UNIVERSITY OF NAIROBI

FACULTY OF ARTS

DEPARTMENT OF SOCIOLOGY AND SOCIAL WORK

FACTORS INFLUENCING WOMEN ENTREPRENEURSHIP: The Case of Kibuyuni and Mkwiro Seaweed Farmers in the Coastal Region of Kenya

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C50/75570/2009

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT FOR THE AWARD OF A DEGREE OF MASTERS OF ARTS IN SOCIOLOGY (ENTREPRENEURSHIP DEVELOPMENT) UNIVERSITY OF NAIROBI

2017

DECLARATION

I hereby declare that this project is my original work and has not been submitted to any other University or Institute for the award of any degree or diploma.

Signed:……. Date:……..

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This research project has been submitted for examination with my approval as the university supervisor.

Signed:……. Date:……..

Dr. Karatu Kiemo

DEDICATION

I dedicate this work to my family for the continued support and understanding of the demands of my studies seeking to see me succeed and prosper in my career.

ACKNOWLEDGEMENTS

I thank the Almighty God whose grace and guidance has kept me through the start to the successful completion of my studies. My supervisor; Dr. Karatu Kiemo for the guidance and advise in my studies journey, the entire university fraternity and especially the department of Sociology and Social work lecturers and staff for aiding my learning , my family and friends.

I also specially acknowledge the respondents in this research who willingly allowed me access into their private spaces and time to collect data.

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ABBREVIATIONS

ACT Kenya	Act Change Transform Kenya
AFC	Agricultural Finance Corporation
CWID	Coast Women in Development
DFID	Department for International Development
EU	European Union
FAO	Food and Agriculture Organisation
GDP	Gross Domestic Product
ICT	Information and Communication Technology.
ICZM	Integrated Coastal Zone Management
ILO	International Labor Organization
KADET	Kenya Agency for Development of Enterprise and Technology
KCDP	Kenya Coastal Development Program
KMFRI	Kenya Marine and Fisheries Research Institute
KWFT	Kenya Women Trust Finance Trust
MFI	Micro Finance Institutions
MSEs	Micro and Small Enterprises
MSMEs	Micro Small and Medium Enterprises.
MSP	Marine Spatial Planning
NEMA	National Environment Management Authority
NGOs	Non-Governmental Organisations
OECD	Organisation for Economic Cooperation and Development

SACCOs	Savings and Credit Cooperative Organisation
SLA	Sustainable Livelihoods Approach
SMEs	Small and Medium Enterprises.
SMEP	Small and Medium Enterprises Project
SOC	State of the Coast
UNEP	United Nations Environmental Program
IUCN	International Union for Conservation of Nature
UNU	United Nations University
WEF	Women Enterprise Fund

ABSTRACT

Seaweed farming is a new concept recently introduced in the south coast of Kenya and has been practiced for 7 years with the purpose of assessing its performance and commercialising the activity targeting the global market. This has seen the Kenya Marine and Fisheries Research Institute conduct feasibility research in the past fifteen years. Policies have also been effected to guide the implementation of the pilot projects and offer regulation for environmental conservation and equity in the use of Marine resources.

The purpose of the study was to investigate the factors influencing women entrepreneurship while focusing on a case study of seaweed farming in Kwale County. The objective was to determine the extent of seaweed farming as an economic activity among women entrepreneurs, to establish the impact of seaweed farming on the livelihoods of the women farmers and determine whether Seaweed farming has the potential to sustain livelihoods of sea dependent communities. The study adopted the Diffusion of Innovation Theory by Rogers, Social Exchange Theory by Gouldner and Sustainable Livelihood Approach.

This case study applied a descriptive research design. The target population was 287 women seaweed farmers. The study employed Purposive Sampling and Stratified random sampling method to sample 100 respondents. Structured questionnaires were developed and utilised in this study. Data from the questionnaires was analysed using Microsoft Excel. Inferences from analysed data were made and these were used to answer the research questions. Standard tables were used to present the information from which interpretation was done by comparing the frequencies and percentages.

The study findings revealed that after the adoption of seaweed farming; some farmers continued to conduct other businesses to supplement their income while others totally stopped other ventures. Earnings from seaweed farming helped to better satisfy farmers socio economic needs. Findings also showed that up to 94 % of the respondents had been trained on book keeping and records. However, only a half of these were able to keep records. Sensitisation about the availability of funds for women and loans was directly proportional to those who applied for loans (63%). The study revealed that product marketing, access to credit and provision of equipment are the main areas which need improvement in seaweed farming. A majority of the respondents (56%) intend to diversify and venture into other businesses.

The study concluded that skills acquisition through training is important for the improved performance of seaweed farming. The study recommends that interested stakeholders, and investors should introduce other business ventures in the area for the women to complement the farming activity while offering trainings and close supervision. Create awareness on business opportunities, available easy-to-access credit facilities and government initiatives for women empowermen; ICT integration, networking and online marketing should be initiated for better communication while installing supportive infrastructure for the women entrepreneurs.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Seaweed farming is the practice of cultivating and harvesting seaweed. Seaweed is a type of algae that has been used all over the world for thousands of years. Scientists indicate that algae came to existence about three and a half billion years ago. (Ford 1991). In Japan seaweed has been used for the longest time. Records show that for over 2000 years seaweed has been used as a supportive food in the Japanese diet with at least six types of seaweeds having been in use since 800 A.D in everyday cooking. Nori is a dried sheet of seaweed, which is used in sushi and has been used since 794. (Drum 2008).

Research also suggests that seaweed has been used since 2700 BC in China. In 600 BC, China made seaweed dishes specifically for special guests or kings. In 300 BC, Chi Han wrote a book about seaweed. Kelp was used in the 5th century for food. Laminara japonica (a specific species of seaweed) was imported from Japan in the 5th century. Mediterranean seaweeds in Europe were used as medicine in Greek and Roman times, including use for animal feed in Greece as early as 100 BC. Red algae were used as sources of dying agents and as a medicine to treat parasitic worms since pre-Christian times.

Europe has only recently taken a keen interest in the economic potential of seaweed cultivation while in Asia the seaweed industry has been growing rapidly for the past 60 years. Growing interest in the West is due to the wide range of seaweed applications, from health foods to fuel. The same can be produced in a sustainable way and has little environmental impact. (Nicholas 2016).

The industry provides a wide variety of products that have an estimated total annual value of US$ 5.5-6 billion. Food products for human consumption alone contribute up to US$ 5 billion. Seaweeds extracts account for a large part of the remaining billion dollars while smaller miscellaneous uses like fertilizers and animal feed additives make up the rest. The seaweed industry uses up to eight million tonnes of wet seaweed annually form naturally growing (wild) seaweed or from cultivated (farmed) crops. Seaweed farming is rapidly expanding as demand has outstripped the supply available from natural resources. The commercial harvesting of seaweed occurs in atleast 35 countries across the globe.

The extraction of carrageenans form seaweeds is the key purpose. Carrageeanans are processed into gels that are then used in the food industry, cosmetics, and pharmaceuticals as thickeners, stabilizing agents and emulsifiers. The principal carrageenan types are: Iota, Kappa and Lambda. However all these differ in their chemical structure and properties thus their different uses. While Iota carrageenan is mainly extracted from Spinosum seaweed. Lambda which is mostly gown in Chile, is mainly derived from Irish Moss and Gigartina. Cottonii and to a much lesser extent, Irish Moss and Gigartina are used in extraction of Kappa carrageenan. Global carrageenan production is about 50,000 metric tons a year (Porse and Nadela 2007).

Seaweeds are classified into three broad groups based on pigmentation: brown, green and red and are scientifically referred to as Phaeophycaea, Chlorophycaea and Rhodophycaea respectively. Brown seaweeds are usually large and range from a 20m long kelp to thick leather like seaweeds of 2-4m long and smaller ones of 30-60 cm long. Red seaweeds are smaller but are not necessarily red in colour. The green seaweeds are also small and range to similar sizes as the red seaweeds. Seaweeds are

also called macro-algae (Cynanophycaea). They are sometimes known to bloom and contaminate rivers and streams.

Destructive fishing practices devastate the marine environment and include bottom trawling, by catch, the use of poison and explosives and ghost fishing (EU Slow Food 2016). Globally there have been many noted challenges that came with commercial harvesting of fish. Negative and unsustainable fishing methods like trawling affected the fish volumes since even young immature fish were captured thus productivity and reproduction of some fish species dropped drastically in the 1990s.

With growing challenges in fisheries, cultivating seaweed helps fill a gap. It "is widely perceived as one of the most environmentally benign types of aquaculture activity', since it does not require additional feed or fertilisers, (Cottier - Cook 2016). Consequently, seaweeds have been actively promoted by government initiatives, particularly in many developing countries whose communities have reduced or limited access to alternative livelihoods or are involved in destructive fishing methods.

Increasingly, the cultivation of seaweed is being integrated with areas that have intensive fish farming to provide nursery grounds for juvenile commercial fish and crustaceans, and to filter the water of undesired nutrients and improve the marine environment by reducing eutrophication; the excessive richness of nutrients in a lake or other body of water, caused by frequent runoff from the land.

Indirectly, seaweed farming has reduced over-fishing in many regions, providing coastal communities with an alternative livelihood. In such areas, for the first time women have become economically active. (Campbell 2015) In the last decade, the

cultivation of seaweed has been rapidly expanding due to the growing demand for its use in pharmaceuticals, nutraceuticals and antimicrobial products, including biotechnological applications. (United Nations University 2015; 2016).

Seaweed is today used in tooth pastes, cosmetics and skin care products, several industrial products, like adhesives, dyes and gels. Seaweed is also used in landscaping or to mitigate the effects of beach erosion. (FAO 2003).

Seaweed farming has substantially contributed in the provision of economic opportunities to coastal communities in many parts of Asia as well as in Tanzania. It has helped in the diversification of livelihood opportunities for poor fisherfolk communities who faced livelihood risks due to the diminishing inshore capture fisheries.

Kenya's adoption of seaweed farming is a strategic contribution to the economy's employment and income generation agenda. Seaweed farming has created employment opportunities to coastal communities and especially for women hence it has increased the number of direct beneficiaries from the seaweed farming initiative. With respect to maintenance of environmental integrity, the government has ensured compliance while up-scaling seaweed farming. The seaweed farming guidelines are still being developed. This is to ensure strict adherence to environmental and social safeguards. (KCDP 2013).

In Kenya, women-owned businesses continue to make a significant contribution to its economy. These businesses account for almost half (48 percent) of all micro-, small-, and medium-sized enterprises (MSMEs), these contribute an estimated 20 percent to Kenya's GDP. Of the 462,000 jobs created annually since 2000 in Kenya, 445,000

jobs have come from the informal sector, this is also where 85 percent of women's businesses are found.

Despite their potential, women-owned businesses in Kenya are less likely to grow, they tend to be smaller, and twice as likely to be operating from their homes unlike male-owned businesses. Reports show that women-owned MSMEs earn only 57 percent of the income that male business owners earn and have a smaller number of employees. In 1999, the average number of employees in a woman-owned MSME in 1.54, compared to 2.1 for the male-owned MSME. Also women owned business had only 4% of the workers as hired. The remaining labour force consisted of family members and apprentices. (Voices of Women Entrepreneurs in Kenya.)

A baseline study on Women leaders in the creative industries (Dodd 2012), and the International Journal of Gender and Entrepreneurship draws that there is very high under -representation of entrepreneurial women or women leaders in the higher levels of organisations. This fact has continued to be an increasingly debateable issue. The survey indicates that despite a high number of women in the creative and cultural industries, there is high under representation in the positions of leadership.

Governments today are striving to promote women leadership and deliberately allow for senior positions in organisations and government reserved for women. The intention is to promote the gender equity agenda and reduce gender equity gaps. Kenya for instance has adopted the one third rule for either gender representation in all organisations, institutions government and non-government agencies. This is with a view to promoting women participation in an increasingly patriarchal and competitive society. Kenya for instance allows for nominated members of parliament

seats allocated to women to meet the gender rule. The essence of promoting women participation in leadership and key decision-making positions is to allow their insight to understanding women issues in society today; and coming up with interventions to address the same. The needs and rights of women in society have been under represented. Campaigns on promoting equality of the boy and girl child have seen more girls enrolled into schools in the recent years. Despite the dropout rate of girls than boys in schools being higher, the number of their enrolment has steadily grown. More girls are today able to complete school while addressing the issues that kept them out of school in the first instance.

Promotion of the girl child and allowing a higher intake of girls into college and technical institutions has also contributed to efforts towards covering the gender equity gaps in Kenya today. The overall objective of this is to include women actively in the development and growth of a country's economy.

Research by the Women's Business Council UK, shows that the United Kingdom is missing out on over 1.2 million new enterprises. This is due to the untapped business potential of women. This is despite policy initiatives by the UK government and the devolved administrations, and the business community efforts in promoting and facilitating women business leaders and enterprises.

Key recommendations to addressing the low participation of women in entrepreneurship and enterprise development include improving access to finance, raising awareness for support, development of a framework for women enterprise and increasing the visibility of role models for women business owners among others. (Walbey H, & Mc Tague M 2016).

These recommendations have been adopted in other countries using different approaches. However, the growth and advancement of the same translating into new venture creation, business growth, profit and sustainability is still low.

