked during the interview and the data were analysed and summarised into six categories and is presented in Table 4.2.

Table 4.2: Age of Household Heads in Gazi and Nyumba sita Villages

Age Categories (Years)	Frequency	Percent
Below 20	6	2.2
21-30	63	23.4
31-40	133	49.4
41-50	55	20.4
51-60	10	3.7
Above 61	2	.7
Total	269	100.0

Mean $36 \pm .52$, median 35, mode 35, standard deviation 8.52, min 19 maximum 70

The age categories of the household heads (Table 4.2) show that very few of the household heads were above 61 years of age.

A chi-square test for the equality of age categories was performed and the results are shown in Table 4.3.

Table 4.3: Chi-square Test for Equality of the Categories of Age Distribution

Age categories	Observed N	Expected N	Residual	Statistics
Below 20	6	44.8	-38.8	$\chi^2=284.673$
21-30	63	44.8	18.2	$df= 5$
31-40	133	44.8	88.2	$p < .001$
41-50	55	44.8	10.2	
51-60	10	44.8	-34.8	
Above 61	2	44.8	-42.8	
Total	269			

The chi-square results show that the age category of 31-40 years was highly represented among the residents of Gazi and Nyumba sita villages in Kwale and these results were statistically significant ($\chi^2=284.67$, $df 5$, $p < .001$).

4.2.3 Marital Status of the Household Heads in Gazi and Nyumba sita Villages

The household heads were asked to state their marital status, the data was then analysed and given in Table 4.4.

Table 4.4: Marital Status of the Household Head in Gazi and Nyumba Sita Villages

Marital Status	Frequency	Percent
Married	197	73.2
Single	44	16.4
Widowed	20	7.4
Separated	8	3.0
Total	269	100.0

The majority (73.2 %) of the household heads in Gazi and Nyumba sita villages were married, while 26.8 % of the household heads were managing their households alone.

4.2.4 Formal Education Level Attained by the Household Heads in Gazi and Nyumba sita Villages

The household heads were asked to state the highest educational level they had attained, the data was analysed and is presented in Table 4.5.

Table 4.5: Level of Formal Education Attained by the Household Heads

Education Level	Frequency	Percent
No Formal Education	63	23.4
Primary	102	37.9
Secondary	81	30.1
College	20	7.4
University	3	1.1
Total	269	100.0

The number of household heads who had not attended any formal schooling was found to be 63 (23.4 %) of the total sample size. The percent of the household head that had gone to secondary school and above was found to be 38.6 %, this was the number that could be trained to train others in new technology and practices.

4.2.5 Household Size in Gazi and Nyumba sita Villages

The total number of people living in the households was determined and the descriptive statistics and frequency distribution are given in Table 4.6.

Table 4.6: Number of People Living in the Households in Gazi and Nyumba sita

Number	Frequency	Percent
1	6	2.2
2	38	14.1
3	72	26.8
4	66	24.5
5	46	17.1
6	24	8.9
7	16	5.9
8	1	.4
Total	269	100.0

Mean $3 \pm .09$, Median 3, Mode 2, Standard deviation 1.48, Minimum 1, Maximum 8

The household numbers within the households was small (an average of 3)

4.2.6 Religious Affiliation of the Residents of Gazi and Nyumba sita Villages

The majority (88.5 %) of the households were Muslim as shown in Table 4.7.

Table 4.7: Religious Affiliation of the Household Heads

Religious Affiliation	Frequency	Percent
Muslim	238	88.5
Christian	31	11.5
Total	269	100.0

The majority (88.5 %) of the households were Muslims, while 11.5 % were Christians, this is a good representation of the coastal people where the majority are Muslims.

4.3 Livelihood Characteristics in Gazi and Nyumba sita Villages

The livelihood characteristics of the people living in Gazi and Nyumba sita villages were described under the following sub-sections: villages and households covered by the survey, and livelihood options.

4.3.1 Villages and number of Households in Gazi and Nyumba sita Villages

The villages and number of households covered are shown in Table 4.8.

Table 4.8: Villages and Number of Households Surveyed During the Study

Villages	Frequency	Percent
Gazi	182	67.7
Nyumba Sita	87	32.3
Total	269	100.0

The survey covered the two villages of Gazi and Nyumba sita in Msambweni sub-county. The majority (67.7 %) of the respondents were from Gazi village.

4.3.2 Livelihood Options Undertaken by Household Heads in Gazi and Nyumba Sita Village

The household heads were asked to state their main livelihood they were involved in and the results are shown in Table 4.9.

Table 4.9: Livelihoods undertaken by Households in Gazi and Nyumba Sita Village

Livelihoods	Frequency	Percent
Agro- pastoralism	141	52.4
Fishing	90	33.5
Seaweed farming	38	14.1
Total	269	100.0

The majority (52.4 %) of the households were involved in crop farming and keeping of livestock, while 33.5 % were involved in fishing and 14.1 % in seaweed farming.

4.4 Socio-economic Wellbeing of the Households in Gazi and Nyumba sita Villages

The socioeconomic wellbeing of the members of the households living in Gazi and Nyumba sita villages along the coastal strip of Msambweni sub-county in Kwale 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 members who were interviewed during the survey rated the 32 indicators of the 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 in the seven domains were added together to form an index of socioeconomic wellbeing of the Gazi and Nyumba sita households. The internal reliability of the created socioeconomic wellbeing index using Cronbach's alpha (α) was calculated and found to be .896, which was acceptable. The descriptive statistics for the scores of the 32 indicators items are given in Appendix B. The descriptive statistics for the seven (7) domains and the index of wellbeing are presented in Table 4.10.

Table 4.10: Descriptive Statistics for the Wellbeing Domains of the Households in Gazi and Nyumba sita Villages

Indicator Items	Rating by the Gazi and Nyumba sita Households				
	Mean	Median	Mode	Std. dev	Range
Standard of living	5.16	4.33	4.00	2.23	8.17
Good health	4.91	5.00	1.00	3.08	8.67
Safety	5.17	4.00	4.00	2.27	8.00
Social Relations	4.36	3.33	3.33	1.84	8.00
Spiritual fulfilment	5.33	4.00	4.00	2.27	8.00
Environment	5.03	4.00	4.00	2.16	7.50
Emotions and Affiliations	3.28	2.80	2.40	1.95	5.00
Wellbeing index	4.75	3.73	3.68	2.00	6.87

n=269. 1=Very low and 10= Very High.

The mean of the wellbeing index was 4.75 on a scale of 1 to 10. The index was then divided into five (5) categories as follows: Very low 1-2, Low 2-4, Moderate 4-6, high 6-8, and Very high 8-10. The descriptive statistics and the frequency distribution of the socioeconomic wellbeing index for the households in Gazi and Nyumba sita villages are presented in Table 4.11.

