A HISTORY OF SISAL FARMING IN MAKUENI, KENYA 1965 – 2018

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DECLARATION AND APPROVAL

Declaration by the Student

This thesis is my original work and has not been presented to any other institution for any award.

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DEDICATION

I dedicate this thesis to my family, mum and dad who have stood with me throughout this journey.

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LIST OF ABBREVIATIONS AND ACRONYMS

ADRA	Adventist Relief Agency
ASAL	Arid and Semi-Arid Lands
CBO	Community Based Organization
EPZA	Export Processing Zone Authority
FAO	Food and Agriculture Organization
GoK	Government of Kenya
NDMA	National Drought Management Authority

ABSTRACT

According to ADRA, the global sisal production declined by 50% in the year 2018. This is the largest decline recorded since the inception of the crop, therefore this justifies the researcher's choice of the period between 1965-2018. The purpose of this study was to document the origin, growth and decline of sisal farming in Makueni, Kenya between 1965 - 2018. The objectives of the study aims at examining the origin of sisal farming, the growth of sisal farming and documenting the decline of sisal farming in Makueni. The significance of this study is that the study will add knowledge to the sisal farmers which in turn will earn foreign exchange through exportation this research used few theories for instance theory of historical inquiry which gives a detailed explanation on the history of sisal farming in Makueni, Kenya 1965-2018. The study used qualitative research design. The sample size was determined using Morgan and krejice (1970) sample size determination table. The target population of the study is 210 respondents therefore a sample of 136 respondents was used as per Morgan and krejice sample size determination table. Secondary data was obtained through text analysis. Secondary documentary material was assembled from the Kenya National Archives in Nairobi. In - depth interviews was used to collect primary data from two government agencies who have been involved in marketing of sisal. In depth interview guide was used to take forward a conversation with each respondent, raising questions and exploring key issues and areas of interest. It includes open questions, which was completely unbiased. Secondary data collected through text analysis and Primary data collected through in depth interviews and group discussions were analyzed using thematic analysis. The recorded data interview guide was transcribed, anonymized and coded then subjected to thematic analysis. When new themes was identified, the already coded materials were to ensure that the themes identified are consistent across the respondents. Data was presented thematically i.e. according to the objectives of the study. Findings revealed that sisal farming in Makueni have their origin in the colonial era. Liberalization of the sisal sector in the 1990s exposed sisal estates to competition among themselves and other firms which was resulting from entrance of new firms into the sisal sector.. This study is significant to the government, policymakers, researchers and sisal farming especially in regard to understanding origin, growth and history of sisal farming in Makueni and in comprehending the effects of liberalization on the sisal farming.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Many countries rely on farming and cultivation which is the backbone of the economic development. The economic development of most countries is based on farming and cultivating of natural fiber. A greater population depends on agriculture hence imperative to improve the performance in the economy of these countries. A substantial number of the populations receive their income by cultivating in agriculture and cost effective and sustainable ecology, (Srinivasakumar *et. al.* 2013). Further as noted by Srinivasakumar *et. al.* 2013, there is an association between mankind and natural fiber is the sole source of their livelihood. Sisal being a natural fiber has an upper hand over other cash crops that grow in dry lands with minimum maintenance requirement, manageable ecological conditions with continuous production of up to 8 years. It is usually grown on land that is unsuitable for other agricultural activities apart from grazing. Another advantage is that the crop is drought resistant, does not require the use of fertilizers, herbicides or insecticides and can be intercropped (Mande, 1998).

Further, sisal plantation can be a great source of foreign income to a country. In Tanzania for instance, the exportation of sisal contributed to more than a quarter of the foreign income earned by the country in the 1960's and by mid 1960s the production declined drastically where currently the production is a quarter of the production by then (Katani, 2016).

Moreover, the introduction of sisal farming in an area indirectly contributes to the development of other socio -economic infrastructure which are beneficial to the community. These include the establishment of railway lines and roads, improved building plans, establishment of schools and clinics for sisal workers and the other respondents living around the sisal estates (Hartermink and wienk, 1995). The recent global financial crisis saw the

retrenchment of many workers, which brought the need for labor intensive commercial activities that would ease the burden of unemployment in the world (Katani, 2016). Activities relating to sisal production, including farming and manufacturing of sisal related products are labor intensive. These have the potential of providing employment to a great number of respondents in an economy (Dlamini *et al.,* 2013). Generally, labour for agricultural production is severely limited even under high unemployment rates. Therefore, introducing labour intensive production systems may be counter initiative.

On the other hand, sisal is an environmentally friendly crop and is a renewable resource that can form part of the overall solution to climatic change (F.A.O, 2016). Measured over its lifecycle, sisal absorbs more carbon dioxide than it is producing. During processing, it generates bioenergy, produces animal feed, fertilizer and ecological housing materials and at the end of its life cycle, it is 100% biodegradable (Henderson, 2012). Moreover, sisal plant reduces soil erosion through its extensive root system and contributes positively to watershed management. Sisal plant used as hedges acts as an effective vegetative barrier/ fences to protect crops land and forests from predatory animals and intruders (Katani, 2016).