1.2 Problem Statement

Kenya has made deliberate efforts in promoting the development and empowerment of women through gender streamlining and policy formulation leading to the allocation of a minimum third gender rule as per the Constitution of Kenya 2010, to increase women participation and decision making in both public and private sectors. This has seen a rise in women entrepreneurship ventures in the country. However, the women on the entrepreneurship platform are still few. Statistics show that despite the high uptake of funds grants and loans for women projects, the figures are still below the expected threshold of the targets set to utilise funds and resources. (Women Enterprise Fund; Kenya) Of those accessing funding there is high defaulter rate and death of SMEs which don't get to be medium or fully established enterprises. In Vihiga, Western Kenya, the WEF did an analysis of performance of women they funded in entrepreneurship. (Ijaza et al, 2012). This study findings showed that the greatest challenge facing women operating small businesses was insufficient capital (35.2%). Women respondents in that region felt the microcredit received was insufficient to sustain the business venture of their interest thus forcing them to change their initial investment plan for other options. High competition from businesses of the same nature in the region of Vihiga was at (25.5). The third major challenge was insecurity at 21.4% since most of the structures put up were semi-permanent and therefore not secure while some felt they were operating in unsafe areas. Related to this was poor infrastructure at (14.5). Some of the roads within Hamisi area were impassable especially during the wet season making transportation

difficult and at times expensive. The fifth main problem was loan diversion (14.5%). Respondents agreed to have used micro credit for other purposes other than its intended purpose. These included paying school fees, medical bills, and other domestic needs. Group wrangles was also noted especially where the microcredit was invested as a group. Other challenges included inadequate time, illiteracy, perishability of goods, harassment from the council, and dealing with creditors. A small number of women indicated they did not have adequate time to run the businesses. A few businesses did not report any business challenge despite having a business in place. (Ijaza et al, 2012).

Coast region in particular has one of the lowest performances in women entrepreneurship and new venture creation. (WEF Report 2014). The region generally has high poverty rates in both urban and rural areas with some areas like Ganze and Bamba having over 50% of the populations living in absolute poverty. Income from enterprises and employment influences the establishment of new ventures and growth of the same. Using income inequality, the five counties in Kenya with the worst income inequality are in the Coast region. Statistics show that the ratio of expenditure by the wealthiest to the poorest is 20 to 1 and above in Lamu, Tana River, Kwale, and Kilifi. This means that those in the top decile have 20 times as much expenditure as those in the bottom decile. The whole country's average is nine to one. KNBS & SID (2013). This is also despite having many unexploited and under-utilised resources and opportunities.

In response to this, the study proposed to investigate the possible factors influencing women entrepreneurship while focusing on a case study of Seaweed farming in Kwale County. Little has been done and there is no compact knowledge and information

around seaweed farming in Kenya. This is a new enterprise being promoted by the government of Kenya through the Kenya Coastal Development Program (KCDP) with the support of Kenya Marine and Fisheries Research Institute (KMFRI) seeking to adopt better farming methods in the production of seaweed targeting both the local and international markets with the adoption of new and favourable seaweed varieties.

In the South Coast of Kenya the KCDP and KMFRI has had small scale commercial seaweed farming piloted using the strain Eucheuma denticulum (spinosum) with initial economic indicators showing good prospects. About 300 farmers; who are mostly women are engaged in seaweed farming with an annual production of an average 600 mt. Another seaweed strain Kappaphycus alvaerezi (cottoni) has also been introduced under controlled conditions with plans to upscale in future once the necessary environmental mitigation measures are in place. Seaweed farming is expected to provide an alternative livelihood to coastal communities. Current seaweed production in the South Coast falls below the 1,000 mt threshold which represents commercial farming. To get traders interested in marketing seaweeds, the commercial threshold has to be attained. There are however good prospects for the commercialisation and up-scaling seaweed farming in these areas. KCDP is targeting and mobilising the communities for capacity building to give this venture the necessary impetus to raise production and consequently develop a viable industry with the involvement of other players (including traders, processors) and stakeholders along the value chain.

1.3 Research Questions

This study sought to answer the following questions;

1. What is the perspective of women towards Seaweed farming as an alternative enterprise to other coast based trades?
2. What factors influence the success of seaweed farming among women entrepreneurs at the Coast?
3. Is financial knowledge a key factor affecting women entrepreneurship at the Coast?

1.4 Objectives of the Study

1. To determine the extent of seaweed farming as an economic activity for women entrepreneurship
2. To establish the factors that determine the success of seaweed farming among women entrepreneurs at the Coast
3. To investigate the financial impact of seaweed farming for entrepreneurial activity.

1.5 Justification of the Study

Seaweed farming is a fairly new concept in Kenya and has recently been introduced. This study is of importance to entrepreneurship development in Kenya and especially women entrepreneurs as it seeks to outline the major factors influencing women entrepreneurship in the Coast of Kenya. The study also seeks to determine the effectiveness of existing policies on Coast based enterprises and their influence on

women entrepreneurship. It will be of importance since it will provide information that can be used to reference relevant policy and to academicians.

1.6 Scope and Limitation

This study covered two out of the four villages practicing seaweed farming in Kwale County. The focus of the study was the women involved in seaweed farming. It investigated the factors that facilitate and those that constraint seaweed farming across the farming strip. These were socio cultural, economic and ecological factors.

The scope also investigated the amount of time and money spent, and their accessibility for utilisation. The study inquired on the number of women participating and benefitting directly and indirectly from sea weed farming as a venture while measuring their capacity skills and level of education.

1.7 Definition of Key Terms and concepts

Livelihood- a means of securing the necessities in life.

Seaweed – marine plants and algae that grows in the sea, rivers or lakes

Seaweed farming- practice of cultivating and harvesting seaweed

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Seaweed Farming as Entrepreneurship

Being a fairly new venture in Kenya today, seaweed farming is seen as an entrepreneurial activity. The venture brings out the key factors that define entrepreneurship. As a venture, seaweed farming requires capital investment just as any other start up. The cost of inputs in the offshore seaweed farming; which is practiced in Kenya, Kwale county is dependent on the size of land one has allocated for the farming venture. As an economic activity, it encompasses the aspects of labour, raw material inputs, market and infrastructure. The creativity and competition aspects in seaweed farming as an enterprise bring about value addition and new infrastructure demands for growth and sustainability. This has been seen in the advancements and processing of seaweed into soaps, cosmetic products, medicine and micronutrient supplements both locally and internationally. These factors ensure market and customer satisfaction.

Kenyan Coast through the Ministry of Agriculture surveys has shown that the potential for seaweed farming had not been fully exploited to create wealth and alleviate unemployment. (The Standard; Wednesday Mar 2016). The Coast has shown remarkable achievement in evaluation and feasibility studies in Seaweed farming in the past 15 years with the identification of four villages with 400 farmers in the South Coast. These villages are Gazi, Shimoni, Mkwiro and Funzi who have ventured into commercial production of Kappaphycus & Euchema, (Betty Nyonje presentation). The Kenya Coast Development Project has conducted surveys to assess the establishment and development of a seaweed industry in Kenya. This investigation was to inform the creation of an Implementation study for the KCDP in June 2013

(Developing Seaweed Industry in Kenya; June 2013). A survey investigation into the Kwale area further informed the study on the potential of seaweed farming amongst women in Kenya Coast. The East African Wildlife Society Newsletter of October-December 2014 reports on project feasibility studies for the commercialisation of seaweed as a viable livelihood option, including analysis of market dynamics and strategic measures that should work beyond the project period.

2.1.1 Structure and State of Women Entrepreneurship in Kenya

Kenya has strategically sought to address the challenge of unemployment by establishing enabling policies for venture creation and self-employment through entrepreneurship.

Results of the 2003 Economic Survey by the Government of Kenya show that, employment within the MSE sector increased to 5.1 million in 2002 from 4.2 million in 2000; while the informal sector accounted for 70.4 per cent of total employment opportunities. In 2001, employment opportunities in the informal sector accounted for 72.8 per cent of total employment. It rose to 74.3 per cent in 2002 and further up to 76.5 per cent in 2004 (GoK Economic Survey, 2005, p.73). However, even with the growing percentage, not many micro-enterprises (70 per cent of which are women's) were growing into small-scale enterprises and to significantly contribute to employment creation and economic growth.

There are three profiles of women entrepreneurs in MSEs in Kenya according to an ILO study carried out by Stevenson and St-Onge (2008). These are in Jua Kali micro-enterprises, the "very small" micro-enterprises and the "small-scale" enterprises. The entreprises are differentiated by their demographic profiles, the extent of previous

business experience, needs, access to resources and growth. Meanwhile the "very small" micro-enterprisers are identified as those registered, operating from legitimate business premises and employing 6 to 10 workers. "Small-scale" enterprisers are those that are registered, and are operating from legitimate business premises while employing over 10 workers with at least secondary level education and some previous experience as employees.

The 1999 National MSEs Baseline Survey indicated that there were 612,848 women in MSEs in Kenya, which accounted for 47.4 per cent of all those in MSEs. The survey results showed that women tended to operate enterprises associated with traditional women's roles, such as hairstyling, restaurants, hotels, retail shops and wholesale outlets.

The average number of employees in a women-owned or managed MSE was 1.54 versus 2.1 in men-owned or managed MSEs. About 86% of the workers of women owned or women managed SMEs were themselves or family members, while only 4 per cent were hired workers or unpaid family members. While in men-owned or managed MSEs, only 68 per cent of the workers were men owner or managers, 17 per cent hired workers and the remainder were family members or apprentices. It is not possible to outline the characteristics of disabled women entrepreneurs in MSEs due to a lack of statistics. It is noted that there is a need to investigate and identify the factors that hinder and or promote the growth of women in the MSE sector, including the entrepreneurs with various disabilities, and thus to develop appropriate intervention programmes to either reduce the hinderances or promote the enablers. The intention of such interventions is to increase equitable distribution of national

resources and reduce poverty indices among women in MSEs and in the nation as a whole.

2.1.2 Women in Coast Based Enterprises

In the Coast of Kenya, women participate in most enterprises but at varied degrees. The coast region has some key regionally based enterprises like coconut farming, sea fishing, seaweed farming and tourism and tourism related trades. Other trades are not unique to the Coast however women do participate in them.

In March 2015 the European Union launched the Fish Trade for a better future; a programme funded to the tune of 5 million Euros. However, focus and respondent contributions have been sought from lake and pond fishing areas. There is little focus and literature given to sea fishing where Coast women would also benefit from the initiative. This study therefore will draw out more facts and insights into the challenges of policy and prioritisation of fund led initiatives for Kenya women across the board. Women essentially participate in the retail chain. In fishing, men go out to sea while the women participate as vendors and in the value addition processes in factories. The same applies to coconut and fruit vendors. Sea weed farming has recently been introduced and women are the direct beneficiaries in the establishment of this enterprise.

2.1.3 Current Trends on Women participation in Entrepreneurship at the Coast

To improve and up the numbers of women in entrepreneurship at the Coast of Kenya, state and non-state actors have taken up more women oriented economic projects. The Coast Women in Development (CWID) an online platform; like many others; is a project whose main objective is to empower women through entrepreneurship

training, table banking and livelihood projects focused on small stock rearing. The project recognises that CWID and the Department of Agriculture, Livestock and Fisheries- Kilifi County have identified significant benefits when women are enabled to equally and fully participate in the economy including rural women and in decision making in leadership. However, the country has a long way to go in advancing women's empowerment as they are equally capable of achieving economic and leadership success like their urban counterparts or men. The rural women though are more likely to encounter circumstances, norms and laws that limit their full economic participation.

2.1.4 Resource Mobilisation Structures, methods and processes for Women

Availability and/or access to Start-up Capital are always the challenge when it comes to starting any business. Kenya has made strides in establishing systems and strategies to ease up the process of access to financing for women. However, the same group is faced by varied challenges. Access to information about the availability of such opportunity is a key determinant to fund raising and resource mobilisation.

Many SACCOs for example offer low interest loans to members to start their businesses, The Wakulima Sacco is one of the thriving SACCOs in Kenya today that is agribusiness oriented. The Agricultural Finance Corporation (AFC), a government owned financial institution aims to provide loans to individuals or groups practicing agriculture.

Many local banks today are offering loan packages targeting agribusiness. Examples of such banks are; from Equity Bank offering Mifugo Loan, Maziwa Loan from Cooperative Bank.

The Women Enterprise Fund is a semi- autonomous government agency established in 2007 to provide easily accessible credit to support women in starting or expanding their business for wealth and employment creation. The study investigated and analysed Coastal women access to this fund. A common and community based source is the Savings Groups- There are groups in Kenya (Merry-Go-Rounds) which provides the members with money depending on how they saved either weekly or monthly.

Micro Finance Institutions (MFI) like Joywo, Faulu Kenya, Kenya Women Finance Trust (KWFT), SMEP, SISDO, KADET, are also means to access financing for start-ups.

While most of these methods are strictly formal, business men and women have for the longest time practiced Credit financing. This is when traders give their clients goods and services on credit to be paid once sold Examples of these are Kenya Credit Traders Limited.

The Youth Enterprise Development Fund has the sole purpose of reducing unemployment in Kenya. An example of a farmer based initiative is the Agrivijana loan. It provides various loan packages specifically targeting the youth.

2.2 Overview on the Uses of Seaweeds

Seaweed has been used as food from as far back as the fourth century in Japan and the sixth century in china. Today, Korea, China and Japan are the largest consumers of seaweed as food. There is a rising demand for seaweed as food in other countries like the USA and South America this is especially with immigrant Chinese and Japanese

populations that have settled in the West. The adoption by other populations in the world is also on the rise.

The increase in the demand of seaweed over the last fifty years has surpassed the supply requirements from naturally occurring sources (wild stocks). This has led to the rise of cultivation industries that now produce more than 90% of the market's demand. Different governments in Europe are promoting various seaweeds for domestic and commercial purposes with success. China is currently the largest producer of edible seaweeds, harvesting about 5 million wet tonnes, grown on suspended ropes in the ocean. The republic of Korea also grows about 800, 000 wet tonnes of three different species while the Japanese production is at 600, 000 tonnes of wet seaweed. Various red and brown seaweeds are commercialised and are used to produce food processing products later used in ice creams and candy.

Different type of sea weed is valued at different prices. Nora; produced from a red seaweed is a high value product going for over US$ 16,000/ dry tonne (FAO 2008), compared to Kombu at US$ 2,800/ dry tonne.

Seaweed meal used as an additive to animal feeds is produced from brown seaweed that is dried and milled. Other uses include processing and production of fertilizer. Seaweed has a high fibre content which serves as a soil conditioner and assists in moisture retention while the mineral content is used as fertiliser and source of trace elements.