Table 4.11: Frequency Distribution of Wellbeing Categories of Households in Gazi and Nyumba sita Villages

Wellbeing Categories	Frequency	Percent
2-4 (Low)	180	66.9
4.01-6 (Moderate)	31	11.5
6.01-8 (High)	32	9.8
8.01-10 (Very High)	65	19.9
Total	269	100.0

Mean 4.75±.122, Median 3.73, Mode 3.68, Std. dev. 2, Min 2.32, Max 9.18

The majority (66.9 %) of the households in Gazi and Nyumba sita villages were found to have a socioeconomic wellbeing index of between 2 and 4, and a mean of 4.75 which was low.

4.4.1 Comparison of the Socioeconomic Wellbeing of the Livelihood Options

The socioeconomic wellbeing of the households was analysed in relation to the three livelihoods considered in this study (agro-pastoralism, artisanal fishing, and seaweed farming). The analysis was done to determine which of the three livelihoods in the two villages had the highest mean. An ANOVA was conducted to compare the means of the livelihoods. The descriptive statistics (means, standard deviation, standard error and minimum and maximum values) of the three livelihoods are shown in Table 4.12.

Table 4.12: Descriptive Statistics for Socioeconomic Wellbeing of the Livelihoods

Livelihoods	n	Mean	Std. Dev.	Std. Error	Min	Max
Agro-pastoralism	141	5.36	2.365	.199	2.74	9.18
Seaweed farming	38	4.66	1.397	.226	2.32	7.99
Artisanal fishing	90	3.83	1.026	.108	2.36	9.18
Total	269	4.75	2.006	.122	2.32	9.18

n=number of samples, std. dev =standard deviation, min =minimum, max =maximum

The results (Table 4.9) show that of the three livelihoods Agro-pastoral had the highest socioeconomic wellbeing, followed by seaweed farming and finally artisanal fishing. The main purpose of running the one-way ANOVA was to establish whether there were any statistically significant differences on the dependent variable (household socioeconomic wellbeing) among the three independent variables (agro-pastoral, artisanal fishing, and seaweed farming). 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 4.13.

Table 4.13: ANOVA Table for Mean Comparisons showing the F-test

	Sum of Squares	df	Mean Square	F	p
Between Groups	129.72	2	64.86	18.17	.001
Within Groups	949.18	266	3.56		
Total	1078.91	268			

The F-test (Table 4.13) results indicate that there was a statistically significant difference in household socioeconomic wellbeing of the three livelihoods, $F(2, 266) = 18.17, p < .001$). We can therefore conclude that statistically significant differences exist in the socioeconomic wellbeing of the different livelihoods (agro-pastoral, artisanal fishing, and seaweed farming) in households found in Gazi and Nyumba sita villages.

A post hoc test was then conducted to determine the means that were statistically significant from the others. Post hoc analysis was performed using Bonferroni post hoc tests. The comparison of the mean pairs for agro-pastoral (I) and seaweed farming (J) and artisanal fishing (J) the 95 % confidence interval for the difference between group I and J, statistical significance value (p value) and standard error are shown in Table 4.14.

Table 4.14: Pairwise Comparisons

(I) Main source of livelihood	(J) Main source of livelihood (I-J)	Mean Difference (I-J)	Std. Error	p	95% Confidence Interval	
					Lower Bound	Upper Bound
Agro- pastoralism	Fishing	1.53	.254	.001	.934	2.13
	Seaweed farming	.696	.345	.045	-.117	1.50

The mean comparison results for the mean pairs in Table 4.14, indicate that household socioeconomic wellbeing for the seaweed farming and artisanal fishing were statistically significantly lower than the agro-pastoral.

In comparing the mean differences for the artisanal fishing and sea weed farming, the agro-pastoral livelihood had significantly higher mean differences 1.53 (95% CI, .934 to 2.13), $p < .001$ than the artisanal fishing and .696 (95% CI, -.117 to 1.50), $p < .001$ for seaweed farming.

This is the true representation of the situation in the two villages Gazi and Nyumba sita: agro-pastoral contributes more to the people's wellbeing than artisanal fishing and seaweed farming.

4.5 Influence of Agro-Pastoralism on the Socioeconomic Wellbeing of the Households in Gazi and Nyumba Sita Villages

The first objective of this study was to analyse the influence of agro-pastoralism on socioeconomic wellbeing of people living in Gazi and Nyumba sita villages in Msambweni sub county, Kwale County

4.5.1 Agro-pastoralism in Gazi and Nyumba sita Villages

The first independent variable for this study was agro-pastoralism which is a form of livelihood where the households keep livestock and grow crops. The livestock that were kept by the households in Gazi and Nyumba sita were: cattle, sheep and goats, and poultry. The income generated from livestock keeping included the sale of live animals, milk and manure. The income generated by the households keeping livestock was calculated. The income from crops was from the sale of crops and other farm produce, these were: maize, cassava, fruits, cashew nuts, coconuts, and bixa.

The income from crops and livestock was then added together and the descriptive statistics and frequency distributions are shown in Table 4.15

Table 4.15: Income from Agro-pastoralism in Gazi and Nyumba Sita Villages

Income in KES	Frequency	Percent
20000-49999	38	14.1
50000-70999	37	13.8
80000-109,999	22	8.2
110000-139999	7	2.6
140000-169999	5	1.9
170000-199999	18	6.7
Above 200,000	14	5.2
Total from Livestock	141	52.4
Households without Livestock	128	47.6
Total	269	100.0

Mean 51,610±4,127, Median 26,250, Mode 0, Std. dev. 67,292, Range 250,000

The mean income from agro-pastoralism was KES. 51,610 with a standard deviation of KES 67,292 indicating a variation in income among the households of Gazi and Nyumba sita villages. These differences could be attributed to different number of animals and the size of the farms owned by the households.

4.5.2 Influence of Agro-pastoralism on the Level of Household Socio-economic Wellbeing of Gazi and Nyumba sita Villages

The influence of the independent variable agro-pastoralism as a livelihood option on the level of household socioeconomic wellbeing in Gazi and Nyumba sita villages (the dependent variable) was determined by use of simple linear regression. The results of the regression model are presented in Table 4.16.

Table 4.16: Regression Model Summary for Agro-pastoralism and Household Socioeconomic Wellbeing in Gazi and Nyumba sita Villages

R	R Square	Adjusted R Square	Std. Error of the Estimate
.751 ^a	.565	.563	1.32624

Predictors: (Constant), agro-pastoral income

Dependent: Level of household socioeconomic wellbeing

The model indicates an adjusted R^2 value of .565; this means that the independent variable agro-pastoralism livelihood option explained approximately 56.5 % of the variation in the dependent variable household socioeconomic wellbeing of Gazi and Nyumba sita villages. The F test for the regression model is shown in the ANOVA Table 4.17.