Subbarao (1997) found that Sisal fiber finds its way as environmentally friendly engineering material. After extracting fiber sisal, leaves the huge quantity of residue (biomass) which can be profitably utilized for vermin composting biogas production and paper-making. These activities are eco-friendly and help in promoting organic farming and non-conventional energy utilization (Muthangya, *et. al.* 2009). Despite the various economic benefits of sisal plantation, its production has been declining every year. The global output of the world's sisal production has been below expectation with the majority of manufacturers turning to the synthetic fibers for raw material. In East Africa, sisal production declined in the early 1960s. Consequently, the foreign income derived from the exportation of sisal product dropped, resulting to foreign earnings from other crops surpassing those of sisal (Dellaert, 2014). In Kenya, the decline in sisal production has been witnessed since 1961. According to F.A.O

(2016) and Dellaert (2014), Kenya exported 71,300 tons of sisal in 1963, compared to 27,560 tons produced in 2011, indicating a major decline of sisal production in the country (Dellaert, 2014). Kenya sisal board annual report for 1985 indicated that the sisal production for domestic use for the 6 provinces in Kenya was 45.5 metric tonnes.

Common fund for commodities (1990) indicated that between 1970 and 1990, world production of sisal and henequen dropped by about 50 percent reflecting the severe reduction in global demand. Production of these fibers is concentrated in low-income countries of Africa, Latin America and Asia, and hence the depression of the market had profound adverse impacts on the livelihoods and food security conditions of the rural populations concerned (Paola and Shakib, 2007).

In Kenya alone it is estimated that sisal plantation experienced a decline in production. ADRA, (2018). The decline of sisal production is caused by inadequately organized and inefficient marketing system. The sisal producers depended entirely on marketing agents to sell their produce abroad. The agents look for markets and organize shipping and insurance on behalf of producers. The agents also negotiated sisal prices on behalf of producers. The commission, brokerage, and handling charged by agents in Kenya discouraging small scale farmers from selling their produce abroad (Githire, 1989).

Due to the importance of sisal to the country, an effective policy for sisal production is necessary. To do this requires knowledge of important factors that influence farmers' acreage and output decisions. This study therefore identifies key issues that influence sisal production in Kenya. Further, the key issues that affect sisal processing and marketing are also identified. Moreover, a sisal output, production, and sales systems model is developed with a twin goal of identifying the main factors influencing sisal output and of estimating the effects of these factors. Factors such as sisal prices, cost of sisal inputs, and prices of alternative crops are shown to affect production and sale of sisal fibers. The period 1960 to 1985 was characterized by falling sisal acreage, shortage of labour for cutting leaves, declining

marketed output, and poor marketing arrangements. Although sisal is a drought-resistant crop, and has many benefits for example contributing into effective economic use of arid and semi-arid regions especially in the Sub-Saharan Africa; is environmentally friendly as a renewable resource and forms important solution to climatic changes; sisal production has continued to decline. Across the globe, sisal production has been declining against increasing demand for the supply of fiber. Decline in sisal production has been catalyzed by shift in sisal farmers into production of agricultural products that are profitable. Natural sisal fibers face competition from synthetic fibers which are lower in price and are not dependent on rains which have been decreasing in tropics and other arid and semi-arid areas which were in the last two decades been sources of sisal.

In Kenya, in particular, decline in sisal production correlates global trends in declines in sisal production in other countries especially Brazil, Asia and Sub-Saharan countries. Global decline in sisal production is supported by observed declines in sisal international trade to 52% by the year 2007 (FAO, 2007). In Kenya, the major sisal producing region is Makueni. Sisal production in Makueni demonstrates similar trends to global sisal production decline trends since 2004. Across the globe, a number of explanatory and exploratory studies have tried to identify reasons that could illustrate declines in sisal production for example firstly emergence of synthetic fibers that compete with sisal for the same local and international markets; secondly price wars between synthetic fibers and sisal fibers with synthetic fibers trading at very low prices compared to very high prices of sisal fibers wherein sisal fibers lose competitive advantage due to low cost leadership strategies adopted by synthetic fiber producing firms; thirdly shift in economies from agriculture to industrial economies leading into loss or reduced labor needed to sustain sisal production; and fourthly effect of drought towards reducing economic advantages of engaging in sisal farming and sisal production. Kenya has not invested in production of synthetic fibers, and as a result threat of price wars between synthetic fiber and sisal fibers is minimal. In addition, role of industrialization and

industrial revolution as main reason for catalysis of shift from sisal farming is not pronounced in Kenya and cannot explain linkage or correlation between declines in sisal production.

In Makueni County, the Adventist Development and Relief Agency Kenya (ADRA Kenya) and Tahidi CBO opened up a plantation in Makueni County to sensitize the local farmers on the sisal plantation. However, the communities in the county are yet to embrace sisal plantation as a commercial crop despite sensitization efforts by these two organization and other development partners. A survey conducted by ADRA Kenya in 2013 showed that 16% of households in Makueni County are not cultivating sisal for economic purpose even after the sensitization. The farmers have continued with their old economic activities of agro pastoralism that have failed to alleviate the perennial social economic and ecological problems in the area. Although the community is aware of the various economic benefits of cultivating sisal, they are still reluctant in adopting cultivation of the crop, an indication that necessary steps need to be taken to assist the region and the country as whole in harnessing the benefits of sisal as a commercial crop. Data on factors contributing to the low cultivation of sisal and adoption of appropriate intervention technologies is lacking. Besides, the policy framework guiding production of sisal though the Kenya Sisal Board has not helped the farmers either. Farmer extension services on the best sisal agronomic practices are also lacking. There are currently no documented studies on the history of sisal plantation in Makueni County. Based on the problems stated, the purpose of this study is to establish the History of sisal farming in Makueni, Kenya between 1965 – 2018.