In the world today, cottage industries have ventured in the commercialisation of seaweed through value addition. This involves seaweed processing into home use utilities like soap and shampoo and body cosmetic creams. While some seaweeds are

used for water purification and treatment to reduce nitrogen and phosphorus containing compounds, other seaweeds are able to absorb heavy metal ions like Zinc and cadmium from water.

Other uses of seaweed include Biomass fuel and integrated aquaculture. Seaweed is also used as fish feed for commercialised fish farming industry.

2.3 Milestones on Performance

Seaweed farming continues to gain a global perspective as today promotion and cultivation is taken up in most regions of coastal spheres. The Indian Ocean coast seaweed farming uptake is rapidly going up especially the Eastern African countries of Tanzania, Zanzibar and Kenya, Mozambique and Madagascar. (Semesi 2002).

Due to its high profitability and multiple use options both industrial and domestic, seaweed is becoming an essential day to day source of food and income for farmers and countries at large.

2.4 Problems of Rapid Expansion in Seaweed Farming

The rapid expansion of any industry, however, can result in unforeseen ecological and societal consequences (UNU 2015- United Nations). Communities become highly vulnerable when they come to depend on a single crop for their livelihood due to disease outbreaks and other natural calamities, This happened in the Philippines between 2011 and 2013 when bacteria affected leaves of a valuable seaweed species and caused a devastating loss to the communities involved, this was estimated at over U.S. $ 310 million. (Nagabhatla 2016).

Thus the seaweed industry needs to guard against non-indigenous pests and pathogens, to promote genetic diversity of seaweed stocks and to raise awareness in mitigate losses out of the mistakes in farm management practices. (Nagabhatla et al 2016).

There is also the illegal use of algaecides / pesticides, in Asian countries with unknown but likely detrimental consequences for the wider marine environment. Additionally, user conflicts for valuable coastal resources and rising dissatisfaction over the low gate prices for the crop raises the possibilities of negative impacts on the industry. (Stentiford 2016).

The experts from the UNU- UICN convention 2016, note that there are increasing demands being placed on the marine environment and competition for maritime space i.e. renewable energy, aquaculture and fisheries. This necessitates coordination and co-operation among the different users, adoption of an ecosystem-wide management approach and marine spatial planning (MSP) for aquaculture, alongside regulation so as to protect the wider marine environment.

Key points noted for the sustainable continued global venture into the Seaweed Industry are:-

Bio security; prevention of the introduction of disease and non-indigenous pests and pathogens. It involves the investment in risk assessment for early disease detection, building knowledge and capacities within the sector; While cooperatively planning to anticipate and resolve conflicts between competing interests in finite coastal marine resources, and lastly Establishing proper management policies and institutions at both national and international levels. (Stentiford et al, 2016) states that by rapidly

increasing seaweed cultivation globally, governments must also try to minimise the negative effects the seaweed industry may have on the marine resources. Such strategies will be good for commerce and open up a range of new products. All industry approaches must be adopted for sustainability in maximising profits and maintain the highest levels of biosecurity standards to prevent the introduction of pests and disease. It will also be crucial to develop new indigenous disease-resistant strains of seaweed, wherever possible." (Cottier-Cook, 2016).

Studies have shown that in the East African region specifically Tanzania and Zanzibar, seaweed farming has proven to be a sustainable venture especially amongst women farmers. Seaweed farming is now an alternative source of income for the farmers and has employed over 20,000 farmers in Zanzibar Islands. This has translated to increased household economy, improved standards of living and contributed to foreign exchange earnings for the country. (Musya 2006).

However, the venture also came with its own challenges where there is a market monopoly hence a single buyer controls the prices and therefore the farmer is rendered helpless and cannot negotiate thus ensures profits for multinationals and not farmers. Low and falling prices is also a setback to these farmers. Other issues are limited capital for investment in new practices, disease leading to poor quality harvest and unsupportive social and political environments. (Musya 2006) and (Bryceson 2002).

To improve of the dimensions around the farming venture, related institutions and the government have trained the farmers on better drying techniques among other

trainings, investment in research, regulations that ensure better pricing and quality for export, better farming techniques and value addition through seaweed processing.

2.5 The Adoption of Seaweed Farming in Kenya

Kenya has recently through policy and systems structure setting; made efforts to invest in exploiting sea resources through the blue economy initiative.

The Kenyan government put in place the Integrated Coastal Zone Management (ICZM) policy to promote the conservation and integration of the management of coastal and marine environment. The policy was adopted by the Parliament on the 3rd of December 2015 and has been operational since. It is a culmination of a highly consultative and participatory process that was led by the National Environment Management Authority (NEMA) over the last five years to prepare the policy. The ICZM Policy aims at providing a framework for the proper management of the coastal zone and associated resources through inter-sectoral coordination and integration of environmental consideration into socio-economic planning and strategic implementation at all levels.

Kenya has a variety of resources that support livelihoods and economic development in addition to maintaining a healthy and functioning marine ecosystem. These include mangroves and other coastal forests, estuaries, coral reefs, marine species, and open sea marine resources.

These natural resources are however under threat from a variety of causes, which must be adequately addressed to mitigate events that may in the long-term undermine the livelihoods of the local communities and impede economic activities supported by the coastal resources as well as result in biodiversity loss. Other major threats facing

the coastal and marine environment include pollution, over-exploitation, destructive fishing practices, uncontrolled and unplanned development, coastal erosion and climate change among others.

Although many institutions have over the years played important roles in managing the coastal area and uses, there has been no overall framework which fosters coordination and integration of actions and decisions that affect the resources by various players. The lack of a coordination framework and failure by the sectoral efforts to recognize the relationship and interconnectedness of the coastal environment have over the years resulted to poor planning, conflicting policies and duplication of efforts.

The ICZM Policy recognizes the inter-relationship and interconnectedness of the coastal environment, and that the myriads of threats facing the coastal zone require the attention of multi-sectoral partners collaborating in an integrated approach to identify and implement intervention to address the threats and promote sustainable development in the coastal area. The policy is rooted in the understanding that the coastal and marine environment is a limited spatial area and a distinct and unique system in which a range of environmental and socio-economic interest are interdependent in a manner which requires a dedicated and integrated management approach.

The policy making process was highly consultative and participatory involving stakeholders from the Government sector, NGOs, Private Sector, experts and community based organizations. With stewardship of the ICZM Steering Committee

coordinated by NEMA, several stakeholder consultative meetings were held and inputs provided in the policy making process.

Prior to inception of the policy making process a State of the Coast (SOC) Report was prepared with a view to shading light on the state of the coastal and marine environment. The SOC report provided key information on issues that the policy seeks to address. Other documents such as State of Environment Reports for Kenya, reports generated under the UNEP WIO-Lab project and reports by various research institutions also provided crucial information in drafting of the policy.

2.6 Socio Economics of Seaweed Farming

In Zanzibar, Tanzania, only a few unpublished reports have been attempted on the cost and return analysis of this activity despite the farming of eucheumoid becoming well-established since the early 1990s. For example, (Msuya *et al.* 2007) gave a comparative economic analysis of two seaweed farming methods in Zanzibar, Tanzania. The economic revenues from seaweed farming vary from place to place (Doty 1987), hence the operational economics in this area of the Indian Ocean such as Tanzania and Madagascar cannot be based reliably upon Southeast Asian case studies. Farming methods and environmental conditions also influence the costs and revenues of seaweed farming. (Hurtado *et al.*, 2001). This is because the coastal communities in the Western Indian Ocean region are culturally and economically different from their counterparts in Asia. Therefore each region and country must make its own estimates of costs and returns for eucheumoid farming (Smith, 1987).

Several studies have suggested that eucheumoid farming could be developed in Kenyan waters (Yarish & Wamukoya, 1990; Lirasan & Twide, 1993; Wakibia *et al.*, 2006).

The aim of the eucheumoid seaweed farmer is to maximise profit. The total revenue that the seaweed farmer receives from selling the product is drawn by the quantity that is sold multiplied by the price per unit.

2.7 Economic Analysis of Eucheumoid Algae Farming in Kenya

The economic analysis looks at the difference between the total revenue received from the sale of eucheumoid and the total cost of production. The level of profit depends on the inputs that the farmer contributes to yield output. Maximum profit is achieved when each input is fully utilized (Henderson & Quandt, 1980). The eucheumoid farmer can thus increase profits as long as the addition to revenue exceeds the costs.

A survey on the adoption of seaweed farming in Indonesia found that in order to maximise production of sea weed farming in Indonesia, attention to learning is key. Limited attention can slow down or prevent technology adoption. In Indonesia a study established that the pod size of seaweed is important to maximizing production and income in seaweed farming in Indonesia. The seaweed farmers however think the contrary; that pod size is not important and thus they pay little attention to it; there is a need to learn that the pod size matters over time. Such findings have important implications for technology adoption and agricultural extension – by simply having access to the data the information did not induce learning among the farmers. There

was only chang in behaviour when presented with summaries that highlighted the overlooked dimensions (Busara Centre 2013).

In Kenya today, farmer reports from Kwale where five villages are engaged in seaweed farming from 2010, indicate that despite equal input and training on the farming activity, the farmers are giving varied results and performance. Out of the initial 235 the number grew to 400 farmers in 2015.

Commercial seaweed farming was introduced in Kwale County in February 2010 by Act! This was through funding from the European Union (EU) via Regional Programme for the Sustainable Management of the Coastal Zones of the Indian Ocean Countries (ReCoMap). This has proved seaweed farming is a viable business and could be adopted as an alternative livelihood to the coastal communities. Currently, seaweed is grown on a commercial basis in five coastal villages in Kwale County; Kibuyuni, Mkwiro, Gazi, Nyumba sita and Funzi. At the start of the project, in 2010, two hundred and thirty-five (235) farmers were recruited; forty-seven (47) men and one hundred and eighty-eight (188) women. However, this number has since increased to 280 farmers in 2015, comprising of forty-one (41) men and two hundred and thirty-nine (239) women. Nearly half of these farmers come from two villages; Kibuyuni and Mkwiro. These farmers are registered under the Msambweni Seaweed Farmers Association and the Kibuyuni Seaweed farmers.

In these six years; the adoption rate by farmers has not been steadily growing. Out of an additional 165 farmers who were recently trained and have been growing the crop, only 187 are doing so well. The study seeks to investigate and answer the questions arising from the adoption rate and extent by the farmers either influencing or

hindering their success. The study will explore financial, social and policy related factors while looking at values like gender and age as a demographic factor in the success of the farming practice. The study will thus seek to understand the high dropout and poor performance despite favourable support and input by the various actors.

Countries objectives and policies for Entrepreneurship differ considerably. This is owing to the different policy needs and the diverse perspectives on what is meant by entrepreneurship. While in some countries, entrepreneurship is linked to regional development programmes and the creation of new firms that is stimulated to boost employment and output in depressed region, in others, entrepreneurship is a key element of strategies that are designed to encourage and increase the scale of participation of certain target groups, such as women or minorities, in the economy. Some countries simply seek to increase firm creation as such, while others set out to support high-growth firms. Many countries are making serious efforts to support entrepreneurship while the results appear to vary. Countries want to understand the determinants of and obstacles to entrepreneurship, and they need to analyse the effectiveness of different policy approaches. The lack of internationally comparable empirical evidence has however restricted the understanding of entrepreneurship and thus many questions remain unanswered. (OECD, 2008).

The similarities between Kirzner's and Schultz' theories compared to Schumpeter's on the other appear substantial, this is especially with respect to the tasks performed by the entrepreneur. All concerned theories recognize that the entrepreneur discovers business opportunities. Schultz defines opportunities generally, while Schumpeter narrowly discusses them as innovations which move the economy away from the

equilibrium. Under Kirzner's and Schultz' disequilibrium assumption, opportunities arise when information is conveyed to one who had never had it before. Individuals who receive this information react to these opportunities by changing their behaviour and acting differently. This process can be compared to the Schumpeterian innovative process that also involves doing things differently. (Kirzner's, 1985, 1997).

Kenyans who exploit available opportunities and take risks to become innovators are classified as entrepreneurs tosome extent although (Schumpeter 1999) and (Drucker 1985) would classify them as creative imitators and imitators respectively.

Kenya therefore being a free market capitalism, can only borrow the concept of huge profits as an antecedent to entrepreneurial innovation and start-up of entrepreneurial venture. In such cases the huge profits acquired would be ploughed back into the business as capital for growth and expansion. The business then grows, becomes bureaucratised, and loses its initial advantage since competitors copy its strategies and approach turning it into another regular or ordinary enterprise. Enterprises continue to be delicate adventures and without the necessary support by the government new enterprises cannot endure the budding stage and take off. Markets are sometimes unstable and can be very unpredictable. The government therefore should be perceived to be business supportive rather one that stifle business. (Bula, 2012).

Kenya's approach to entrepreneurship development has taken a multifaceted strategy which includes among others deliberate effort for policy development and gender inclusion where women are continually encouraged to actively be part of the economic growth. The government, through policies has established functions in the

departments under the ministry of gender children and social development to support this front.

Women entrepreneurs in Kenya are generating employment and economic growth, but women-owned businesses could contribute more. (Voices of Women Entrepreneurs in Kenya).

More research shows that countries which fail to address gender barriers are losing out on significant economic growth. World Bank research reveals that, if the Middle East countries and the North Africa region had introduced the same economic and gender policies as East Asia to address gender equality in access to education and employment, the two regions would have grown 0.7 percent faster per year during the 1990s. This shows that by addressing gender barriers in Kenya the country could generate significant economic growth. The assessment finds that by eliminating the gender-based inequalities in education and encouraging access to agricultural inputs in Kenya could result in an instant increase in as much as 4.3 percentage points in GDP growth, and a sure sustained year-on-year increase of 2.0 to 3.5 percentage points in GDP growth. Without increased attention to the gender dimensions of economic development, Kenya is therefore unlikely to meet its growth targets.