Table 4.17: ANOVA Table for the Regression Testing the Fit of the Model

	Sum of Squares	df	Mean Square	F	p
Regression	609.283	1	609.283	346.399	.001
Residual	469.627	267	1.759		
Total	1078.910	268			

Dependent Variable: household wellbeing

Predictors: (Constant), agro-pastoral income

The overall regression model was found to be significant ($F(1, 267) = 346.39, p < .001$).

The regression coefficients of the model showing the beta, t statistics and the collinearity statics are shown in Table 4.18

Table 4.18: Regression Coefficients for Agro-pastoralism and Household Socioeconomic Wellbeing in Gazi and Nyumba sita Villages

	Unstandardized		Standardized	t	p.	Collinearity
	Coefficients		Coefficients			Statistics
	B	Std. Error	Beta			VIF
(Constant)	3.604	.102		35.42	.001	
Agro-pastoral income	2.227E-5	.000	.751	18.61	.001	1.00

Dependent Variable: household wellbeing

Predictors (constant): agro-Pastoral income

The regression analysis shows that agro-pastoralism as a livelihood option has positive significant influence ($\beta=.751$, $t=18.61$, $p< .001$) on the household socioeconomic wellbeing in Gazi and Nyumba sita villages. This indicates that as the households increases its agro-pastoralism it increases the socioeconomic wellbeing of the Gazi and Nyumba sita households.

4.6 Influence of Artisanal Fishing on the Socioeconomic Wellbeing of Households in Gazi and Nyumba Sita Villages

The second objective of this study was to assess the influence of artisanal fishing on socioeconomic wellbeing of people living in Gazi and Nyumba sita in Msambweni sub county, Kwale County, Kenya.

4.6.1 Artisanal Fishing and Household Socioeconomic Wellbeing

The independent variable artisanal fishing (or traditional/subsistence fishing) are various small-scale, low-technology, low-capital, fishing practices undertaken by individual fishing households (as opposed to commercial companies). Many of these households are of coastal or island ethnic groups. These households make short (rarely overnight) fishing trips close to the shore. Their produce is usually not processed and

is mainly for local consumption. Artisan fishing uses traditional fishing techniques such as rod and tackle, fishing arrows and harpoons, cast nets, and small (if any) traditional fishing boats.

The variable artisanal fishing was assessed by determining the amount of income obtained by the households from the sale of fish harvested from the ocean. The income was assessed by getting the average daily sales of fish and multiplying them with the number of days in a year. The descriptive statistics and frequency distribution of the income from artisanal fishing is shown in Table 4.19.

Table 4.19: Descriptive Statistics and Frequency Distribution of Income from Fishing

Income in KES	Frequency	Percent
No Fishing	179	66.5
7320.00	1	.4
54900.00	2	.7
64000.00	1	.4
66900.00	1	.4
73200.00	78	29.0
75000.00	1	.4
91500.00	3	1.1
102000.00	1	.4
119000.00	1	.4
124000.00	1	.4
Total	269	100.0

Mean 24,729±2,167, median 0, Mode 0, Std. dev 35,554, min 0, max 124,000

The results show that the mean of income derived from artisanal fishing was KES 24,729 with a standard deviation of 35,554 indicating a high variation in the data.

4.6.2 Assessing Influence of Artisanal Fishing on the Household Socio-economic Wellbeing of Gazi and Nyumba sita Villages

The influence of the independent variable artisanal fishing as a livelihood option on the level of household socioeconomic wellbeing in Gazi and Nyumba sita villages (the dependent variable) was determined by use of simple linear regression. The results of the regression model are presented in Table 4.20.

Table 4.20: Regression Model Summary for Artisanal Fishing and Household Socioeconomic Wellbeing in Gazi and Nyumba sita Villages

R	R Square	Adjusted R Square	Std. Error of the Estimate
.322 ^a	.104	.100	1.90315

Predictors: (Constant), artisanal fishing income
Dependent: Household socioeconomic wellbeing

The model indicates an adjusted R^2 value of .100; this means that the independent variable artisanal fishing livelihood option explained approximately 10 % of the variation in the dependent variable household socioeconomic wellbeing of Gazi and Nyumba sita villages. The F test for the regression model is shown in the ANOVA Table 4.21.

Table 4.21: ANOVA Table for the Regression Testing the Fit of the Model

	Sum of Squares	df	Mean Square	F	p
Regression	111.846	1	111.846	30.880	.001
Residual	967.065	267	3.622		
Total	1078.910	268			

Dependent Variable: household wellbeing total
Predictors: (Constant), income from fish per year

The overall regression model was found to be significant ($F(1, 267) = 30.88, p < .001$). The regression coefficients of the model showing the beta, t statistics and the collinearity statistics are shown in Table 4.22.

Table 4.22: Regression Coefficients for Artisanal Fishing and Household Socioeconomic Wellbeing in Gazi and Nyumba sita Villages

	Unstandardized		Standardized	t	p	Collinearity
	Coefficients		Coefficients			Statistics
	B	Std. Error	Beta			VIF
(Constant)	5.203	.141		36.79	.001	
income from fish per year	-1.817E-5	.000	-.322	-5.55	.001	1.000

Dependent Variable: household wellbeing
Predictors (constant): artisanal fishing income

The regression analysis shows that artisanal fishing as a livelihood option has negative significant influence ($\beta = -.322, t = 5.55, p < .001$) on the household socioeconomic wellbeing in Gazi and Nyumba sita villages. This indicates that the household's socioeconomic wellbeing is negatively influenced by the fishing livelihood option.

4.7 Influence of Seaweed Farming on the Socioeconomic Wellbeing of Households in Gazi and Nyumba Sita Villages

The third objective of the study was to assess the influence of seaweed farming on socioeconomic wellbeing of people living in Gazi and Nyumba sita in Msambweni sub county, Kwale County, Kenya

4.7.1 Seaweed Farming in Gazi and Nyumba sita Villages

The independent variable for this objective was the income derived from seaweed as a livelihood option. Seaweed farming or kelp farming is the practice of cultivating and harvesting seaweed. In its simplest form, it consists of the management of naturally

found batches. In its most advanced form, it consists of fully controlling the life cycle of the algae.

The income from seaweed was determined from the money received after selling dried seaweed. The harvested material is normally dried and sold by weight. The data was analyzed and the descriptive statistics and frequency distributions were calculated and are shown in Table 4.23.