1.2 Statement of the Problem

Makueni County is among the regions in Kenya that has majorly focused on sisal plantation over decades. Most respondents in the region, especially women, have benefited a lot from the sale of sisal products. The residents make sisal products for sale both locally and internationally. These products includes; fiber, baskets, hats, mats, sacks and rags among others. The exportation of these sisal products have been of great source of foreign exchange between various countries. However, the production of sisal has declined globally over the

last decades. This has led to decline in international trade. Most manufacturers have turned to the synthetic fibers for raw materials. Sisal farmers have turned to other cash crops that surpass those of sisal (Dellaert, 2014). The importance of sisal production in Makueni has been overlooked. This research aims at documenting the History of sisal farming in Makueni County. This research filled the existing gap by focusing on the history of origin, growth and decline sisal farming in Makueni, Kenya 1965-2018.

1.3 Purpose of Study

The purpose of this study was to document the origin, growth and decline of sisal farming in Makueni, Kenya 1965 - 2018.

1.4 Objectives of the Study

The specific objectives of this study was:-

i .To examine the origin of sisal farming in Makueni, Kenya 1965-2018

ii .To analyze the growth of sisal farming in Makueni, Kenya 1980 -2000

iii .To document the decline of sisal farming in Makueni, Kenya 2000 - 2018.

1.5 Research Questions

i. What is the origin of sisal farming in Makueni, Kenya 1965- 1980?

ii. What accounted for the growth of sisal farming in Makueni, Kenya 1980 - 2000?

iii. What led to the decline of sisal farming in Makueni, Kenya 2000 - 2018?

1.6 Justification of study

This study attempted to describe history of sisal farming or phenomena, opinions, attitudes, preferences and perceptions of growers to the researcher. The study was carried out within the limits of Makueni region. Makueni County is on the Eastern part of Kenya. The researcher was able to establish association qualifying the relationship between the variables using techniques such as thematic analysis. This is considered appropriate for the study because it enables the researcher to report situations as they exist by describing, recording and analyzing. Sisal farming has a lot of advantages. The researcher will therefore identify them and discuss them in details in the process of History.

Since sisal does better in Makueni, farmers who grow it either in large scale or small scale are likely to benefit more. In addition to providing cash income, sisal is also important as a source of foreign exchange. Sisal exports earned Ksh. 273 million in 1985 and Ksh. 253 million the previous year. Sisal fiber is used for producing various products such as sisal sacks suitable for exporting valuable cereals like Arabica sisal. The sisal industry, which is facing a shortage of labour especially for cutting leaves, could therefore assist in alleviating the excessive rural-urban migration and rural unemployment. Leave cutters earn Ksh 25.40 per 100 bundles. Each bundle consists of 27 leaves. Weak workers cut 100 bundles in two days along the coast, thus earning low wages per month. Assuming one month has 22 days, a worker cutting 100 bundles a day earns Ksh. 558.80 in a month.

Sisal estates with complete and fully established sisal estates, machinery, and infrastructure face difficulties should they decide to abandon sisal in favour of alternative crops or animal husbandry. Most of the machinery (e.g. the leaf decorticators and combing machines), sisal estate and other infrastructure are unsuitable for non-sisal uses. The costs of uprooting sisal would also discourage new investments especially in semi-arid areas where other crops might not survive. According to ADRA the global sisal production declined by 50% in the year 2018, this is the largest decline recorded since inception of the crop. Therefore this justifies the researcher's choice of period between 1965-2018.

1.7 Significance of the study

Sisal growers will gain deeper understanding on the origin and growth of sisal farming in Makueni County and be able to understand the changes that have taken place on sisal farming thus coming up with new methods and strategies to improve the sisal farming. Through improved sisal farming by sisal growers as result of the findings of this study, the sisal farming will improve the revenue of the government through exportation to other countries. The study form the basis for future researchers who was carrying out a study or studies on sisal farming as it will provide the literature review and also help them on identifying the research gaps that might be left unfilled since the research focuses on 1965-2018.

1.8 Limitations of the Study

The major challenge may be that the interviews and task analysis was conducted primarily in English, which may have a biased participation towards those respondents who are more comfortable with Kiswahili this was solved through translation into Kiswahili so as to suit all respondents. Finally, the interview may lead to test-taking fatigue, resulting in biased responses questions near the end of the interview. This effect was minimized by providing frequent breaks for participants. It was a problem accessing sisal growing areas since such places are located in remote areas of Makueni County hence transport was a problem. To counter this, the researcher was forced to use motorbike which is more expensive.

1.9 Delimitation of the study

It focused on documenting the history of sisal farming in Makueni, Kenya 1965-2018. It specifically aim at establishing the origin and growth of sisal farming, and documenting the decline of sisal farming in Makueni.

1.10 Scope of the study

The study was carried out within the lowest limits of Makueni Region. Makueni County is located along eastern part of Kenya. This explains the hot temperature experienced all year round. It focused on documenting the history of sisal farming in Makueni, Kenya 1965-2018.

1.11 Assumptions of the study

(i) There are diverse factors that played a great role in the Sisal Farming trends in Makueni.

(ii) The patterns of Sisal Farming in Makueni County between 1965 – 2018 could be attributed to historical factors.

(iii) That all the respondents were willing to answer research questions honestly.

1.12 LITERATURE REVIEW

Literature review is crucial in any research because it helps identify gaps in the previous research and rationalize entry point of the current research as well as shaping and deepening

conceptual and theoretical framework (Orodho, 2005). As such literature review covers the concept of origin and growth of sisal farming, growth of sisal farming and decline of sisal farming in Makueni, Kenya 1965-2018, summary of literature review and theoretical framework for the study.