2.8 Theoretical Framework

2.8.1 Diffusion of Innovation theory

Diffusion of Innovation theory explains that "An innovation is an idea, practice, or project that is perceived as new by an individual or other unit of adoption" (Rogers, 2003). An innovation may have been invented a long time ago, but if individuals perceive it as new, then it may still be an innovation for them. The newness

characteristic of an adoption is more related to the three steps of knowledge, persuasion, and decision.

According to Rogers, the adopters knowledge at the first point of exposure to an innovation is minimal and thus he/she lacks information about the innovation. At this stage the individual has not yet been inspired to find out more information about the said innovation.

He goes on further to explain how persuasion gets the individual interested in the innovation and hence starts to actively seeks related information. The individual is then able to make a decision to either accept or reject the innovation by weighing the pros and cons of using the innovation. Due to the individualistic nature of this stage, Rogers notes that it is the most difficult stage on which to acquire empirical evidence. (Rogers, 2003). Government institutions introducing new concepts in a community must be cognisant of the culture of such groups since these are the basis of decision making that influence adoption of a new concept or technology.

Once accepted the individual then implements or adopts the innovation to a varying degree depending on his realities. At this point the individual also determines the usefulness of the innovation and may go further to search for information about it.

At this point the partners or players in the innovation engage the adopters in training and skills development in the innovation.

The theory further sought to explain organisational preparedness and the strategic management of innovation by referencing policy adoption. The introduction of seaweed farming and commercialisation into Kenya's Kwale County was in 2010. Six

(6) years later there seems to be very slow growth or adoption despite the lucrative global market of seaweeds in the world. This theory sought to answer the question on women's perspective towards seaweed farming as an alternative enterprise to tourism and other coast based trades. This was explored through the extent of adoption of the same both over time and increase in numbers for participating farmers, acreage under tillage. Also the adoption was assessed by the number of villages participating from inception to current seasons.

Rogers' Diffusion of Innovation Theory proposes that there are five attributes of an innovation that effect adoption: Relative advantage, compatibility, complexity, trialability, and observability.

Relative advantage is the degree to which an innovation is perceived as being a better option than the idea it supersedes. The theory suggests that innovations that have a clear, unambiguous advantage over an earlier or previous approach will be more easily adopted and thus implemented. Current research evidence indicates that if a potential user sees no relative advantage in using the innovation, it will not be adopted (Rogers 2003).

Compatibility is the degree to which an innovation fits with the an individual's values, experiences, and needs. Strong evidence from research suggests that there is a direct relation to an innovation likelihood of adoption to its degree of compatibility. Also the less complex an innovation is the higher the degree of its adoption. Furthermore, Rogers suggested that new innovations may be categorized on a complexity-simplicity continuum with a qualification that the meaning which determines the relevance of the innovation may not be clearly understood by potential adopters.

Rogers 1995; 2003). When a potential adopter perceives innovations as being simple to use the innovations will be more easily adopted.

Trialability is the degree to which an innovation may be experimented with on a limited basis. Because new innovations require investing time, energy and resources, innovations that can be tried before being fully implemented are more readily adopted.

Observability is the degree to which the results of an innovation are visible to the adopters. If the adopter can perceive positive outcomes form undertaking the new venture then it is more adoptable.

2.8.2 The Sustainable Livelihoods Approach

The Chambers and Conway definition of sustainable livelihoods was modified by DFID in 1999, a definition that is widely used by different tenets of sustainable livelihood approaches. Livelihood is a concept that comprises the capabilities, material and social assets and activities required to earn a living. A livelihood is therefore sustainable when it can endure and recorder from shocks and stresses while maintaining and enhancing its capabilities and assets both presently and in the future, while preserving the natural resource base.

Chambers and Conway in the early 1990s built on participatory research practices and ideas put forward by the World Commission on Environment and Development.

Swift (1989), analysed human vulnerability and responses to famine by distinguishing three classes of assets. Chambers & Conway (1990) expanded the broad use of assets into tangible and intangible assets.

This livelihood framework helps to identify what people are already engaging in in order to cope with risk and uncertainty, making connections between factors that constrain or enhance their livelihoods on one hand and policies and institutions in the wider environment and thirdly to identify measures that enhance and build assets, enhance capabilities and reduce vulnerability.

This study adopted the DFID livelihood framework approach to examine the constraints and enhancers of seaweed farming. (Kollmair et al., 2002), outlined the framework core principles

People-centred: People are the priority concern rather not the resources they use in the livelihoods approach

Holistic: Involves understanding the stakeholders' livelihoods as a whole, with all its facets, using a model that helps to identify the most pressing constraints people have to face.

Dynamic: The approach uses dimensions that help to keep up with peoples changing lives. This is in order to learn from changes and help mitigating negative impacts, whilst supporting positive effects.

Building on strengths: Identifying individual strengths and building on their inherent potential for his/her removal of constraints and realisation of potentials.

Macro-micro links: Focusing on the different levels of engagement both macro or the micro level, with efforts to bridge this gap in stressing the links between the two levels. People are always affected from decisions at the macro policy level and vice-

versa, this relation needs to be considered in order to achieve sustainable development.

Sustainability: A livelihood qualifies as sustainable, if it is resilient in enduring external shocks and stresses, also if it is not dependent from external support, if it is able to maintain the long-term productivity of natural resources while not undermining the livelihood options of others.

The framework depicts the various participants as operating in a context of vulnerability, within which they have access to certain assets. Assets are able to amass weight and value through the prevailing social, institutional and organisational environment. This context decisively shapes the livelihood strategies that are open to people in pursuit of their self-defined beneficial livelihood outcomes." (Kollmair et al., 2002) .

Elements of Sustainable Livehoods Framework

Vulnerability context

The vulnerability context states that external agents and factors influence the environment in which people operate in. Critical trends, shocks and seasonality, that people have limited or no control over, have a great influence on their livelihoods and on the broader availability of assets. However not all of the trends and seasonality must be considered as negative. Vulnerability occurs when people have to face harmful threat or shock yet have inadequate capacity to respond effectively to these shocks. To assess the causes of poverty, the difference between risk and vulnerability is of crucial relevance. Risk is thus defined as the likelihood of occurrence of (external) shocks and stresses and their potential severity, while vulnerability is the

degree of an individual's exposure to risk (hazard, shock) and uncertainty, and the capacity of households or individuals to either prevent, mitigate or cope with risk.

Livelihood Assets

As the livelihoods approach seeks to acquire an accurate and realistic understanding of people's strengths in this case "assets" or "capitals". It is critical to analyse how people put in strategies to convert these strengths into positive livelihood outcomes. The approach proposes that people require a range of assets to achieve positive livelihood outcomes. Therefore the SLF has identified five types of assets on which livelihoods are built. These are human capital, social capital, natural capital, physical capital and financial capital.

Policies, Institutions and Processes

Policies, institutions and processes are important since they operate at all levels, from the household to the international platforms, from the most private sectors to the most public. They effectively determine access to various types of capital, access to livelihood strategies and to decision-making bodies including source of influence, terms of exchange between different types of capitals, and returns to any given livelihood strategy (DFID, 2000).

Policies, institutions and processes have a direct impact upon weather people are able to achieve a feeling of inclusion and well-being. Because culture is included in this area they also count for other 'unexplained' differences in the 'way things are done' in different societies. (DFID, 2000) a country's or organisation's Policies, institutions procedures and processes can determine access to assets and influence decision making processes.

Livelihood Strategies

Livelihood strategies area a range and combination of activities and choices that people take up in order to achieve their livelihood goals. A strategy is a dynamic process in which people combine activities to meet their various needs at different times. (DFID, 2000) Livelihood strategies are directly dependent on the asset status and policies, institutions and processes of an organisation or individual. Hence therefore poor people compete and thus the livelihood strategy of one household might have a positive or negative impact on the livelihood strategy of another household.

Livelihood Outcomes

Livelihood outcomes are the results or outputs of livelihood strategies. Outcomes would be things such as more income, increased well being, reduced vulnerability, improved food security and nutrition and a more sustainable use of natural resources among others. When looking at livelihood outcomes, the aims of a particular group as well as the extent to which these are already being achieved has to be understood. (Kollmair et al., 2002) Generally speaking therefore, if people have better access to assets, they will then have more ability to influence structures and processes so that these become more responsive to their needs. (Carney, 2000).

2.8.3 Social Exchange Theory

Social exchange theory proposes that all human relationships are formed by the use of a subjective cost-benefit analysis and the comparison of alternatives (Homans 1961), (Blau 1964). Homans developed five key propositions that help in structuring individuals' behaviours based on rewards and costs.

The Success Proposition states that behaviour that creates or produces positive outcomes is likely to be repeated. The Stimulus Proposition states that if an individual's behaviour is rewarded in the past, the individual will then continue to practice the previous behaviour. The Value proposition then argues that if the result of an action is considered valuable to an individual, it is more likely for that behaviour to occur. The Deprivation-satiation proposition states that if an individual receives the same reward several times, the value of that reward will diminish. The fifth proposition argues that when emotions occur due to different reward situations. Finally those who receive more than they expect or do not receive anticipated punishment will be happy and will behave approvingly.

Several exchange perspectives have developed over the years. The exchange framework is founded on the combination of the central tenets of behaviorism and elementary economics where human behavior is envisaged as a function of its payoff. The social exchange framework is primarily concerned with the factors that mediate the formation, maintenance, and breakdown of *exchange relationships* and the dynamics within them.

Within the exchange framework there are core assumptions about the nature of individuals and about the nature of relationships (Sabatelli and Shehan 1993). Individuals seek rewards and avoid punishments. Secondly, individuals always seek to maximize profits for themselves while minimizing costs in their interactions with others. Since it is not possible to know the actual rewards and costs involved in interacting with another before interactions occur, individuals thus guide their behavior through their expectations for rewards and costs. In entrepreneurship the

assumption and intention is that the activity must be able to maximize profits and minimize costs.

Major Contemporary Concepts of Social Exchange theory fall into the following broad categories:

Rewards, costs, and resources. Rewards and resources refer to the benefits of exchange in social relationships. Rewards are the pleasures, satisfactions, and gratifications a person enjoys from being part of a relationship (Thibaut and Kelley 1959).

Resources, are any commodities; material or immaterial, that can be transferred through interpersonal behavior (Foa and Foa 1980) while giving one person the capacity to reward another (Emerson 1976). The costs of social exchange relationships therefore can involve punishments experienced, the energy that is invested in a relationship, or rewards foregone as a result of engaging in one behavior or action over another (Blau 1964).

Satisfaction with exchange relationships looks at outcomes and comparison levels. Satisfaction with an exchange relationship is partly derived, from the evaluation of the outcomes available in a relationship. Outcomes are usually equal to the rewards obtained from a relationship while removing the costs incurred. Adopters of innovations look towards gaining higher rewards and lower costs.

Generally though it is usually the case that the higher the level of outcomes available, the greater the satisfaction, these concepts are not equivalent. To account for satisfaction, both the experiences of the outcomes acquired from the relationship and

the expectations that individuals bring to their relationships are considered (Nye 1979; Sabatelli 1984; Thibaut and Kelley 1959).

Thibaut and Kelley concept of Comparison Level (CL) was developed to further explain the contributions that previous experiences and expectations make to the determination of how satisfied an individual is with a relationship. Individuals usually come to their relationships with an awareness of societal norms and expectations for relationships and experiences. The comparison level is influenced by this information and, thus, depicts what an individual feels is deserved and realistically obtainable within their relationships, and what individuals actually feel is important for them to experience within a relationship. When the outcomes derived from a relationship exceed the comparison level global assessments of a relationship are likely to be high (Nye 1979; Sabatelli 1984; Thibaut and Kelley 1959).

The study adopted this theory to explain the adoption of seaweed farming among the women alongside the assumptions of higher rewards versus lower costs. This was by investigating to establish whether the cost of input and /or uptake of the seaweed farming as a venture is equal to or outweighs the benefits they accrued out of the farming venture. The study explored both physical and social costs vis a vis benefits.