Table 4.23: Descriptive Statistics and Frequency Distribution for the Seaweed Farming

Income in KES	Frequency	Percent
20000-32000	4	1.5
32001-44000	19	7.1
44000-56000	10	3.7
56001-68000	4	1.5
68001-70000	1	.4
above 70,001	3	1.1
Total	41	15.2
Other Livelihood options	228	84.8
Total	269	100.0

Mean 6,968 +1053, median 0, mode 0, Std. dev 17,285, min 0, max 79,900

The mean income received by households in Gazi and Nyumba sita villages from seaweed farming was KES 6,968 and the standard deviation was KES 17,285 indicating a wide variation among the households.

4.7.2 Assessing the Influence of Seaweed Farming on the Household Socio-economic Wellbeing of Gazi and Nyumba sita Villages

The influence of the independent variable seaweed farming as a livelihood option on the level of household socioeconomic wellbeing in Gazi and Nyumba sita villages (the dependent variable) was determined by use of bivariate linear regression. The results of the regression model are presented in Table 4.24.

Table 4.24: Regression Model Summary for Seaweed Farming and Household Socioeconomic Wellbeing in Gazi and Nyumba sita Villages

R	R Square	Adjusted R Square	Std. Error of the Estimate
.052 ^a	.003	-.001	2.00749

Predictors: (Constant), seaweed farming income

Dependent: Household socioeconomic wellbeing

The model indicates an adjusted R^2 value of $-.001$; this means that the independent variable seaweed farming livelihood option explained approximately 1 % of the variation in the dependent variable household socioeconomic wellbeing of Gazi and Nyumba sita villages. The F test for the regression model is shown in the ANOVA Table 4.25.

Table 4.25: ANOVA Table for the Regression Testing the Fit of the Model

	Sum of Squares	df	Mean Square	F	p.
Regression	2.891	1	2.891	.717	.398
Residual	1076.020	267	4.030		
Total	1078.910	268			

Dependent Variable: household wellbeing

Predictors: (Constant), income from seaweed farming

The overall regression model was found to be non-significant ($F(1, 267) = .717, p = .398$). The regression coefficients of the model showing the beta, t statistics and the collinearity statistics are shown in Table 4.26.

Table 4.26: Regression Coefficients for Seaweed Farming and Household Socioeconomic Wellbeing in Gazi and Nyumba sita Villages

	Unstandardized		Standardized	t	p.	Collinearity
	Coefficients		Coefficients			Statistics
	B	Std. Error	Beta			VIF
(Constant)	4.712	.132		35.69	.000	
Seaweed income	6.009E-6	.000	.052	.847	.398	1.000

Dependent Variable: household wellbeing

Predictors (constant): seaweed farming income

The regression analysis shows that seaweed farming as a livelihood option has no significant influence ($\beta=.052$, $t=.847$, $p=.398$) on the household socioeconomic wellbeing in Gazi and Nyumba sita villages. This indicates that the household's socioeconomic wellbeing is not influenced by the seaweed livelihood option.

4.8 Influence of Livelihood Diversification on the Socioeconomic Wellbeing of People Living in Gazi and Nyumba Sita Villages.

The fourth objective for this study was to determine the influence of livelihood diversification on the socioeconomic wellbeing of people living in Gazi and Nyumba sita in Msambweni sub county, Kwale County, Kenya

4.8.1 Livelihood Diversification in Gazi and Nyumba sita Villages

The independent variable livelihood diversification was operationalized as the number of livelihood options the household was undertaking. The household with more options was more diversified than the household with fewer options. The major available livelihood options in the Gazi and Nyumba sita were seaweed farming, agro-pastoralism, artisanal fishing, "jua kali", small business, permanent employment in government offices and hotels along the coast. The household heads were asked to state the livelihoods they were involved and using a dummy variable or a 0, 1 variable (where a zero was allocated for an option that the household was not undertaking and 1 for an

option that the household was undertaking) the total number of livelihood options were then summed up and the descriptive statistics and frequency distribution of the variable level of household livelihood diversification in Gazi and Nyumba sita villages are given in Table 4.27.

Table 4.27: Descriptive Statistics and Frequency Distribution of Level of Livelihood Diversification for Households in Gazi and Nyumba sita Villages

Level of Diversification	Frequency	Percent
1.00	80	29.7
2.00	99	36.8
3.00	16	5.9
4.00	21	7.8
5.00	18	6.7
6.00	35	13.0
Total	269	100.0

Mean 2.64 ± 1.05 , Median 2, Mode 2, Std. Dev. 1.72, Minimum 1, Maximum 6.

The level of Livelihood Diversification for the households in Gazi and Nyumba sita villages ranged between 1 and 6 with a mean of 3. The household with more than 3 as level of diversification were 33.4 %, while only 29.7 % relied on one livelihood.

4.8.2 Determining the Influence of Livelihood Diversification on the Socio-economic Wellbeing of Gazi and Nyumba sita Villages

The influence of the independent variable livelihood diversification on the level of household socioeconomic wellbeing in Gazi and Nyumba sita villages (the dependent variable) was determined by use of bivariate linear regression. The results of the regression model are presented in Table 4.28.

Table 4.28: Regression Model Summary for Livelihood Diversification and Household Socioeconomic Wellbeing in Gazi and Nyumba sita Villages

R	R Square	Adjusted R Square	Std. Error of the Estimate
.910 ^a	.828	.828	.83393

Predictors: (Constant), livelihood diversification

Dependent: Level of household socioeconomic wellbeing

The model indicates an adjusted R^2 value of .823; this means that the independent variable livelihood diversification explained approximately 82.3 % of the variation in the dependent variable level of household socioeconomic wellbeing of Gazi and Nyumba sita villages. The F test for the regression model is shown in the ANOVA Table 4.29.

Table 4.29: ANOVA Table for the Regression Testing the Fit of the Model

	Sum of Squares	df	Mean Square	F	p.
Regression	892.758	1	892.758	1283.738	.001
Residual	184.986	266	.695		
Total	1077.744	267			

Dependent Variable: level of household wellbeing

Predictors: (Constant), level of livelihood diversification

The overall regression model was found to be significant ($F(1, 266) = 1283.7, p < .001$).