1.12.2 Global History of Sisal Plantation

Originally sisal was first planted in Yucatan, Mexico. The other name for sisal is sosquil and green gold. Its coarsest nature makes the hardest fiber. In the early 1890,s sisal plantation was introduced in East Africa because of its suitability in hot and dry climate. In Africa, sisal was first grown in Tanzania, the hot and dry dominating climatic conditions, ensured high input coupled with a mono-cropping system that was is large scale. Lands conditions for the sisal cultivating zones should be good enough to allow for the growth of the crop and it performance (Mande). According to Srinivdakumar, (2013) sisal is Hardy plant that is perennial which unlike other seasonal fiber crops, it is able to thrive in low humid geographical areas as well arid and semi-arid climate zones. The crop also can survive in any type of soil with reduced cost of production and with high chances of survival, low maintenance related charges and regeneration. Sisal plant is able to survive in high temperatures and prolonged droughts.

Richard Hind a Mexican national introduced sisal in Tanganyika and in later years the department of agriculture introduced it in Kenya in 1903 (Kenya Sisal Industry, 2005). It was first introduced Coastal regions like Voi which further spread to Thika, Nakuru, Embu and Nyanza Lake region. A high level Sisal research station was established in Thika town to conduct research and of sisal crop. According to sisal board of Kenya (KSB, 2009), There were 64 sisal estates spreading across 102, 000 hectares of land and with a capability of producing 70,154 tons of sisal fiber out which 63,821 formed the export in the year 1963.

Between 1970 and 1990, world production of sisal dropped by about 50% reflecting a tremendous reduction in global demand. Since production of fibers is concentrated among

low-income countries of Africa, Latin America and Asia, the depression in the market had profound adverse impacts on the livelihoods and economic development of the rural populations concerned. Rutherford (2001) projected that the steady downward trend in production is likely to continue in future.

1.12.3 History of Sisal in Kenya

Sisal was introduced in Kenya in 1903 by the then department of Agriculture, following its successful introduction as a cash crop in Tanzania. After a few years of trials at the Kenyan Coast, it proved successful thus arousing the interest of white entrepreneurs. This culminated in the establishment of the first commercial sisal plantation at Punda Milia near Thika in 1907. A second plantation followed shortly after at Nyali in Mombasa, followed by more plantations in other areas of Kenya mainly along the railway line for ease of transport. The land under sisal quickly grew, that by 1913 it had reached over 28000 hectares (Rutherford, 2001).

From then it grew steadily as witnessed by the first export to Europe in 1914 which led to establishment sisal as a cash crop, in Kenya at that time. This led to ambitious growth in production of sisal fibers and by 1950s, the number of sisal plantations had increased to fifty-four, which occupied almost 120,000 hectares with exports reaching approximately 60,000 metric tonnes per annum in 1960.This culminated in the opening of a spinning sisal estate in 1954 to process twine, ropes, gunny bags and mats for both domestic and export markets (Kanogu, 2011).

The challenges facing the subsector in Kenya hinge largely on politics around land use, particularly in the Coast region, where private sisal farms occupy more than 300,000 acres. Rapid population growth of 10-30% recorded in the national population census of 1962-1969 led to the decline of farm sizes in 1980s owing to the fact that there were no more new areas for settlement to absorb the excess population (Tiffen *et al.* 2003). Population growth over the years has invariably led to land use changes, labor relationships, increased demand for

food and other goods which combined with increased scarcity of land has led to investments beyond land capacity to improve crop yields (Tiffen, 2003).

Despite these hurdles, Kenya is ranked the world's third largest producer of sisal after Brazil and China, with Taita Taveta County producing most of the sisal in the country. The crop does well in arid and semiarid areas, which constitute about 80 per cent of the country (Pascal, 2014). Research in improved production and processing system (including propagation of sisal using meristematic tissue culture and harmer mill extraction technology in addition to the conventional decortication) has greatly enhanced production and quality of Sisal fiber as well as improved soil and environmental conservation (GOK, 2005).

In addition, current research shows that sisal has a potential to be used for pharmaceutical purposes for example *Sisalana Americana* its juice is an important component in the production of hacogenin and Inulin); in the production of cattle feed, decorative panels, hand bags and fashion accessories for women, as well as geotextiles (Laksesvela and said 1990). Sisal is a plant with remarkable qualities that allows it to survive harsh arid conditions. The plant is productive for roughly 6 to 9 years, in a 12 year growing cycle (Henderson, 2012).

1.12.4 History and Structure of the Kenyan Sisal Industry

Sisal originated from Mexico and was later introduced in the tropics and the sub tropics. In India, sisal was introduced between 1885 and 1892 while in Tanzania it was introduced in 1893. Sisal was introduced in Kenya in 1903 by the officials of the Department of agriculture, who obtained it from Tanzania. In 1904, 1,500 additional plants were imported from West Indies and planted in Kenya. However, the pioneers of the Sisal Industry in Kenya were R. Swift and E.D. Rutherford who established sisal plantations at Punda Milia, between Thika and Murang'a areas in 1907, having imported it from Tanzania (Lock, 1962).