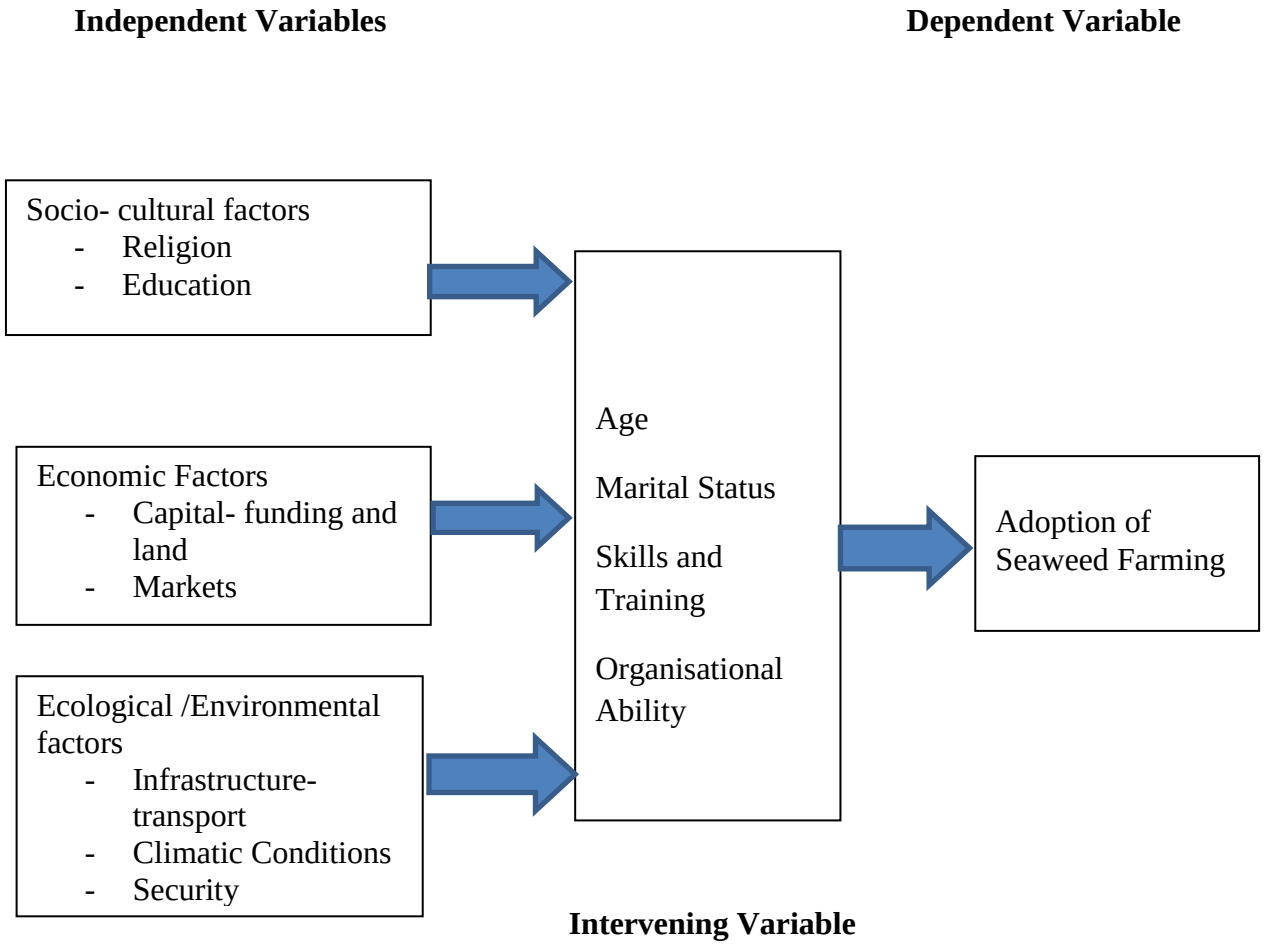
The early development of Social Exchange Theory stem from Gouldner's (1960) norm of reciprocity, which argues that people ought to return benefits given to them in a relationship. For social exchange theorists, when the costs and benefits are equal in a relationship, then that relationship is not equitable.

Social exchange theory is closely tied and related to rational choice theory, and features all of its main assumptions. (Sabatelli and Shehan 1993).

2.9 Conceptual Framework

This study was aimed at determining the factors that influence seaweed farming amongst women farmer groups in Kwale County. The study was guided by the Diffusion Theory of Innovation and Sustainable Livelihoods Approach and which share the following hypothesised relationship with the success or failure of Seaweed farming. Gakuu (2014) submits that a conceptual framework is a research tool intended to develop awareness and understanding of the situation under scrutiny and to communicate how variables are related in research.

Figure 2.1: Conceptual Framework



Source: Researcher (2017)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 The Study Area

This study area was selected to help to answer the research questions. It gave the population of study where the women and men in the villages are the actual sea weed farmers. Sampling this study area allowed the researcher to gain information from the people directly concerned with the study thus providing primary data to either confirm or reject the secondary sources and assumptions earlier made. The area of study was in Lungalunga Constituency, Kwale County, Kenya.

The study area in the South Coast of Kenya is a Coastal community of fisher folk and small scale business traders. The area borders the expansive Ramisi sugar plantation. Kwale County has four major topographical zones. These are the coastal plain, the foot plateau, the coastal uplands and the Nyika plateau. Kwale County has a monsoon climate; meaning it is hot and dry from January – April while June to August is the coolest period of the year. (crakenya.org/counties/Kwale)

According to the 2009 Kenya Population and Housing Census, the county had a population of 649,931 which accounted for 1.7 per cent of Kenya's total population.

Kwale County is home to mainly by the Digo and Duruma communities. These communities belong to the Mijikenda ethnic group of coastal Kenya. Other tribes found in Kwale county include the Kambas, Arabs and Indians though to a very small proportion compared to the Digos and Durumas.

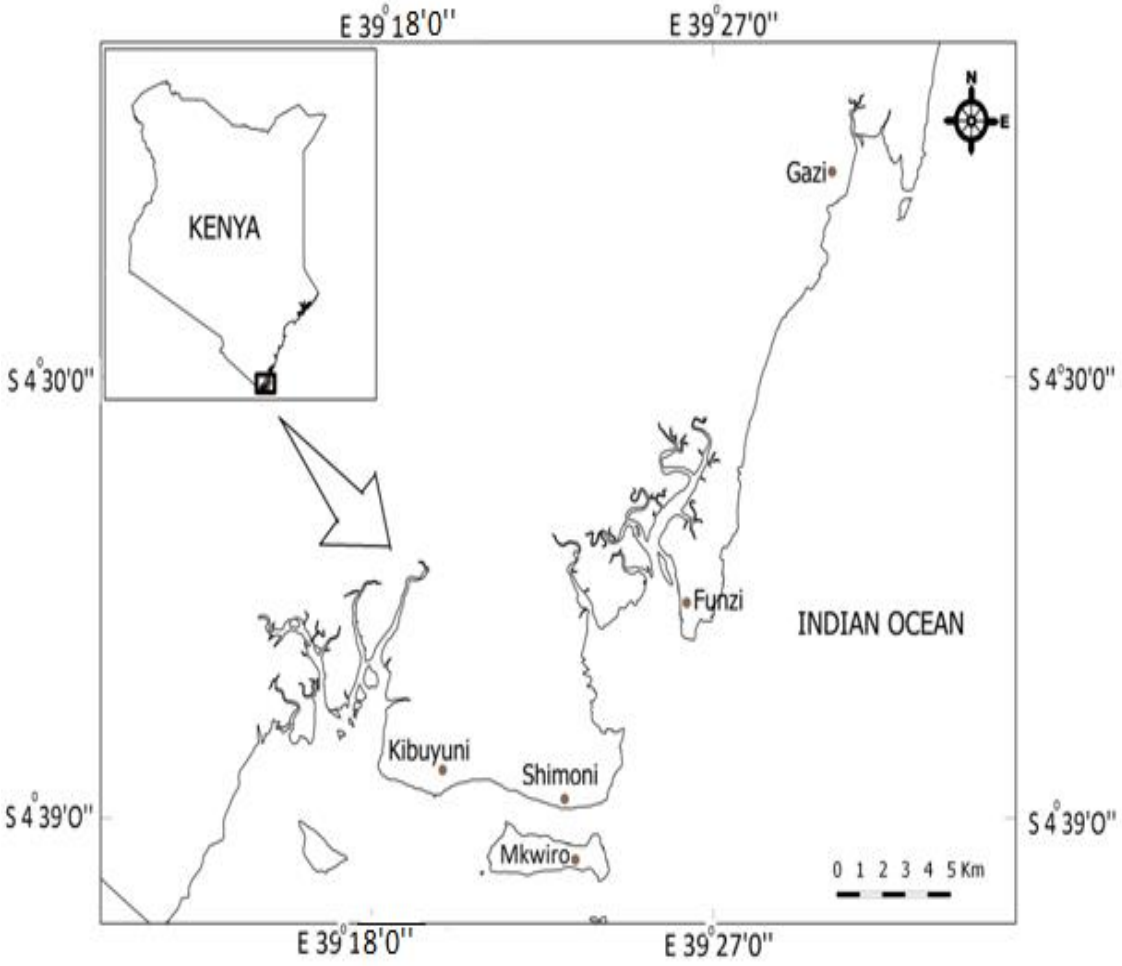
Economically, the five sub counties have four (4) livelihood zones that include livestock farming, mixed farming, fisheries and formal employment /tourism. Mixed farming is the main livelihood of the district although most of the county area is under

livestock farming. The district meets 60% of its grains, vegetables and pulses requirements. The deficit in food crops is met from imports from other neighbouring districts (mainly Taita Taveta) and upcountry.

Fruit farming is a key agricultural and industrial activity in food processing where the main agricultural products are oranges, pawpaw, mangoes, and coconuts. The Coastal Upland of the county are areas of medium to high agricultural potential. Mixed farming is spread throughout the county and it is estimated that 22% of the regions income is derived from cash crop farming.

The study area has four main seaweed farming sites being Kibuyuni, Mukwiru, Funzi and Nyumba Sita villages. This research was conducted in Kibuyuni and Mukwiro villages which have a total of 50 and 43 farmer groups respectively. Currently the Kibuyuni farm sites are faring very well. However, Mukwiro farms are not doing well despite provision of the same inputs and skills to farmers. The study explored the differences and tried to answer the research questions from the data collected.

Figure 3.1: Map of Study Area



3.2 Research Design

The research design for this study was descriptive. The research design covers the sampling techniques as well as the data collection methods that were used in this research. A questionnaire was used to collect both quantitative and qualitative data from the seaweed farmers.

Shimoni area of Kwale has five seaweed farming sites with four that are actively practicing seaweed farming. The area has a total 400 seaweed farmers spread out across the 4 active sites which are also villages. A representative sample of 100 respondents was drawn from two villages; Mkwiro and Kibuyuni with each village

giving an equal number of respondents (50). The respondents were guided through the questionnaires to ensure standardisation in question asking. This ensured that respondents who needed further clarification were assisted to ensure qualified responses were received. The research design helped the study to collect both numerical and descriptive data which was further analysed and interpreted in the form of tables.

3.3. Unit of Analysis

The unit of analysis is the subject of the study. This is the major entity which is being studied. The unit of analysis in this study was the individual women farmers engaging in Seaweed farming as an entrepreneurship activity in the coast region of Kenya.

3.4.Unit of Observation

The unit of observation was the source of information in the study. is the level at which data is being collected. In this study, the women seaweed farmers were the unit of observation from whom data was collected.

3.5 Target Population

A population refers to an entire group of individuals, events or objects that have a common observable characteristic (Ruane 2005). The target population refers to the population that the researcher uses to generalise the results of the study (Mugenda and Mugenda, 2003) The study targeted theWomen engaged in seaweed farming in the Indian ocean at the coast and were used as a sample of direct respondents.

3.6 Sampling Procedure and Sample Size

The methodology employed Purposive Sampling and Stratified random sampling methods.

3.6.1. Sampling Procedure

A purposive sample is where a researcher selects a sample based on their knowledge about the study population. The participants are selected based on the purpose of the study , hence the name. This sampling method allowed the study to select participants to suit the needs of the study. It can also be referred to as deliberate sampling. In this case the study sampled women seaweed farmers. Other seaweed farmers who did not meet the sample criteria were not included. The study also adopted snowballing to reach the study respondents who were purposively selected.

Stratified random sampling was used to highlight a specific subgroup within the population. In this case the study selected 2 villages out of the total of 5 villages. Each village forming strata. This ensured the presence of all key subgroups within the sample. This method allowed the study to observe existing relationships between subgroups in the population while reaching all possible small groups that may exist in the sample population.

3.6.2. Sample Size

A sample is a selected unit in a population that is studied and whose results are generalised to the rest of the population it was drawn from. The study drew a sample of 100 women seaweed farmers from across the 4 active village sites. The study population comprised women seaweed farmers in the Coast region of Kenya. Out of a total 287 women seaweed farmers in the two villages, a sample of 100 respondents was selected. This was after stratified selection of the villages; two were selected for sampling each giving fifty women seaweed farmer respondents.

3.7 Data Collection Tools

A multi-strategy approach was used to collect data. The methods which were applied in this study are observation and questionnaires. Observation was used to give the study a general understanding of the day to day activities of seaweed farmers on the farm sites. Questionnaires had both quantitative and qualitative questions which the respondents responded to with the study's aim of drawing as much information as possible for analysis. Triangulation was employed to allow for the validation of data through cross verification of findings from the varied sources especially for qualitative data.

The questionnaire was designed into the following sections.

Appendix 1: Consenting and Introduction

Section 1A: Respondent Profiling Back Ground Information

Section 2: Livelihood Assessment

Section 3: Business Growth and Sustainability

3.8 Reliability

In order to maintain reliability in the study, the researcher administered the same questionnaire to all the respondents. All administrators of the questionnaire i.e. research assistants were trained to familiarise with the questionnaire tool and disambiguate all questions. The research tool was piloted in 5 farmer respondents in Kibuyuni village. These farmers did not form the actual respondent sample thereafter.

3.9 Validity

Validity as mentioned by (Taole 2008) and (Gray 2004), qualifies an instrument if it measures what it was intended to measure and covers all research issues both in terms of content and detail. This was ensured in the study questionnaire.

3.10 Ethical Considerations

Before engaging the respondents in the study, they were assured of their safety and confidentiality of the information given. The research was purely academic and for knowledge that could be used to improve the seaweed farming venture and that data collected would only be used for the purpose of the study. The respondents were also informed that participation was voluntary from the onset of the study thus giving them the choice to participate or withdraw at any point they felt uncomfortable. Permission to conduct the study was requested from the KMFRI and the village chief was also informed. A consent form was filled for all respondents who agreed to participate.

3.11. Data Processing and Analysis

The data collected was classified, sorted and analysed with the use of Microsoft Excel to answer the research objectives. The primary data was classified and tabulated according to the research objectives using standard tables. Frequencies and percentages were used to analyse the data which was presented in tables and figures. Qualitative data analysis was by transcription and coding. It was presented alongside the quantitative data.

CHAPTER FOUR: DATA PRESENTATION ANALYSIS AND INTERPRETATION

This chapter presents and analyses the data collected. The study sought to establish the factors that influence seaweed farming as an entrepreneurial venture among women. An assumption was made that all seaweed farmers participating in the farming venture had an expectation of gaining income from the production and sale of produce. The realities were deduced alongside three investigative objectives.

4.1 Background Information: Demographic Analysis

A total number of 100 respondents were interviewed. Majority of the respondents were women between 30 to 59 years. These are women deliberately targeted by the seaweed farming project. This age category had 82 women out of the total 100 respondents. There were over twelve relatively elderly respondents.