The regression coefficients of the model showing the beta, t statistics and the collinearity statics are shown in Table 4.30

Table 4.30: Regression Coefficients for Livelihood Diversification and Household Socioeconomic Wellbeing in Gazi and Nyumba sita Villages

	Unstandardized		Standardized	t	p	Collinearity
	Coefficients		Coefficients			Statistics
	B	Std. Error	Beta			VIF
(Constant)	1.953	.093		20.90	.001	
Livelihood						
Diversification	1.062	.030	.910	35.82	.001	1.00

Dependent Variable: level of household wellbeing

Predictors (constant): livelihood diversification

The regression analysis shows that livelihood diversification has positive significant influence ($\beta=.910$, $t=35.82$, $p< 0.001$) on the level of household socioeconomic wellbeing in Gazi and Nyumba sita villages. This indicates that as the households diversify to more livelihoods their level of socioeconomic wellbeing also increases.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

In this chapter, a discussion of the findings, conclusions and recommendations related to the research objectives were provided.

5.2 Discussion

This section provided a discussion of the findings in the following manner;

- (i) The socio- demographic characteristics of the sampled population
- (ii) The influence of agro-pastoralism on the socioeconomic wellbeing of the households in Gazi and Nyumba Sita villages
- (iii) The influence of artisanal fishing on the socioeconomic wellbeing of the households in Gazi and Nyumba Sita villages
- (iv) The influence of seaweed farming on the socioeconomic wellbeing of the households in Gazi and Nyumba Sita villages
- (v) The influence of diversification of livelihoods on the socioeconomic wellbeing of the households in Gazi and Nyumba Sita villages

5.2.1 The Socio- demographic Characteristics of the Sampled Population

The minimum age of the respondents was 18 years. Most of the respondents fell in the age category between 20- 40 years. This finding corresponds with the Kenya population 2019 census report. Based on the report, the population in the different age categories is as follows; the total population of the youths between 18-19 years was projected to be 4%, while 20-40years at 35.7%, above 60 years at 4.9% and the rest, children under 18 years (KNBS/ KPHC, 2019). The county has a small population of people above the age of 60 years hence there were only few respondents in this age category. Similarly,

there were few respondents in the age category below 20 years since the study only focused on adult participants aged 18 years and above.

Most of the respondents had attended formal education at different levels (Primary, Secondary, College and University). These findings are similar to the findings by the Kenya Population and Housing Census (KNBS/KPHC, 2019), which indicated that in Msambweni, only 14.2% of the population had never been to school while 38.2% were at school, 32.6% had left learning institution after completion and 14.3% had started schooling but left before completion (KNBS/KPHC, 2019). The Digo people, predominant in Msambweni Sub-county are predominantly Muslims (KAACR, 2010) hence the largest population of respondents (88.5%) were Muslims.

5.2.2 Influence of Agro-Pastoralism on the Socioeconomic Wellbeing of the Households in Gazi and Nyumba Sita Villages

Several reasons have been documented explaining why agro-pastoralism would have a positive influence on socio-economic wellbeing. Among the reasons includes; (i) It ensures adequate supply of food ensuring food security, (ii) it promotes rural development, (iii) it is a source of employment for the rural population and (iv) it contributes to capital formation.

The key source of food supply all over the world for both underdeveloped, developing and even developed nations is Agriculture (Praburaj, 2018). Communities grow food crops and keep livestock for food supply. Livestock products contributes to food sustenance in both urban and rural areas. Livestock products include meat, milk and eggs. As family unit earnings expands, the utilization of animal proteins increases, particularly replacing vegetable protein with animal protein.

Agro- pastoralism remains a significant force for poverty reduction and economic growth in Kenya. The Special Focus section of the 2019 Kenya Economic Update (KEU) by World Bank Group, recognized that households that were exclusively undertaking agro- pastoralism in Kenya contributed 31.4% to rural poverty reduction. Additionally, the report also noted that increases in agro- pastoralism sector productivity benefits households suffering from poverty and could possibly reduce suffering from poverty (World Bank Group, 2019). Praturaj, 2018, noted that, in Nigeria, the social welfare of rural areas improved as agricultural surplus increased as a result of improved agricultural production. In rural areas, people led a life of comfort and they had all modern equipment. This included; modern houses, modern clothes, radios and television.

In underdeveloped and developing countries agro- pastoralism provide creates job opportunities for rural people on a large scale (Praturaj, 2018). From 2013-2017, the Kenya Economic Update (KEU) report noted that at least 56% of the total labor force in 2017 was contributed by agro- pastoralism (World Bank Group, 2019).

Agriculture accounts for notable source of capital and the underdeveloped and developing countries need huge amount of capital for its economic development (Praturaj, 2018). Apart from being eaten as food, agriculture products can be sold to bring income to local communities. Livestock act as a living reserve for funds and can be changed over into money at whatever point the family needs. Livestock are a security resource that can contribute to access to informal credits and advances and additionally an insurance for advances. In numerous locations, in exceptional where money related markets are missing or non-existent, animals are a source of capital accumulation and are used as a measure of prosperity. Livestock can be sold whenever needed, to fulfil

individual plans, for example, to pay for school fees and bridal wealth or unexpected costs such as to pay for hospital bills for sick persons or contribute to support for burial of a loved one. Hence livestock resources can be regarded as a 'savings account'. Additionally, it acts as an asset that can be liquidated during tough times such as when people are experiencing famine or when crop productivity has been low to boost household earnings, hence reducing their vulnerabilities. Livestock provides energy for tilling land where modern technology is not available. In addition, manure from livestock is used to increase land productivity as opposed to use of fertilizers or when fertilizers are not available (Bettencourt, 2015).

5.2.3 Influence of Artisanal Fishing on the Socioeconomic Wellbeing of Households in Gazi and Nyumba Sita Villages

There are several reasons why artisanal fishing would have a negative influence on the socioeconomic wellbeing. (i) Lack of recognition of artisanal fishing as a viable economic opportunity, (ii) dwindling fisheries in the near shore waters where artisanal fishers undertake their fishing (iii) lack of skills and affordable modern equipment and gears to venture in the deep sea, (iv) seasonality of the livelihood strategy, (v) Poor post-harvest management and poor marketing strategies and (vi) lack of access to capital.

Many coastal fishers across the globe, Kenya included, have regarded fishing as a cultural activity, a way of life, rather than an economic pursuit (Adjei & Sika, 2019). This has resulted to underinvestment in the sector by fishers as they still use traditional fishing equipment, methods and gears for fishing passed to them by their forefathers.

The reef fishery in Kenyan waters shows evidence of over-exploitation with yields from the lagoonal reef fisheries declining (Maina, Obura, Alidina, & Munywoki, 2008). The marine fishery in Kenya is majorly artisanal focused on the habitats of shallow reef,

reef lagoons, creeks and seagrass environments. Increase in human population have led to increase in the number of fishers and increased competition for the reducing stocks of fish in the nearshore waters. In addition, there is reported use of destructive fishing gears and practises by fishers that lead to destruction of marine ecosystem and hence fishery habitat (coral and mangrove), and fishing of juveniles thereby affecting recruitment of fish. Some of the destructive methods that are of concern include the dynamite bombs, wrong use of ring nets, spear guns, beach seines among others. This because of their indiscriminate and destructive nature (Kiaka, 2012).