Sisal manufacturing in Kenya started in 1934, when the Kenya sisal manufacturing company was formed. In 1936, the company went public and changed its name to Sisal Products (East Africa) Limited. Growth of the company began in 1938, when a sisal mill was set up. In

1954, a jute processing mill was also established. Four years later, a separate company, East African Mattings Limited, was set up. East African Bag and Cordage Company owned half of its shares. The premises of the defunct East African Mattings Limited are located within the Bag and Cordage Sisal estate till today. In 1977, the cordage company purchased machinery for weaving synthetic products and in the following year, production of polypropylene products began. An extrusion line of the synthetic plant was completed in 1981. In 1983, the E.A. Bag and Cordage Company bought Acif Ltd and renamed it KENSACK Ltd. Currently, 2,600 workers and 1,400 others are employed in the E.A. Bag and Cordage and KENSACK Companies.

In addition to the above manufacturing plants, are four semi-processing sisal estates processing small quantities of fiber and leaf from smallholders. Large and medium sized estates have their own semi-processing sisal estates for leaf decorticating. Geographically, the estates and plantations are located in the Central, Nairobi, Coast, Rift Valley and Eastern Provinces. In 1986, twenty-two sisal estates and four smallholder sisal processing sisal estates were in operation in Kenya.

1.14 Decline of sisal farming

Sisal was used by the Aztecs and the Mayans, respondents of Mexico to make crude fabrics and paper. In the 19th century, sisal plantation spread to Florida, the Caribbean islands, and Brazil (Paraiba and Bahia), as well as to countries in Africa, notably Tanzania and Kenya, and Asia.In Cuba its cultivation was introduced in 1880, by Fernando Heydrich in Matanzas.The first commercial plantings in Brazil were made in the late 1930s and the first sisal fiber exports from there were made in 1948. It was not until the 1960s that Brazilian production accelerated and the first of many spinning mills was established. Today Brazil is the major world producer of sisal. There are both positive and negative environmental impacts from sisal growing.

Global production of sisal fiber in 2013 amounted to 281 thousand tonnes of which Brazil, the largest producing country, produced 150,584 tonnes. Tanzania produced approximately 34,875 tons, Kenya produced 28,000 tonnes, Madagascar 18,950 tonnes and 16,500 tonnes were produced in China (mainland). Venezuela contributed 4,826 tons with smaller amounts coming from Morocco, South Africa, Mozambique, and Angola. Sisal occupies 6th place among fiber plants, representing 2% of the world's production of plant fibers (plant fibers provide 65% of the world's fibers). As one of the world's important natural fibers, sisal was included in the scope of the International Year of Natural Fibers, 2009.

Sisal is a drought resistant plant that can be grown in a variety of soils and climatic conditions where other crops cannot do well or even survive. It can grow in areas where rainfall is below 760 milimetres per annum. Thus, as a cash crop, sisal is important because it can grow in the large, semi- arid portion of Kenya's land. In addition to providing cash income, sisal is also important as a source of foreign exchange. Sisal exports earned Ksh. 273 million in 1985 and Ksh. 253 million the previous year. Sisal fiber is used for producing various products such as sisal sacks suitable for exporting valuable cereals like Arabica sisal.

The proportion of sisal exported in each period is high but falling. The remaining sisal fiber is stored for future exports or is consumed locally. The percentage of fibers exported is declining due to increased local consumption of sisal fiber. The percentage of local consumption and stocks has increased. However, the volume consumed locally has fallen in 1985. Consumption since 1967 fluctuates considerably. The purpose of this study was to document the history of sisal farming in Makueni, Kenya 1965-2018.

1.15 Theoretical review

1.15.1 The Theory of Historical Inquiry

The theory of historical inquiry was developed by Carl Hempel (1999). In a paper published by Philosopher Carl Hempel (1999), "The Function of General Laws in History" he came up with a theoretical explanation of history deduction meant explanation in science as well as in history. An account could only be regarded a true explanation if it showed specific conditions and governing law of what would happen if the conditions are met. Unless it showed these characteristics it could not be taken as a real explanation but would be taken as an explanation sketch. The covering law theory as it is referred to; was a key philosophical discussion before 1990

This theory forms the basis for explaining the history of sisal farming in Makueni, Kenya 1965-2018.This theory will appeal to respondents understand of what an explanation is. A real explanation gives details of why event occurred and why it might have occurred.

1.15.2 Social norms theory

The social norms theory was advanced by Terry and Hogg, (2001); Goldstein et al. (2006) discovered that normative effects on behavior and thought are an advance research area in social sciences. (Campbell, 1964; Durkheim, 1951) norms are fundamentals to comprehend behavior variations and social order. Over the past years there has been an enormous increase of programs on normative information as a key tool for change in social behaviors like tax evasion, eating disorders, gambling, littering, recycling, (Schultz, 1999). This gives an understanding for social norms and subsequent incentive to sisal farming patterns in Makueni, Kenya 1965-2018. Sisal is a highly valued crop globally as it greatly influences the economic development of most countries. Developing countries significantly participate in agricultural farming.

1.17 METHODOLOGY

The section describes the methodological framework which was utilized to attain the objectives of the study. The main focus of this section is on research design, type and sources

of data, population description, sample size, sampling frame and its characteristics, sampling technique and a description of the choice of data collection instruments, interview guide design, and methods of data analysis. In addition, this section will discuss the procedure for conducting the research and how the findings was handled.

1.17.0 Research methodology

Qualitative research methodology was deployed because this gave a valuable insight and in depth understanding of sisal farming in Makueni. The focus was on recording history on sisal farming during the stated period.