When probed further for their reason to participate in seaweed farming, the 13 older women aged 60 to 89 responded that their children had left to further their studies on the mainland and got employed. The women chose to practice seaweed farming since they were not restricted when they showed interest and also said it kept them occupied while increasing their incomes to look after the younger children and grandchildren in their households.

Table 4.1: Demographic Representation: Distribution of respondents by Age

Age Group	Frequency	Percentage
20-29	5	5
30-39	29	29
40-49	24	24
50-59	29	29
60-69	12	12
70-79	0	0
80-89	1	1
Total	**100**	**100**

4.1.1 Distribution of respondents by Religion

The study established that over 65% of the respondents were Muslim women. Out of these 65; 50 women were from Mkwiro village. From the data, all of the 29 women in the 50-59 and 12 women of 60-69 age groups, were Muslim women from both villages. Only seven out of these were from Kibuyuni village. The remaining 36 women respondents were from Mkwiro village which also happens to be a predominantly Muslim occupied island off the coast mainland of Kwale. This is illustrated in tables 4.2.

Table 4.2: Distribution of respondents by Religion

Religion	**Freq**	**Percentage**
Christian	32	32
Muslim	68	68
Total	**100**	**100**

Out of the total 100 respondents a larger majority, 70% were married, 10% were unmarried/single, 15% were divorced while 5% were widowed. The study discovered that a unique outlier respondent aged 80 years was a widowed woman and breadwinner for her grandchildren. The children's parents were working across the sea on the mainland. It is presumed that the 30% of the unmarried which constitutes single, divorced and widowed women ventured into seaweed farming to sustain their families as sole breadwinners. The same is illustrated in table 4.3 below.

Table 4.3: Distribution of Respondents by Marital Status

Marital Status	**Freq**	**Percentage**
Married	70	70
Single	10	10
Divorced	15	15
Widowed	5	5
Total	**100**	**100**

4.1.2 Level of Education

The study established that 39% of the respondents had no formal education; 5% reached lower primary; a majority had reached upper primary and 5% attained secondary education. This shows that more than half of the respondents have attained basic education and can be able to read and write. Education level has a comparison to the level of skills and knowledge that influence adoption and practice of seaweed farming especially with financial knowledge that the study investigated. A large number of those lacking formal education was from Mkwiro village.The education level is as tabulated in 4.4 below.

Table 4.4: Distribution of respondents by Level of education

Education Level	**Frequency**	**Percentage**
No formal Education	39	39
Lower Primary	5	5
Upper Primary	51	51
Secondary level	5	5
Total	**100**	**100**

Primary Source of income Prior to Seaweed Farming

The inquest established there were other income sources apart from seaweed farming. Based on the findings 46% of the respondents are doing activities like sewing mats, straw hats, collecting and selling sea shells and cooking and selling of food snacks. However, this was at a very small scale as the seaweed farmers were also mostly occupied on the seaweed farms. Out of the one hundred (100) respondents seven (7%) were casual labourers and thirty two (32%) were into crop farming. The crops included vegetables, grains and fruit trees, while 7% received income from relatives and friends. Salaried employees included teachers and support staff at the community school and these were 8. Table 4.5 below outlines the same.

Table 4.5: Distribution of Respondents by Primary Source of Income Prior to Seaweed Farming

Source of Income	Frequency	Percentage
Business	46	46
Casual Labourer	7	7
Crop Farming	32	32
Relatives/Friends	7	7
Salaried Employment	8	8
Total	**100**	**100**

4.2 Access to Basic Amenities and Resources

Basic amenities are items that every human being needs access to for day to day living. Any business venture must be able to provide income to cater for basic amenities, these include housing, water, and energy sources in the household like fuel and lighting and resources like animal stock, and food crops that the seaweed farmers owned.

As outlined in table 4.6 below, 26% of the respondents live in block walled houses; 33% have houses with iron sheet roofs; 23% live in mud walled houses and 18% had their houses thatched with palm leaf.

Table 4.6: Distribution of respondents by Type of Housing

Amenities- Housing	Frequency	Percentage
Block walled house	26	26
Iron sheet roof	33	33
Mud walled house	23	23
Thatched roof house	18	18
Total	**100**	**100**

Water sources and use included borehole water at 37 with a majority 62 harvesting rain water and only 1% used piped water. This one respondent was from Kibuyuni village. The same is as in table 4.7 below.

Table 4.7. Distribution of Respondents by Source of Water

Amenities- Water	Frequency	Percentage
Borehole	37	37
Piped Water	1	1
Rain Water harvesting	62	62
Total	**100**	**100**

The seaweed farmer's animal stock, was distributed among poultry, sheep and goats 42% keep goats and sheep while 58% keep poultry. This figure is lower compared to the overall county statistic that has over 78% of goat and poultry keepers, which is one of the county's main resource. This data was tabulated as in 4.8 below.

Table 4.8. Distribution of Respondents by Resources: Animal Stock

Resources- Animal Stock	Frequency	Percentage
Goat/Sheep	42	42
Poultry	58	58
Total	**100**	**100**

The respondents also practiced food crops farming; 11% had fruit trees; 32% had grains and 57% percent grow vegetables. This is a fairly good statistic considering 50% of all respondents are residents in Mkwiro Village which is an island and cut off from access to piped water and electricity. Food crop distribution is as in table 4.9 below.

Table 4.9. Distribution of Respondents by Resources: Food Crop Farming

Resources- Food Crops	Frequency	Percentage
Fruit Trees	11	11
Grains	32	32
Vegetables	57	57
Total	**100**	**100**

The fuel commonly used by the seaweed farmers was firewood at 94% while only 6% use charcoal and paraffin.

Table 4.10. Distribution of Respondents by Resources: Access to Fuel

Resources- Fuel	Frequency	Percentage
Firewood	94	94
Charcoal/ Paraffin	6	6
Total	**100**	**100**

The sources of energy for lighting for the respondents included candle light, paraffin, electricity and solar. Of the total 72% used both candle light and paraffin lamps to light up their houses while 26% used solar lamps which they mostly recharged during the day. Only 2% had access to electricity for lighting their houses.

Table 4.11. Distribution of Respondents by Resources: Access to Lighting

Resources- Lighting	Frequency	Percentage
Candle/Paraffin Lamp	72	72
Electricity	2	2
Solar	26	26
Total	**100**	**100**

An assessment on the household assets owned by the respondents revealed that 40% owned between one and two radios per household. 10 owned television sets. While 70 possess one mobile phone per household 15% of them had two mobile phones per household. Only 10% own a bicycle and none owns either a motorcycle, car nor a truck. This is outlined in table 4.12.

Table 4.12: Distribution of Respondents by Household assets

Asset	No. Per Household	Frequency	Percentage
Radio	1	40	40
Television	1	10	10
Mobile Telephone	1	85	85
Bicycle	1	10	10
Motorcycle	0	0	0
Car/Truck	0	0	0

With the radios and television sets available, the seaweed farmers are able to keep up with current affairs with the rest of the county. Media gadgets including mobile phones are key message carriers. However, unavailability of motorcycles and vehicles poses a challenge in the transportation of the seaweed harvest to markets for sale.

Objective 1: Level and scope of adoption: Extent and Significance of Seaweed Farming as an Economic Activity

4.3 Respondent Profiling: Occupation and Adoption of Seaweed farming.

The seaweed farming project targeted residents of Kwale County. The study was carried out in the project areas with a respondent criteria for being a seaweed farmer. Data collection exercise was conducted in the homesteads, community meeting points or on the farming sites. The data collection site was dependent on the availability of the respondent at the time of data collection.

The study profiled the respondents into occupation categories to establish whether they had other income generating activities prior to the adoption of seaweed farming. Based on the findings the study deduced that the seaweed farmers had a choice on whether to take up seaweed farming or continue on their businesses.

The types of occupation are as tabulated in table 4.13 below.

Table 4.13: Distribution of Respondents by Occupation Prior to Adoption of Seaweed Farming

Occupation	Frequency	Percentage
Farming	10	10
Food vending	64	64
Small business- Crafts	26	26
Total	**100**	**100**

The study also established that at the adoption of seaweed farming, a larger majority, (90%) stopped their previous ventures and adopted seaweed farming while 10% still kept their earlier ventures. The study sought to establish the reasons for stopping their earlier ventures and the same was deduced as in table 4.14 below.

Table 4.14: Distribution of respondents by Reasons for stopping other ventures

Reason for Stopping	Frequency	Percentage
Exhausting	19	19
Not profitable	54	54
Time Consuming	14	14
Age	3	3
Continued with venture	10	10
Total	**100**	**100**

The diffusion of innovation theory (Rogers 2003) argues that the level and scope of adoption of an entrepreneurial venture is dependent on five attributes. Relative advantage; which is the degree to which an innovation is perceived to being better than the idea that supersedes it.

In this case, we can argue that out of the initial target number of farmers at introduction of the project, the number of seaweed farmers has increased from just over 200 farmers and is currently at 400 farmers across all four active villages.

In the data, while 400 farmers were initially targeted only 200 started immediately at introduction of the project. Of the hundred respondents twenty (20%) started after others had started. Varied reasons for adoption of seaweed farming were given with the common one being it was earning income and the pioneer farmers were actually making profits. However majority of the respondents informed that the venture was not labour intensive but was time consuming. In spite of this, 90% of the seaweed farmers had ventured away from their old businesses to start seaweed farming while 10% still kept their old businesses as earlier stated.

This finding further brings out the attributes of complexity and triability. The government of Kenya through KMFRI research and project piloting assessed viability and potential of seaweed farming which the farmers adopted. Also the activity is simple, non-technical with a lot of practical learning and observation thus simple and easy to adopt.

Data records and information from KMFRI, the key supporting body show that each farmer has a seaweed parcel of 1500m2 partitioned into 6 blocks with each block holding up to 50 lines of seaweed crop. Each farmer therefore has a total 300 ropes of seaweed. Despite not being labour intensive, the venture is considered time consuming as it would take more than a day to tie up the ropes with seaweed before introducing it into the water.

Further, key aspects that influence the adoption of an innovation or what is considered new by the adopter include how they learnt about the innovation, source and amount of capital available including labour. A majority of the respondents (62%) learnt about this venture in community meetings, 6% from family members, 29 % from

either a friend or neighbour and only 3% from village community meeting announcements.

Table 4.15: Distribution of Respondents by Learning of Seaweed Farming

Learning of Seaweed	Frequency	Percentage
Community meeting	62	62
Family Member	6	6
Friend/Neighbour	29	29
Village Announcement	3	3
Total	**100**	**100**

Despite the positive reaction with respondents getting 100% support from family and friends and having faced minimal challenges during adoption a high majority of 72% adopted seaweed farming on the onset of its introduction in the community, while 28% took up seaweed farming after others had started. They further stated that they wanted to see how the other farmers performed before they embarked on the same.

While initial cost of inputs and start-ups were provided by the supporting institutions, 30% acquired grants to start the seaweed farming, 7% took loans, 28% sourced from savings and 36% from other sources. These sources included other businesses and money from friends and family. This data is shown in Table 4.16 below.

Table 4.16. Distribution of Respondents by Source of Capital

Source of Capital	Frequency	Percentage
Grant	30	30
Loan	7	7
Savings	28	28
Friends and Family	36	36
Total	**100**	**100**

Social exchange theory (Gouldner 1960) norm of reciprocity can be seen in the adoption of seaweed farming as an enterprise. The farmers could make better gains from seaweed farming thus its high uptake and the stopping of other ventures. There was also the inclusion of labour costs that went with the uptake of seaweed farming. Respondents adopted various ways of acquiring and substituting labour costs. Table 4.17. Below shows the distribution.

Table 4.17: Distribution of Respondents by Labour Substitution

Labour Substitution Option	**Frequency**	**Percentage**
Worked single handedly	50	50
Employed Labourer	1	1
Family/Friend Support	49	49
Total	**100**	**100**

The initial capital invested varied amongst the respondents this clearly showing their different financial capacities as stated in table 4.18 below. Most of them (54%) had used between Kes. 26,000- Kes. 30,000. The least amount invested ranged between Kes. 16,000 – Kes. 20,000 with upto 44% of respondents investing within this range.

Table 4.18: Distribution of Respondents by Initial Capital Investment.

Initial Capital Investment (Kes)	**Frequency**	**Percentage**
16,000- 20,000	44	44
21,000- 25,000	2	2
26,000- 30,000	54	54
Total	**100**	**100**

Objective 2: Determinant factors of the success of seaweed farming

In social exchange theory, the cost benefit analysis approach is brought out in the reasons for adoption and increased participation of farmers in the seaweed farming venture. Seaweed farming is seen to satisfy the needs of the farmer respondents.

Seaweed farmer's behaviour to take up and continue practicing seaweed farming can be directly related to a rational choice they made to either continue farming or stop farming. The farmers have made more benefits than incurred costs in the venture. This is seen through the satisfaction of needs and ability to make savings.

Economic Factors

Economic factors are key in determining the adoption or rejection of a business venture. Based on the study findings, the initial group of farmers selected as beneficiaries at the introduction of the seaweed farming project received all required inputs and training to start the farming activity. There was only time as a cost for the farmers. Proceeds from the harvest and sale of seaweeds has sustained the reinvestment into seaweed farms and expansion of some plots for more acreage cover. The cost of inputs as deduced from the study ranges between Kes.16,000 to Kes. 30,000. Within a six week spring season farmers are able to harvest upto 10 tones of seaweeds per parcel allowing for more returns. No new seed inputs are required since the same traces are tied back on the ropes to grow out again. The government has continued to support farmers with the management of the farms and trainings for value addition, construction of a drying shed and linkage to markets.

Socio- Cultural Factors

Socio- Cultural factors determine how compatible a venture is with the target population. From investigation, the women farmers earlier stated they received total support from family members to engage in seaweed farming. This shows there was a high aspect of compatibility of the venture to the communities cultural and religious beliefs and practices. Community beliefs around gender and its attributes influence gender roles for men and women. In these communities, a common role of the family breadwinner usually taken up by men in patriarchal societies is significantly shared among the women; who are the seaweed farmers. A key factor, religion; which in this case is predominantly Muslim also plays well in the study population. Cultural beliefs and practices are drawn from religion and community habits and behaviour. Religion as an aspect of culture has not limited the community from fully adopting the seaweed farming venture.