Most fishers in Gazi and Nyumba sita lack skills and affordable modern fishing equipment and gears to venture in the deep sea. A large majority (88%) of fishers use traditional and rudimentary equipment, methods and gears, which are not able to venture offshore or in the deep sea. They include; fence traps, beach seines, hand lines (hook and lines), basket traps, spearguns, gillnets, and cast nets, dugout canoes propelled by sail power or paddles. Only a few fishers have motorized boats (Mbaru, 2012).

Fishing activities are affected by seasons dictated by North East Monsoon and South-East Monsoon. The peak season for fishing known as “Kaskazi” (North- East Monsoon) is between the months of August and March during when the sea is calm. In “Kusi” – South East Monsoon (April to August), the sea is very rough, and fishing is at in lowest (Kiaka, 2012).

When it comes to post harvesting, only few members of the communities are equipped with the right refrigeration or ice-cold equipment and skills for post-harvest processing and market equipment to ensure maximum benefits from the fisheries resources. Very

few can undertake value addition to improve earnings from their occupation. Moreover, since fishers market and sell their catches as individuals, and in their primary form without adding value, they are disadvantaged in market transactions as compared to marketing and selling through market systems that are organized (Signa, Tuda, & Samoily, 2008).

Without regular income due to swindling of fish stock, individuals have difficulties in saving and getting formal loans. The lack of affordability to modern boats and gear and the lack of refrigeration facilities are linked to lack of savings culture and lack of access to credit.

To address these issues, there was need to change fishers' attitudes towards fishing as an economic pursuit rather than a way of life and to promote culture of saving, to enhance fisher's skills on modern fishing methods and to promote investment in modern fishing gears and equipment and fish processing equipment. In addition, there is need to undertake exploitation of mariculture and aquaculture as an alternative to marine fishing to reduce pressure on the dwindling resources.

5.2.4 Influence of Seaweed Farming on the Socioeconomic Wellbeing of Households in Gazi and Nyumba Sita Villages

For seaweed business to thrive and have a positive influence on socioeconomic wellbeing of the people, several factors must be put in consideration. These factors include: (i) Availability of market for seaweed products, (ii) availability of infrastructure to ensure quality of the produce and (iii) proper environmental conditions for growth of seaweed.

The market for seaweed in Kenya is unstable as farmers did not sell any produce from 2014 until 2018 (Fadhili, 2019). The seaweed sector depends on both the farmers and buyers. For the buyer a financial break-even production is reached at 300 metric tonnes per year for *Cottonii* and 500 metric tonnes per year for *Spinosum*. Only few countries, Kenya excluded, have so far developed production of at least 1,000 metric tonnes dry-weight, and maintained it for over a period of time (SmartFish., 2012). According to FAO, developing nations can use low technology to produce agar. However, these products can't access international market because of low competitive edge and must be consumed in the country where they are produced. For the seaweeds that can be consumed by humans, developing nations are best placed to produce products that can be consumed locally. It is very expensive to produce large quantities of edible seaweeds for export. The risk is also high as it is difficult to break into the international market dominated by Asian countries (FAO, 2001).

It is important to have the right post harvest infrastructure to ensure seaweed meets the expected quality for export standards. Harvested seaweed requires proper handling to prevent contamination (SmartFish., 2012). International buyers require a product with a 30% moisture content and of a high standard of cleanliness and quality which is achieved only by drying on a drying table, to avoid contamination with animal droppings, for example, which may contain faecal coliform bacteria (Nyundo, 2017). In Gazi there are no drying tables. Farmers dry their seaweed on the ground. The drying tables in Nyumba sita are inadequate and are not sheltered. When harvested seaweed is rained it also deteriorates in quality. The seaweed bales should be stored in a watertight storage area. Seaweed bales should also not be stored for prolonged periods of time (not more than 6 months). Stored seaweed should also be kept in a dry environment to

maintain good quality. Storage areas that are moist could lead to fermentation thereby affecting quality of carrageenans (FAO, 2001). Both Gazi and Nyumba sita villages do not have warehouses for storing dried seaweed. Instead farmers store seaweed in their houses where the risk of contamination is high.

Salinity affects the growth of seaweed, especially if it drops rapidly (FAO, 2001). River Mkurumudzi drains into the Indian Ocean at the border of Gazi and Nyumba Sita. During the rainy season the rain drains larger amounts of fresh water into the ocean thereby dropping salinity levels rapidly. This leads to massive loss of seaweed. *Cottonii* species goes for double the price of *Spinosum*. However, *Cottonii* is affected by more by environmental factors compared to *Spinosum*, making it hard to grow successfully. Farmers at Gazi and Nyumba sita undertake farming of *Spinosum* after incurring losses from farming of *Cottonii*.

To address these challenges, both the county and national governments and other development actors need to invest in infrastructure (sheltered drying racks or tables, storage facilities and equipment for value addition equipment) to support seaweed farming and assist in realization of socioeconomic benefits from the sector. The government and other development actors invested heavily in the above-mentioned infrastructure in Kibuyuni village in Kwale County where seaweed farming has been going on in large scale as opposed to areas of Gazi and Nyumba sita. In one of the dailies Kibuyuni farmers reported that through the seaweed farming, they had managed to invest in table banking, catered well for their children and build better houses, strides that they never thought they would ever accomplish (Ali, 2018). This was after making Kenya shillings 1.3 million in 2014 when they sold 44 tonnes of dried seaweed and Kenya Shillings 2 million in 2019 from 100 tonnes of their crop (Fadhili, 2019).

Hence proper investment in the sector would result to benefits to the people of Gazi and Nyumba sita.

5.2.5 Influence of Livelihood Diversification on the Socioeconomic Wellbeing of People Living in Gazi and Nyumba Sita Villages.