1.17.1 Research Design

A research philosophy is a brief on how data about phenomena is supposed to be gathered, analyzed and utilized. It relates to the development of knowledge, the nature of that knowledge and has vital assumptions about the researcher's global view. The research gave a snapshot of documented history of sisal farming in Makueni, Kenya based on longitudinal qualitative survey design. The qualitative research gave valuable insight and in-depth understanding of sisal farming in Makueni to build on the existing gaps in the theories of sisal farming. This research will deploy a qualitative method of data collection. The focus was on recording history and views on sisal farming during the stated period.

1.17.2 Location of the Study

The study was carried out within the limits of Makueni region. Makueni County is located along the Eastern part of Kenya bordering Kitui County, Taita Taveta County, Machakos County and Kajiado County.

Temperatures range from a minimum of 14°C to a maximum of 34°C. Highest temperatures are experienced during the months of February and August to October, while lowest temperatures are in the month of July (GoK, 2015) The area receives bi-modal rainfall, and has historically received 574mm of precipitation annually (GoK, 2002). Long rains occur between March to May and Short rains from October to November. All the rivers in the region are seasonal they and therefore cannot be relied upon for irrigation since they flow for

only two months after the rain season. There is one permanent river, Athi, which crosses at the lower end of the county.

The vegetation of Makueni County is tree-shrub-land dominated by *Acacia ssp,* shrubs and grass lands. The region lies at ecological zone IV with savannah characteristic. Agriculture is the main socio economic activity in the area. The field crops which thrive in the area are millet, sorghum, pigeon peas, cow peas and maize. The community also practices some livestock rearing making them to be agro pastoralist.

Generally, in Makueni County about half of the lands is arable land either under crop or livestock production. The communities of Makueni County depend mostly on agro pastoralism. In the recent past, most of the community members depended on crop production but due to erratic and inadequate rainfall in the area, many farmers have shifted from crop production only to mixed livestock production in order to spread the risk. The livestock kept in the area are the zebu cattle and indigenous breeds of goats and sheep. Livestock production has also been declining because of inadequate pasture, which has triggered many farmers to start charcoal burning business to earn for their living. The land tenure system has also contributed to the decline of livestock production since the land has been sub divided to the small portions, which could not accommodate large number of livestock unlike the past where the land was communally owned. This has promoted deforestation and loss of plants diversity due to massive cutting of the indigenous trees.

Some of the community members engage in casual labourers like building and construction of terraces as their livelihood (ADRA, 2013). The overdependence on rain fed agriculture with minimal irrigation and population movement is likely to trigger conflicts over scarce resources (GOK, 2002; Agwata, 2006). The study area has a population of 16,267, of which 8% is urban according to the 2009 National population census with 2.1 percent growth rate. Three quarters of the population depend on agriculture either livestock or crop production. Many of the families are female headed households mainly because early pregnancies and

men who migrate to towns for search of jobs to cater for their families (ADRA Kenya, 2015).

1.17.3 Target Population

The target population of the research comprised of 210 respondents i.e. 100 sisal growers, 100 marketers and 10 regulators in Makueni County. Mugenda & Mugenda (2003) defines total population as an entire group of respondents, events or having common observable characteristics.

1.17.4 Sampling procedure and Sample Size

The sample size was determined using Morgan and Krejice (1970), sample size determination table. The target population of the study is 210 respondents therefore a sample size of 136 respondents was used as per Morgan and Krejice (1970) sample size determination Table indicated in Appendix IX.

1.17.5 Data Collection Instruments

Secondary data was obtained through text analysis. Secondary documentary material was assembled from the Kenya National Archives in Nairobi. This included information on origin, growth of sisal farming in Makueni County. The documents included; Government official reports, government files, annual reports, and minutes of various bodies on sisal farming were involved between 1965-2018. In - depth interviews was used to collect data from two government agencies who have been involved in marketing of sisal. In depth interview guide was used to take forward a conversation with each respondent, raising questions and exploring key issues and areas of interest. It includes open questions, which was completely unbiased. Group discussions was to collect data from the sisal growers. The related areas in data collection tools focused on experience of existing sisal farming as well as the practical knowledge focused on the major theme as per the objectives of study.

1.17.6 Piloting of the Study Instruments

A pilot study was carried out in Makueni County covering 5 respondents. The main aim was to ascertain the validity and reliability of the instruments. The researcher analyzed whether

the answers was supplying the appropriate information and whether the questions set in the interview produce results and address the research questions. The pilot study was used as a correction tool for the research instrument.

1.17.6.1 Validity of the instruments

According to Hayes (2002), validity refer to the extent to which an instrument can measure what ought to be measured. It is the extent to which an instrument asks the right question in terms of accuracy and meaningfulness which are based on research results (Mugenda & Mugenda, 1999). The instrument was reviewed by the supervisors and other research experts from Mount Kenya University. In designing an instrument that will yield content valid data, the research will first specify the domain indicators which was aligned to the concept being measured, to ensure that they contain all possible items that could be used in the concept.

1.17.6.2 Reliability of instruments

According to Mugenda and Mugenda (1999), the reliability of the instrument is the measure of the degree to which researchers yield consistent results of data after repeated trials. In order to test reliability of the instruments to be used in this study, split half method was preferred because it has a major advantage of eliminating chance error caused due to differing test condition scores on the odd numbered items was correlated with the scores on the even numbered items. Data with a high split-half reliability will have a high correlation coefficient.

1.17.7 Data Collection Procedures

The data was collected through in depth interview and group discussions. Prior to the data collection, the researcher visited the sisal growers to notify them about the study and issue them with the consent letter which was in written form or verbally to the illiterate. Once the consent letter was signed, the researcher agreed with them about the actual date and venue for data collection which was through group discussions. The researcher then met the informants and agreed date to collect data.