Ecological Factors

Ecological factors influence the feasibility and performance of any land use venture. This is coupled with climatic conditions, security, availability of useful land among other aspects. The feasibility for seaweed farming was explored over time through research and testing by KMFRI. Over the years, increase in the number of farmers and also increased acreage under tillage shows the land and environmental characteristics have favoured adoption of seaweed farming. The reef breaks the tide strength in a larger section of the sea front thus allowing for the safe installation of seaweed lines for farming. It has also allowed for continued conservation of sea and beach resources like mangrove and breeding sites for sea creatures like fish and crustaceans. The south coast of Kenya has enjoyed security and allowed communities to engage in sea based ventures.

One environmental component of security has raised safety concerns. Seaweed farmers sourcing stakes (used to tie and hold the rope in place) have had a hard time with poisonous snakes found in the bushes. This has majorly worried the women who have had to include additional labour costs to pay young men who source the stakes for them. The process is also tedious for the women as they have to carry the stakes long distances back to the farms for use.

However a key challenge in ecological factors was natural calamities such as winds and high tides. This was common in Mukwiro where the seaweed ropes were washed away due to high tides and rough waters. Due to this challenge some farmers incurred total loss of crop and others incurred many debts trying to replace lost or broken ropes. Such calamities have further contributed to a lack in stable income. A 45 year old seaweed farmer and a widow in Mkwiro respondend;

" I have been in this farming for many years, I was one of the people trained among the first groups. Earlier the sea was good and we never lost our crops…."……" But now these past few days I have been going to the sea everyday because if I don't I might find the ropes and all my crop washed away. It is a problem for me. I am losing money. I don't have anything else to do to give me money. I have depended on this crop for many years…."

Knowledge and Skills

Skills training is also a key factor in the adoption and continued practice of any venture. KMFRI alongside other actors; ACT Kenya, have trained farmers on the growing of different seaweed types. Farmers have also been trained on basic book keeping to help in the day to day running and managing of the business resources. However the study established that not all the farmers were using these skills

including record keeping which is crucial in tracking the profit and loss in a business. Other skills training included value addition for soap making among other skin products.

"*The teachers should keep teaching us and showing us better ways of taking care of the seaweeds. We have been farming the same seaweed. I hear Tanzania are doing very well and even making body oil and soap…" said a 40 year old farmer working with her daughter on the farm.*

The study assessed needs satisfaction before and after starting seaweed farming as tabulated in table 6.0 below. A key focus was on the access to basic needs where there is an increase in capacities among the farmers to satisfy their needs. Out of the total number of respondents, 58% used to have three meals in a day before the started seaweed farming while 42% did not. The number increased to 76% after starting with only 24% that could not. Out of the 24, 12 indicated that they did not have the habit of eating three meals a day and it was not because of availability of the food. There was marked improvement in the satisfaction of the other needs like access to education, better housing and health care as listed in table xx below. This shows that seaweed farming has contributed to meeting the economic needs of the respondents.

Respondents felt that seaweed farming has been time consuming. They were unable to commit enough time to other activities like building houses which is also a big commitment.

The respondents were asked about investing in other businesses. 43% could invest in other businesses before they started seaweed farming while 57% could not. On the other hand, 51% said that they could invest in other businesses after they had started

seaweed farming. Despite the increase, the time factor to attend to other investments proved to be a challenge in the initial set up of the farm in every season. This is marked as the only time the venture takes up a lot of time.

The respondent's savings also increased with uptake of seaweed farming. The number of those able to make savings went up from 49% to 67%. This also shows that seaweed farming has met the economic needs of the respondents while being able to set aside savings.

Table 4.19: Distribution of respondents by satisfaction of needs before and after seaweed farming

Needs	**Before**		**after**	
	YES.	**NO**		
Have three meals in a day	58	42	76	24
Buy clothing	65	35	81	19
Access Education	62	38	86	14
Pay for Health Care	72	28	93	17
Housing	49	51	35	65
Invest in other business	43	57	51	49
Make savings	59	41	67	33

4.4 Seaweed Farmers Knowledge and Capital Profile

Data was collected in order to establish the knowledge and capital capacities of the respondents. 87% were initially individual farmers while 13% were grouped. Currently all farmers operate as individuals though they learn and are trained in groups. Profit making goes with record keeping and ability to utilize resources and re invest money from the venture in question. While 51% could tell of their profits through keeping records 42% used common sense and 7% did not make any profit at all as shown in table 4.20 below. However common sense does not quantify the

profits. The 7 who did not make any profits suffered total loss of crop due to high tide and rough weather that washed away their seaweed ropes. These were all from Mkwiro village.

One of the female respondents aged 50 years in Mkwiro stated that:

"I don't have to write down what I am using my money for, I use common sense and calculate in my head how I use my money. That way I know how much I am making from the seaweed farming."

Table 4.20: Distribution of Respondents by Knowledge on Profit Made

Knowledge on Profit Made	**Frequency**	**Percentage**
Through records	51	51
Use of common sense	42	42
No profit made	7	7
Total	**100**	**100**

In record keeping, while only 51% could tell whether they were making profit, 55% actually did keep records. The variance of 4 in this category is assumed to be that the respondents lack the ability to tell whether they made profits even with records hence proper record keeping is prudent. This was to be achieved through training of the same. The findings showed that 45 of the 100 respondents did not keep any records. Bookkeeping and budgeting trainings were conducted.

Table 4.21: Distribution of respondents by Record Keeping

Record Keeping	**Frequency**	**Percentage**
Yes	55	55
No	45	45
Total	**100**	**100**

Out of the 100 respondents, 70% had received training while 26% had not and 4% had only their leaders trained. This makes total number of untrained farmers to 30 (30%) as tabulated in Table 4.22 below. The 4% in this category can be classified as those in the above variance who did not know whether they were making profit or not. Findings from the study show that although 70% of the respondents had trained in book keeping and budgeting only 45% were able to practice it by keeping records. A key success factor in any successful venture is the ability to keep proper records, source capital and check capacity for access to credit for business growth.

Table 4.22: Distribution of Respondents by Knowledge of Book Keeping

Trained on Book Keeping	**Frequency**	**Percentage**
Yes	70	70
No	30	30
Total	**100**	**100**

The table 4.23 below shows training institutions involved in imparting knowledge on seaweed farming in Kwale County.

Table 4.23. Distribution of Respondents by Seaweed Farming Training Institutions

Training Institution	**Frequency**	**Percentage**
KMFRI	70	70
ACT Kenya	12	12
FAO	12	12
Group (Chama)	4	4
KCDP	2	2
TOTAL	**100**	**100**

Despite the training in seaweed farming and book keeping; a majority of the farmers were not informed of the availability of government funds for women enterprise building. Only 37% had been informed while 63% were not. Out of the 37%, 36% had

requested for a loan while 64% had not. Of those who accessed loans, all were able to pay the loans. These loans were sourced from relatives, 3%; 84% got the loans from table banking or the village bank; 10% was from a micro finance and 3% was from a bank.

Table 4.24: Distribution of Respondents by Sources of Loan

Source of Loan	Frequency	Percentage
Relative	3	3
Table/ Village Bank	84	84
Micro finance Institution	10	10
Bank	3	3
Total	**100**	**100**

The purpose of the loan as shown in table 6.6 below was for investing in business; 36%, 46% in paying for child's education; 7% for seaweed farming and 11% put the loan into building or repairing a house.

Table 4.25: Distribution of Respondents by Purpose of Taking a Loan

Purpose of loan	Frequency	Percentage
Invest in Business	36	36
Education	46	46
Seaweed Farming	7	7
Housing costs	11	11
Total	**100**	**100**

From the study, a majority of respondents (63%) appreciated the importance of investment and were able to request for loans. Although only 7% were able to invest the money in seaweed farming, but a total of 43% were able to invest the money in different businesses. The cost of inputs in seaweed farming was initially catered for by the support organizations thus this could explain their choice to invest in other

business since the farmers had very little need for additional funds in seaweed farming. The study also revealed that the sensitization about the availability of funds for women and loans was directly proportional to those who applied for loans (63%).

It also revealed that all those who requested for loans were able to pay back the loans as shown in table 4.26 below. This shows that acquisition of loans is one of the factors which determine women involvement in the success of seaweed farming in Kwale County.

Table 4.26: Distribution of Respondents by Applying and Repayment of a loan

Applied and Repayment of loan	**Frequency**	**Percentage**
Yes	36	36
No	63	63
Total	**100**	**100**

4.5 Objective 3: The impact of Seaweed farming

From the covered sections and chapters, seaweed farming has been seen to have varied effects and or impacts on the women seaweed farmers.

Socio-economic

Socio-economic impacts were identified in the study. This is exemplified in the farmers' demonstration of changes and improvement in satisfaction of basic needs. Earlier the study showed how respondents access to meals a day went up from 58% prior to practicing seaweed farming to 76% after adoption of seaweed farming. The same was seen for clothing from 65% to 81%, access to education for their children moved up from A larger majority of the farmers are able to make profit, reinvest in other businesses and even make savings. In education, the seaweed farmers are able to

pay for their children's education from 62% to 86% while access to health acre improved from 72% to 93%. The housing repairs and building however went down from 49% to 35%. Respondents explained that due to the long working hours on the seaweed farms, they were unable to commit time to house repairs and building.

Assessment of the potential of seaweed farming as an entrepreneurial venture established that farmers had the willingness to keep practicing seaweed farming while proposing improvements in some areas. The ability to see the gaps and propose improvements shows there has been a level of learning and appreciation of the venture for profit creation and economic growth.

As shown in table 6.8 below, 24% of the respondents would like to have ready market for their products. 23% would like to be given loans; 22% would like to be provided with equipment such as gumboots, ropes, pangas, among other items; 11% would like to be trained; 8% suggested for more and regular site visits and close supervision from the implementing partners like KMFRI; 4% needed grants and donations for the seaweed farming; 4% felt they needed storage facilities and another 4% needed transport for their produce. This shows that Marketing (24%), Loans (23%) and Provision of equipment (22%) are the main areas which need improvement in seaweed farming. However, Trainings (11%), Site visits (8%), Donations (4%) and Storage (4%) also need to be addressed.

All these are attributes of entrepreneurship where market, capital, awareness creation, innovation and learning are all key qualities of an enterprise.

Table 4.27: Distribution of Respondents by Proposed interventions for improvement of seaweed farming

Intervention	Frequency	Percentage
Marketing	24	24
Loans access	23	23
Provision of Equipment	22	22
Trainings	11	11
Site Visits	8	8
Donations	4	4
Storage	4	4
Better selling prices	1	1
Seedling Variety	1	1
Transport	2	2
Total	**100**	**100**

Further from the farmers' plan of action, the study established that the respondents intend to invest and reinvest in both seaweed farming and other ventures. The reason for reinvestment in other ventures is that the cost of inputs for seaweed after several seasons of crop is very low. Most inputs are reused multi seasonally hence very little need to reinvest. Also the land for expansion is limited and only based on the exploration and action by the government through the administration and KMFRI among other actors.

As shown in table 4.28 below, the study revealed that 44% of the respondents intend to reinvest in the farming project the money they make from seaweed farming and 56% intend to invest in other businesses. A majority of the respondents (56%) intend to venture into other businesses and diversify their earnings. Although the study revealed that 100% of the respondents intend to continue with business but only 44% intend to continue investing with seaweed farming. The 44 % were all from Kibuyuni village. From the study findings, Mkwiro village was evidently faced with

topographical challenges coupled with bad weather and sea storms that have affected productivity of their crop.

Table 4.28: Distribution of Respondents by investment options

Investment Option	**Frequency**	**Percentage**
Reinvest in Seaweed Farming	44	44
Invest in other businesses	56	56
Total	**100**	**100**

CHAPTER FIVE: SUMMARY OF FINDINGS, DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of the Findings of the Study

5.1.1. Extent and Significance of Seaweed Farming

The seaweed farming venture has since gained popularity since its introduction in to the south coast communities in Kwale where more people have willingly taken up the practice.

There has been continued research by the KMFRI and supporting policy formulation. Since its introduction, focus has been on the improvement of yields and gainful farming practice while promoting conservative sea front farming practices to protect the natural sea resources. The national government in conjunction with the county government has set aside land and financial resources to expand the seaweed farming venture along the coastline. Farmers' parcels have since increased to 6 blocks of crop each measuring 1500m2. Initial crop lines were 50 ropes per parcel while optimal production per parcel is 300 ropes.

The study reveals that there is moderate to high participation of middle aged women participating in seaweed farming. It is key to note that there is also the participation of much older women farmers aged above 60 years up to 80 years old and the increased participation of men for a venture that initially targeted women farmers. The venture is adaptable and compatible across ages and 'tis variance has also brought about the aspect of labour which is clearly brought out in impacts of the seaweed farming venture.

5.1.2 Determinant Factors on the Success of Seaweed Farming

The study findings reveal that ecological, economic and socio-cultural factors strongly influence seaweed farming amongst the communities in Kwale County. The venture is seen to be economically demanding to the farmers who have had to source additional funding from loans, family grants and savings to complement inputs provided by the KMFRI. A larger majority did not access loans for business but for other uses including education and health care. However key inputs like additional labour requirements and purchase of ropes show that the farmers appreciate and recognise of importance of seaweed farming in maintaining their livelihoods.

Socio-cultural factors of family and gender roles play out interestingly in the study. Despite the predominantly Muslim communities having men as sole breadwinners, the families fully supported the women in venturing into seaweed farming. Also the social fabric of the community is strengthened with women seaweed farmers forming table banking groups for access of soft loans to cater for their needs.