There are several reasons why diversification of livelihoods has positive influence on the socioeconomic wellbeing. These reasons include; (i) diversification of livelihoods leads to supplemented incomes, (ii) through diversification of livelihoods people can accumulate wealth, and (iii) diversification of livelihoods helps communities to cope with environmental shocks associated with climate variability (Dimova & Sen, 2010). Diversification is a source of income growth and a potential means of reducing rural poverty (Amanze, Ezeh, & Okoronkwo, 2015). Diversification across different types of crops (cash crops versus food crops, for example) or across different types of activities (fishing, farming in combination with livestock rearing or remittances derived from the migration of some members of the household to cities, for example) can lead to significant income enhancement for the household (Dimova & Sen, 2010). Omotesho (2020) reported that income from diversified sources had contributed significantly to farming households' welfare in Nigeria (Omotesho, Akinrinde, Ogunlade, & Egbugo, 2020). Artisanal fishing and related activities are the main economic activities for households at Gazi and Nyumba sita villages. They have been a source of income and for the coastal villages located along the Msambweni coastal strip. However, in the recent past, the fish stocks have been on the decline attributed to various reasons. Consequently, incomes from fishing and related activities have reduced. Some households in Gazi and Nyumba sita have undertaken other livelihood activities including seaweed farming, agro-pastoralism, eco-tourism among others to supplement their incomes to meet their daily and other needs.

Research has shown that livelihoods diversification resulted to accumulation of wealth in Sub-Saharan Africa, with family units with access to capital or large tracks of land shifting to undertake activities that have higher returns for example; non- farm employment and livestock keeping (Dercon, 1998, Block & Webb, 2001, De Weerd, 2010). Some household in the sampled population make investment outlays to; meet fixed costs in the purchase of cattle and agricultural implements, set up a non-farm enterprise or pay for the education of their children for the skilled labour market.

Diversification of livelihoods strengthens household resilience. UNISDR (2005) defines resilience as ‘the capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing to reach and maintain an acceptable level of functioning and structure’ (UNISDR, 2005). The farming sectors has greatly been affected by risks and shocks related to climate change. Dependence on rainfall for farming makes farmers vulnerable to vagaries of climate changes (MoALF, 2016). As a result, it is necessary to strengthen the resilience and adaptive capacity of farmers to cope and recover from threats associated with the changing climate. By engaging in other livelihood activities, the people of Gazi and Nyumba sita villages, are not only contributing to absorption of rural surplus labour but have also enabled reduction in income uncertainties. This could be a feasible adaptation strategy to climate change.

5.3 Summary of Findings

This section provided a summary of findings based on the study.

- (i) Agro- pastoralism was found to have a positive influence on the socioeconomic wellbeing of the people of Gazi and Nyumba sita villages.

- (ii) Artisanal fishing was found to have a negative influence on the socioeconomic wellbeing of the people of Gazi and Nyumba sita villages.
- (iii) Seaweed farming was found to have no influence at all to the socioeconomic wellbeing of the people of Gazi and Nyumba sita villages.
- (iv) Livelihoods diversification had a positive influence on the socioeconomic wellbeing of the people of Gazi and Nyumba sita villages.

5.4 Conclusions

This study explored the extent to which livelihood activities influence the socio-economic wellbeing of the communities in Gazi and Nyumba sita villages. The analysis of data collected during the study reveals that different livelihood activities influence people's wellbeing differently. The study importantly found that; (i) Agro- pastoralism has positive influence on the socioeconomic wellbeing, (ii) Artisanal fishing has negative influence on the socioeconomic wellbeing, (iii) Seaweed farming has no influence on socio economic wellbeing and , (iv) Livelihoods diversification has a positive influence on socioeconomic wellbeing on the people of Gazi and Nyumba sita villages in Kwale County.

The analysis in this report adopted the use of wellbeing index with 7 domains; standards of living, good health, safety, social relations, spiritual fulfilment, environment and emotions and affiliations, offering conclusion that measuring growth using GDP alone offer limited insights into wider wellbeing. The study suggests that measures of wellbeing should be used along with economic indicators to promote individual and societal progress by prioritising what matters most to the people.

5.4 Recommendations

The following were the recommendations for the study:

Community members need to diversify within livelihoods to increase their socioeconomic wellbeing. There is also need for the people of Gazi and Nyumba sita villages to increase their portfolio of economic pursuits to encompass a wider range of productive areas. According to the findings the more the diversified sources of livelihood in a household, the higher the wellbeing. For most livelihood strategies, allocation of labour is seasonal and hence members of a household can engage in different livelihood activities at a particular time. For example, a fisherman can fish during the night and farm during the day or engage in seaweed farming.

National and County Governments and other stakeholders need to promote innovative crop and animal husbandry techniques and value addition of products to enhance productivity and therefore entice the local population in agro- pastoralism. This is because agro- pastoralism was found to have positive influence on socio economic wellbeing. The more the people embrace agro- pastoralism the better the socioeconomic outcomes.

National and County Governments and other stakeholders need to enhance the capacity of small-scale artisanal fishers in terms of technology, skills and infrastructure to transition them to medium/large- scale industrial fishers. Based on study findings artisanal small-scale fishing which employs traditional methods of fishing has a negative influence on socioeconomic wellbeing of the people.

National and County Governments and other stakeholders need to improve infrastructure for seaweed drying and storage and access/linkages to market. This will result to high quality product and hence increased earnings from seaweed. Based on the study findings seaweed was found to have no influence at all to the socioeconomic wellbeing of the people of Gazi and Nyumba sita. This can be attributed to lack of infrastructures and market.

5.5 Recommendations for Further Studies

The study focused only on three (3) livelihood strategies (agro- pastoralism, artisanal fishing, seaweed farming) among the fishing communities. There is an opportunity to examine other livelihood strategies including in other areas in Kenya to inform policies, programs and plans. Such livelihood activities could include; tourism, aquaculture farming among others.

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APPENDICES

Appendix A: Household Questionnaire

My name is Pauline Tatua. I am conducting a survey on influence of livelihood strategies on socioeconomic wellbeing of the people of Gazi and Nyumba sita for academic purposes. If you allow me, I will be asking you questions around this topic. Your personal identifying information will be kept confidential and will only be used for the purposes of the coordination of this study. Your responses will remain anonymous in any subsequent analyses and published reports. This survey is completely voluntary, and you may stop at any time. Equally, you may choose not to answer any question that you feel uncomfortable with. I will greatly appreciate your cooperation and time.

A. Personal information

1. What is the sex of the respondent?

- Male
 Female

Village.....