The researcher then proceeded to the Ministry of Agriculture – Makueni County to meet the officials who will have been selected, that is, two government regulators and agencies to present a consent letter and agree on date and venue for data collection. Once they agree, the research ear will collect data on the specified date through in depth interview. Secondary data was obtained through text analysis. The researcher will write a letter to the to Kenya National Archives in Nairobi requesting for the permission to access the documents needed to attain the objectives of the study and clearly indicating the duration to be taken. Once the permission was granted, the researcher will proceed with data collection. The text analysis was done in duration of two weeks or as it was agreed with the management of Kenya National Archives.

1.17.8 Data Analysis

Secondary data collected through text analysis and Primary data collected through in depth interviews and group discussions were analyzed using thematic content analysis. The recorded data interview guide was transcribed, anonymized and coded then subjected to thematic content analysis. When new themes was identified, the already coded materials were to ensure that the themes identified are consistent across the respondents. Similar raised concerns and issues that emerge from the themes and sub themes will then be identified and narratives constructed. Transcripts were edited to show the generated possible concepts suggested as appropriate for historical practices rather than the questions or concepts predetermined in the interview guide.

1.17.9 Ethical Consideration

The researcher sought written permission from the national commission for science, technology and innovation to undertake the research. Informed consent letters was written to all respondents before data collection. The respondents was requested to provide honest information required for completion of the research. The respondents was assured of confidentiality and anonymity in the information they give as it was used for academic purposes only in partial fulfillment for an award of master of history degree.

CHAPTER TWO: ORIGIN OF SISAL FARMING IN MAKUENI, KENYA 1965-2018

2.0 Introduction

This Chapter analyzes the origin of sisal farming in the post-colonial period (1965-2018), transforming of sisal farming sector during the Kenyatta era (1965-1978), and reforms in sisal industry during Moi regime 1978-2002. This was necessary because it formed the baseline information of the study. The section also examined adoption of cash crops and how the colonial regime interfered with it up to 1963. Growth of sisal farming in Makueni (1965-1980) In Kenya, the pioneer years of colonialism were vital to ensuring that European farmers, the colonial government as well as their allies in commercial circles in London had power over both the productive resources and the economic structures. Sisal was one of the significant crops that had been reserved exclusively for European production (Brett, 1973). The European settlers grew the crop in selected parts of the Kenya highlands upon realizing its potential. During these early years, Africans were excluded from growing the crop (Brett, 1973).

A law had been enacted that barred Africans from engaging in sisal production. The 1910 Sisal Plantations and Sisal Dealers Ordinance empowered District Commissioners to issue certificates which permitted holders to grow sisal (https://learning.uobi.ac.ke/.../331-t-the-p...) (exe-E-learning portal). This law prevented Africans from growing sisal. Issuances of certificates to African began later in 1950 (https://learning.uobi.ac.ke/.../331-t-the-p...) (exe-E-learning portal): (Brett, 1973).

Furthermore, this ordinance was reinforced by other excuses one of these was African sisal would be prone to diseases which would spread to European farms (Musembi, 2010:91). The first African sisal grower did not produce quality sisal. This outcome enhanced the sanctioning of Africans from sisal growing (Thurston, 1987). The significant position of the white farmers in the Legislative Council also served as mechanism to promote their economic interest, the colonial government did not give attention to African agriculture (Musembi, 2010:95). Musembi, (2010:95) further observed that the settler production, in the early

twentieth century did not have specific policies on African agriculture, the colonial state was more inclined to settler production. The Department of Agriculture for instance, financed the settler sisal growing while excluding Africans. These arguments explain the reasons for the delay in sisal farming among Africans in Makueni County and other parts of Kenya.

Kenya's sisal industry at its early years was shaped by colonial economic policies within and without Kenya (Barnes, 1959:3). In Kenya, the European settlers were in charge agricultural production for export market. This was enabled by favorable policies on land, tax and labour that had been enacted at the set off of colonial rule. Policies were enacted in order to make the protectorate self-sustaining (Sorrenson, 1968:30). The prosperity of the protectorate depended largely on agricultural commodities given, that there were few mineral deposits known to exist at this time (Barnes, 1959:3); (Ouma, 1988).

Mr. Charles Eliot, Second Commissioner of the East Africa Protectorate during the initial years influenced the agricultural export production. His report on the local inhabitants pointed them as unreliable in production of crops for export. For instance he described the Maasai society 'utterly non-productive' and the Kikuyu as 'as badly disorganized' among other descriptions (Wolf, 1974:47). The description of the Kamba by the settlers portrait them as lazy respondents whose major activity was roaming in market places (Ngok, O. I., 23/7/2017). He further emphasized that, there were vast lands favorable for European agriculture. Therefore, the settlers could engage in crop production whose transportation via the Kenya-Uganda railway would be possible. The transportation of raw material to the coast was also guaranteed as well as the importation of manufactured goods from overseas to the interior (Wolf, 1974:47). These sentiments served to reinstate the settler economic interest in the colony.

Kenya-Uganda railway was constructed to link the Coast and Lake Victoria. The railway reached the terminus of Kisumu in 1901. The railway led to the expansion of the foreign

office's administration to the interior (Brett, 1970:2). It also formed a vital basis for agricultural development for the country (Dilley: 66:15); (Bates, 1989).