Ecological factors continue to be a constraint in Mkwiro village where the farmers have faced total loss of crop in some seasons when tide is ugh and sea is rough. However the case is not the same for Kibuyuni village. Despite the challenges, both villages are willing to keep investing in seaweed farming while diversifying their ventures into other businesses, an assumption that they are spreading their business risks against total loss of investment due to uncontrollable factors.

5.1.3 Impact and Potential of Seaweed Farming as Sustainable Venture.

Seaweed farming has evidently improved the lives of the communities practicing it. Of the two villages studied, seaweed farmers gave positive responses on livelihood

improvement. The conditions of living including access to basic amenities and housing had improved with over 20% difference from previous to current situation. There was a marked improvement for access to social needs like education and health care. The venture has shown potential to support livelihoods while allowing diversification of investments into other ventures. Up to 44 farmer respondents intend to invest in other ventures to diversify their investments while all 100 respondents are willing to continue with seaweed farming. The potential for success and sustainability is also derived from the suggestions the seaweed farmers gave for the improvement of seaweed farming. The farmers have identified challenges and proposed solutions for interventions in order to make the venture more profitable. These included marketing, access to credit facilities and training and input provision among others.

The same suggestions are realistic for achievement by key actors and implementers from the government and private sector. The government is looking at promoting expansion of seaweed farming whilst through KMFRI research into the adoption of new seaweed species.

5.2 Conclusion of the Study

The study sought to establish whether seaweed farming can be an alternative Enterprise to other coast based enterprises. It also sought to know the key factors that would influence its adoption and whether financial knowledge is a key factor affecting women entrepreneurship.

From the findings, it is evident that seaweed farming has over 50% potential as a sustainable enterprise compared to other women based trades like food and farm produce vending. The venture received no objection from family members and thus is

viewed as culturally acceptable. This is further evident as purported in the Diffusion of innovation theory attribute of Compatibility. The seaweed farming venture degree of compatibility to the social and cultural values of the community that would influence women involvement is at 100%. Out of the 235 farmers initially trained during the introduction of seaweed farmers, 188 were women. The total number of farmers has since increased to 287 farmers in the two studied villages and 400 across all the villages. This also goes to show that the venture is easy to understand and adopt, the attributes of complexity -simplicity atrium favor the simplicity degree in this venture. Seaweed farming is also simplified by the use of locally available materials like ropes and stakes, thus doesn't require intensive technical know how to implement. Variance in its triability was shown where farmer respondents have had to invest a lot of time energy and other resources like money for paid labor due to its time consuming nature thus affecting their ability to carry out other businesses long side seaweed farming. The seaweed farming venture was introduced seven years ago in 2010 thus the country and relevant institutions have had a lot of learning to now propose it as a sustainable venture and for adoption by more farmers and other coastal communities. This also provides for more learning that has been acquired by farmers on value addition to seaweed farming for increased income.

From the findings, the study can draw that seaweed farming has benefited the farmers economically and socially as drawn from responses of improved savings, ability to have more meals in a day as previously, buy school uniforms and books, pay school fees and access health care.

When looking at the factors that influence the success of seaweed farming, the study draws from the key challenges and proposed solutions from the qualitative section of

the questionnaire. Financial knowledge in this is key in venture adoption and growth. Varied knowledge on the importance of book keeping and the actual practice of book keeping among the respondents is shown in the findings. Despite 70% of respondents saying they were trained on book keeping and budgeting only 55% of them kept actual written records. Proper record keeping is key in the growth and expansion of a business while keeping the operator informed of whether they are making profits or losses.

The study concludes that seaweed farming is a significant economic activity for women entrepreneurs in Kwale County. It also concludes that the acquisition of loans and government support are the major factors which determine women involvement in the success of seaweed farming in Kwale County. Finally, it concludes that a majority of the women entrepreneurs in Kwale County intent to venture into other businesses apart from seaweed farming.

5.3 Recommendations of the Study

The study recommends that:

i. A key recommendation is to increase capacity for inputs and tillage in order to increase profits. These include drying facilities and among other infrastructure for improved transport and access to buyers.
ii. Incentives to be given to best performers such as bursaries and scholarships for their children.
iii. Sensitization meetings and seminars should be organized for the women entrepreneurs to create awareness on business opportunities, and available cheap loans and government initiatives for women empowerment such as Women Enterprise fund

iv. ICT integration, networking and online marketing should be initiated among the women entrepreneurs for better access to information, markets and credit.

v. Support in diversification of investment in other ventures so as to reduce the risks caused by environmental factors.

5.4 Suggestion for Further Studies

The study suggests that further studies be carried out on the role of ICT integration on women entrepreneurs.

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APPENDICES

APPENDIX I: Consent Form

SEAWEED FARMERS ASSESSMENT TOOL

SEA WEED FARMING AS A GROWING WOMEN'S VENTURE IN KWALE COUNTY

INTRODUCTION AND CONSENT SECTION

Hello. My name is _____ and I am an enumerator for this study. It is being carried out by a Masters student in the University of Nairobi. We are conducting a survey that asks about various social, economic and financial issues about Sea weed farming in your area. We would very much appreciate your participation in this survey.

This information will help me in identifying facts to answer questions about the impact of sea weed farming in this community. The survey usually takes _____ minutes to complete.

The information you provide will be kept confidential and will not be shared with anyone other than members of the study team.

Your participation in this survey is voluntary. You are free to not answer questions that make you uncomfortable. I will go on to the next question; you can also stop the interview at any time. However, I hope that you will participate in this survey since your views are important.

Do you have any questions about the survey?

May we begin the interview?

Signature of interviewer: _____ Date: _____

THE RESPONDENT AGREES TO BE INTERVIEWED . . . 1

THE RESPONDENT DOES NOT AGREE TO BE INTERVIEWED . . . 2 ----------END

APPENDIX II: Questionnaire

Study Number of Respondent: _____

1**. Interviewer** Name:

2. **Cluster No**: Sub County: Division:

Location: Sub-location: Village:

3. **Date of Interview**: ____/____/_____ (DD/MM/YYYY)

4. **Time of Interview**: _____ AM/PM (e.g. 10:00 AM)

5. Respondent Classification: PLEASE TICK THAT WHICH APPLIES

- ☐ Woman in Household
- ☐ Woman at Farm Site
- ☐ Other. Please Specify _____

Only one respondent is eligible in a household and must be a seaweed farmer in the area of study. Older respondents may be assisted or accompanied by a younger family member where necessary.

This questionnaire is only applicable to one respondent at a time. Each respondent must have their own assessment tool.

SECTION 1: BACKGROUND INFORMATION

PLEASE ASK ABOUT ALL DETAILS AS INDICATED IN TABLE 1 BELOW IN THE RESPONDENT'S HOUSEHOLD

1A.

Age	**Sex**	**What is your primary occupation?**	**Highest Level of Education?**
_____(yrs./ months) ____/____/_____ (DD/MM/YYYY)	□ □	□ 02 Farmer □ 03 Salaried employee □ 04 Business owner □ 05Retired with pension □ 06 Retired without pension □ 07 Casual Labourer □ 77 Other, please specify: _____ □ 88 Don't know □ 99 Refused	□ 01 No formal schooling □ 02 Lower primary (1-3) □ 03 Upper primary (4-8) □ 04 Ordinary secondary (1-4) □ 05 Advanced secondary (5-6) □ 06 Vocational school □ 07 University/College □ 77 Other, please specify: _____ □ 88 Don't know □ 99 Refused
Marital Status Religion	□	□ Married □ Single □ Divorced □ Widowed □ Christian □ Muslim □ Other please specify_____	

2. Are you a resident of this village? Yes ☐ No ☐

- If no, probe to know why the farmer has a plot in this village. Indicate response below

_____

_____

Respondent Profiling: Occupation and Adoption of Seaweed Farming

3. Source of Income

What are your household sources of income? PROBE, AND TICK ALL SOURCES MENTIONED	**Source of Income**	**Rank by order of importance (1= Most important source etc.)**
	01 Crop Farming	
	02 Business	
	03 Salaried employment	
	04 Casual Labourer	
	05 Relatives / friends outside household	
	06 Pension	

1. Before venturing into sea weed farming what economic activity did you participate in? List as many as possible

_____

_____

_____

_____

2. What caused you to stop the (name of business)? Check one below.

    It was time consuming

    It was not profitable

    It was not what I like to do

    There was no security

    I was too old for the business

    I was too tired and had no help

    Other please specify

    _____

3. How did you learn about the seaweed farming project?

    From a friend/ neighbour

    From a family member please specify _____

    In a community meeting

    It was announced in the village

4. At what point did you get involved in Seaweed farming?

    I was interested from the beginning

    I joined after seeing other farmers participate

5. How did your family react when they learnt of your interest to become a seaweed farmer? Did you encounter any challenges? If so do you mind telling me about these challenges?

_____

_____

_____

6. How long have you been a seaweed farmer? Indicate number of months or years where appropriate. Months ☐ Years ☐

7. To what extent have you invested in the seaweed farming venture? Tick where appropriate below.

i. Source of Capital

☐ Loan

☐ Self/Savings

☐ Grant

☐ Other please specify _____

ii. Initial Amount of Investment Capital

☐ Kes. 16,000-20,000

☐ Kes 21,000- 25,000

☐ Kes. 26,000- 30,000

☐ Other Please specify _____

iii. Labour Investment

☐ Work Single handed

☐ Family help

☐ Employed labourers

☐ Other please specify _____

iv. Land Investment Size of Seaweed farm _____

☐ I own the land

☐ I have leased the land

☐ It is government land

If the answer to Question 10i above is Self/ Own Savings, probe to know the source of the savings e.g. (other business, sale of items personal, household or business). Please indicate answer here

_____

SECTION 2. LIVELIHOOD ASSESSMENT

8. Access to Basic Amenities and Resources (Tick Appropriately).

Amenity	**Access**		
Housing	□ Thatch	□ Iron sheet	□ Concrete roof
	□ Mud	□ Semi concrete	□ Block House
Water	□ Borehole	□ Rain water Catchment	□ Piped Water
Animal Stock	□ Poultry	□ Goats/Sheep	□ Cattle
Food Crop Farm	□ Vegetables	□ Grains	□ Fruit Trees
Fuel	□ Firewood	□ Charcoal /Paraffin	□ Gas/Electricity
Lighting	□ Candle	□ Solar Power	□ Electricity

iii. House Hold Assets

Item	Item Type	No of Items
1	□ Radio	
2	□ Television	

3	□ Telephone/Mobile Phone	
4	□ Bicycle	
5	□ Motorcycle	
6	□ Car/Truck/Van	

9. Please indicate below the things you were able to do in your previous enterprise (if any) and the things you are able to do in your current venture as a seaweed farmer.

Needs to Satisfy		**Before**		**Currently**	
		Yes	**No**	**Yes**	**No**
1	Have three balanced meals in a day				
2	Buy clothing				
3	Access education				
4	Pay for health care				
5	Pay rent/ Build a house				
6	Invest in other businesses				
7	Make savings				

SECTION 3: BUSINESS GROWTH AND SUSTAINABILITY

10. Which farmer category are you as outlined below?

□ Individual Farmer- Working and carrying out all farm activities alone

□ Group farmer- Work and carry out all activities as a group.

11. In your business how are you able to know you are making profit?

_____

_____

12. Do you keep a record of the costs and inputs for your business? If so how do you do this?

_____

_____

13. Have you received any training for book keeping and budgeting for this venture?

Yes ☐ No ☐

If Yes above, who did the training?

_____

_____

_____

14. From your own perspective, what do you think the actors could do better for the success of this farming activity?

_____

_____

_____

_____

15. What would you say are some of the problems women face in the community that keep them from succeeding in business?

_____

_____

16. If you could change something to make the business better, what would it be?

_____

_____

17. In what ways do you think the government has supported you as a farmer in this area?

_____

_____

_____

18. What government support initiatives are you aware of concerning farmer related products?

_____

_____

_____

19. The government has established funds for women and youth to enable them access credit easily. Are you aware of the existence of this fund? Which are they?

_____

_____

_____

Has someone ever informed you about this fund?

Yes ☐ No ☐

If yes above? Have you ever accessed the loan? What did you think of the loan process? Please tick below where appropriate in order of satisfaction of the Loaning and repayment Process.

Loan Process	Not Satisfied 1	Partially Satisfied 2	Satisfied 3
Loan application requirements (paperwork, guarantees and savings)			
Loan Ceiling Amount			
Loan Repayment period			

Interest on Loan			
Loan penalties			
Other please specify			

20. Have you ever applied for a loan? Yes ☐ No ☐

21. If yes above which institution/source was this? Tick where appropriate

	Loan Type	**Multiple answers allowed (Tick)**
1	Loan from relative	
2	Loan from Table banking and/or women savings group/ village bank	
3	Loan from Microfinance Institution	
4	Loan from Bank	

22. What was the purpose of acquiring the loan?

_____

_____

i. Were you able to pay back the loan? Yes ☐ No ☐

If yes above, go to 25 ii. If no go to 26.

ii. How long did it take you to pay the loan?

Days_____ Months _____ Years _____

iii. Would you take another loan? Yes ☐ No ☐

If No above probe to know reasons why?

_____

_____

_____

23. What were the reasons that make you not want to take another loan? Are there reasons why you did not pay the loan? Please tick where appropriate. Multiple answers allowed.

- ☐ Loan diversion- I used the money for something else that was not profit making
- ☐ Loan diversion- I put the money in a different business that was not the initial plan and failed
- ☐ Business did not pick up so I made no sales
- ☐ Loan interest was too high
- ☐ Loan repayment period was too short
- ☐ Infrastructure challenges-, inaccessible amenities to support the business (poor security, poor roads, poor storage)
- ☐ High licensing and other government related costs
- ☐ Other please specify

_____

_____

24. What do you intend to do with the money you make from seaweed farming? Please tick below where appropriate

Investment Option		
Reinvest in the farming project		
Invest in other business		
Other Please specify- (build a house, buy household items etc.)		

Thank you very much for participating in this survey.