2. What is your relationship to the head of the household?

- head of household
 wife / husband of head
 child of head / head's spouse / head's partner
 parent of head / head's spouse / head's partner
 brother / sister of head / head's spouse / head's partner
 other relative of head / head's spouse / head's partner

3. Age of respondent

- 18-25
 26-35
 36-45
 46-55
 Above 55

4. Which is the last type of school that you attended?

- Never went to school
 Completed some primary school
 Completed all of primary school
 Completed some secondary school
 Completed all of secondary school
 Completed some education/training after secondary school

- Completed some university education
- Completed all University education

5. What is your religion, if any, or the denomination that you belong to?

- Muslim
- Anglican
- Baptist
- Jehovah's Witness
- Methodist
- Pentecostal
- Rastafarian
- Roman Catholic
- Seventh Day Adventist

Other (specify)_____

6. What is your marital status?

- Never married
- Married
- Separated
- Widowed
- Co-habiting partner

B. Livelihoods

7. What job or type of work is your primary or main source of income?

- Employee by the national government
- Employee by the county government
- Fishing
- Informal juakali sector
- Seaweed farming
- Tourism/Ecotourism
- Farming
- Employment in private sector

Any other, specify_____

8. What job or type of work is your second most important source of income?

- Employee by the national government
- Employee by the county government
- Fishing
- Informal juakali sector
- Seaweed farming
- Tourism/Ecotourism
- Farming

9. Of all your sources of income, which do you consider as the most satisfying?

- Employee by the national government

- Employee by the county government
- Fishing
- Informal juakali sector
- Sea weed farming
- Tourism/Ecotourism
- Farming

10. What is your household total monthly income? _____

11. What percentage of your income is derived from fishing?

- 76%-100%
- 50%-75%
- 25%-50%
- Less than 25%
- None

12. What percentage of your income is derived from agriculture?

- 76%-100%
- 50%-75%
- 25%-50%
- Less than 25%
- None

13. What percentage of your income is derived from seaweed farming?

- 76%-100%
- 50%-75%
- 25%-50%
- Less than 25%
- None

14. Do you save money?

- Yes
- No

15. What is the primary barrier to save?

- Lack of Cash
- Lack of institutions to save
- Not being able to immediately get money
- Don't trust financial institutions
- Other (Specify) _____

16. Have you applied for a loan from a financial institution in the previous three years?

- Yes
- No

Do you feel confident in having a say or being heard (beyond family)					
Do you feel your community is a safe place to live in					

20. The following question asks how satisfied you feel, on a scale from 1 to 5. 1 means you feel “Strongly Disagree” and 5 means you feel “Strongly agree”.

	1	2	3	4	5
In most ways my life is close to my ideal.					
The conditions of my life are excellent					
I am satisfied with my life.					
So far I have gotten the important things I want in life.					
If I could live my life over, I would change almost nothing					
I am always happy					
I am not always worried					

Appendix B: Descriptive Statistics for the Level of Wellbeing of Households in Gazi and Nyumba sita Villages

Indicator Items	Rating by the Gazi and Nyumba sita Households					
	Mean	Median	Mode	Std. dev	Range	Alpha
Food provision	5.41	4.00	4.00	2.404	8.00	
Shelter	5.32	4.00	4.00	2.418	8.00	
Clothing	5.28	4.00	4.00	2.182	8.00	
Capital	5.26	4.00	4.00	2.498	8.00	
Assets	4.87	4.00	4.00	2.162	9.00	
Work	3.85	3.00	1.00	2.79	9.00	
Standard of Living	5.16	4.33	4.00	2.23	8.17	.844
Health services access	4.89	4.00	4.00	2.246	9.00	
Cost of health	4.92	4.00	4.00	2.199	9.00	
Feeling strong and well	5.41	5.00	1.00	3.24	9.00	
Good Health	4.91	5.00	1.00	3.08	8.67	.742
Peace of mind	4.92	4.00	1.00	2.19	9.00	
Constant Fear	5.31	8.00	1.00	2.41	8.00	
Secure environment	5.27	4.00	4.00	2.43	8.00	
Safety	5.17	4.00	4.00	2.27	8.00	.777
With Community	2.50	2.00	2.00	0.84	3.00	
With Family	5.31	4.00	4.00	2.41	8.00	
Good Community	5.27	4.00	4.00	2.43	8.00	
Social Relations	4.36	3.33	3.33	1.84	8.00	.822
Belief in God	5.41	4.00	4.00	2.45	8.00	
Worship area attendance	5.25	4.00	4.00	2.17	8.00	
Spiritual Fulfilment	5.33	4.00	4.00	2.27	8.00	.944
Politics control	4.57	4.00	4.00	2.07	9.00	
physical material	5.31	4.00	4.00	2.41	8.00	
Acquire services	5.28	4.00	4.00	2.43	8.00	
Access to resources	5.26	4.00	4.00	2.18	8.00	
Ability to acquire skills	4.70	4.00	4.00	2.23	9.00	
Acquire knowledge	4.84	4.00	4.00	2.27	9.00	
Ability to acquire loans	5.42	4.00	4.00	2.35	8.00	
Acquire information	4.87	4.00	4.00	2.36	9.00	
Environment	5.03	4.00	4.00	2.16	7.50	.992
Respect	4.70	4.00	4.00	2.22	9.00	
Part of community	4.84	4.00	4.00	2.27	9.00	
Social obligations	2.44	2.00	2.00	0.91	4.00	
Listened to	2.20	2.00	2.00	1.08	4.00	
Receive help	2.25	2.00	2.00	1.02	3.00	
Emotions and						
Affiliations	3.28	2.80	2.40	1.95	5.00	.961
Wellbeing Index	4.75	3.73	3.68	2.00	6.87	

n=269. 1=Very low and 10= Very High.

Appendix C: Research Permits

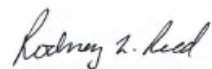


26th May 2020

RE: TO WHOM IT MAY CONCERN

Pauline Wambura Tatua (18MO1DMEV008) is a bonafide student at Africa Nazarene University. She has finished her course work and has defended her thesis proposal entitled: - *“Assessment of the influence of selected livelihood strategies on Socioeconomic wellbeing of communities living along the Coastal strip of Msambweni, Kwale County”*.


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



Rodney Reed, PhD.

DVC Academic & Student Affairs.


Appendix D: NACOSTI Permit


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RESEARCH LICENSE



This is to Certify that Ms., Pauline Wambura Tatu of University of Adelaide, has been licensed to conduct research in Kwale on the topic: ASSESSMENT OF THE INFLUENCE OF SELECTED LIVELIHOOD STRATEGIES ON SOCIO ECONOMIC WELLBEING OF COMMUNITIES LIVING ALONG THE COASTAL STRIP OF MSAMBWENI, KWALE COUNTY for the period ending : 12/June/2021.

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Appendix F: Livelihood Strategies Practised in Gazi and Nyumba sita



Photo 1: Showing a small-scale fisherman fishing using a basket trap in Gazi village.



Photo 2: Showing a small-scale fisherman in his dug-out canoe during a fishing expedition in Nyumba sita village.



Photo 3: Showing seaweed farmers tying seaweed seeds in preparation for planting in Nyumba sita village.



Photo 4: A farmer showing seaweed plant in Nyumba sita village.



Photo 5: Showing women in the farm weeding their crop in Gazi village.