The means to generate revenue, as well as the agents and method of development became a challenge at beginning colonialism (Kosgey, 1981). A range of proposals for settlement were put forward. These advancements ranged from the options of Indians immigrants who had settled long the railway line, the European settlement, the Jewish colonization scheme as well as the African producers (Ghai and McAuslan, 1970). The British industrialist opted for European settlers in 1901 as agents of development in place of the Jews and Asians and after a thorough discussion (Dilley, 1966:15); (Bennett, 1963:12). The settler estate as a means of production was selected after consideration of specific combination of political, economic, geographical and political factors (Kosgey, 1981). The promotion of white settlement was accompanied by specific legal policies and repercussions. The colonial government was charged with the responsibility giving land to the settlers on attractive packages. This entailed the provision of labour for land cultivation, regulation of African scheduled areas of settlements among other issues (Ghai and McAuslan, 1970).

Among some of the legislations that the colonial government supported the settlers indirectly are as follows. First it is important to note that these legislations provided an avenue for settlers to maximize agricultural production and as result establish estate. The 1902 Crown Lands Ordinance permitted white settlers to own land on freehold or 999, or 99 years. Second was, the 1908 Land Title Act. This law allowed the separation between privately owned lands and the Crown Land. All community lands became Crown Land and the white highlands which were European settled lands were privately owned (learning.uond.ac.ke); (Zwanenberg, 1975); (Dilley, 1966:252). It is believed that by 1963, 18 percent of Kenyans best land had been alienated for use by between 1,000 to 35,000 Europeans (Zwanenberg, 1975). Africans entitlement to land was given little attention by the colonial masters (Barnes, 1956:11). They were stripped privileges to their own land. As a result, no significant move

was initiated to provide land to be used by the natives till later in 1915 when the Crown Land Ordinance enabled the governor to declare reserves (Barnes, 1956:12). Little efforts were made to ensure the proclamation until in 1926. This was done to facilitate for European land utility (Barnes, 1956:12); (Zeleza, 1973).

The settler agriculture was as well favored by the tax system. Taxation levied on exports was reduced to enable the settler farmers' exports more profitable (Zwanenberg et al, 1975). The government offered several agricultural services to white settlers while excluding Africans (Zwanenberg et al, 1975). Services offered included, transport, communication networks and training among others. It is important to note that Africans contributed to these services through taxation (Zwanenberg et al, 1975:20-40). Moreover, during the initial years of white settlement, the colonial government encouraged and supported both official and unofficial research on commodities that were likely to yield abundant returns on capital invested in the protectorate (Masefield, 1962); (Wolff, 1974:68-73). This was also applied on the sisal crop. Furthermore, the colonial government granted loans to certain crop producers as well as subsidized rates on railway transport and on loans on particular producers (Barnes, 1956:11).

On the side of Africans, a sharp contrast was evident in terms of policy framework. Up to the early 1920s the colonial policy towards Africans was overlooked. This is what Wrigley, Kenya referred to as "a conscious neglect". This arose from belief that the enhancement of the Africans areas was likely to interfere with the flow of labourers and consequently increase the wages (Wrigley, 1959:226). European purported that the development of African agriculture was likely to interfere with European production. Indeed in the period 1912-1913 the native produce was estimated to have been seventy percent of the value of agricultural export and by 1928 this proportion had dropped drastically to less than twenty percent (Wrigley, 1959:226). Despite this isolation, projects arose in African areas whose efforts relied on individual initiatives or that of mission societies. Occasional advisory visits were

offered by the agricultural departments which were largely driven by official requests from agricultural officials (Moris, unpublished manuscript: 20).

Notable policy shift toward Africans began during the post-war recession period. This resulted from the financial crisis that emerged from drop in revenue, exports trade. Some folks argued for the need to stimulate African production with the hope of easing balance of payment by increasing the exports and reducing commodities imported at the same time boosting revenue (Brett, 1925:115-138). Furthermore, the annual report for the Department of Agriculture for the period 1920-1921 revealed the plans to promote African agriculture. This involved the training of African instructors who would in return aid in improvement of farming activities in the African reserves. Native production of crops for export such as millet, maize, groundnuts, cotton, simsim peas and peas were enhanced for native export (Department of Agriculture, Annual Report (1920-1921). A policy of stimulating native industries production was presented in 1923 by the District Commissioner for Makueni. The natives were to be issued freely with seeds of suitable crops which would add to mitigation for the collection of a tax. The natives of Lumbwa were expected to get little from this. However no agricultural officer was sent to the district (KNA.DC/KER/1/3).

Other efforts originated from the British business population such as the British East African Corporation major known as Sir E. H. M. Legget who argued for the shift in the economy of the colony noting that the future of most countries depended largely on the promotion of native production as opposed to white production (Brett, 1925:178). Other initiatives were driven by W. Ormsby-Gore of the East African Commission who focused on strategies to stimulate native economic advancement (Ibid: 46-47). This began in 1925 with a target of improving social conditions. The commission emphasized on the need to promote both European interest as well as those of the natives hence supporting the dual policy of development. This involved the combination of both native production and non-native production (Ibid). By 1929 the Department of Agriculture had been obliged to have a clearly

defined policy in African areas and official policy changes were articulated (Moris, unpublished work). Protection of the settlers was not only at the production levels but also at the market levels (Ibid). For instance within the estate movement, the first estate ordinance was passed in 1931. This ordinance however did not allow Africans to form estates. It was later in 1945, when a fresh ordinance was formulated and passed that permitted Africans to form estates (Bager, 1980:21). This restrictive policy was largely because of concerns among the Europeans that African estates could reinforce the economic position of Africans, which in turn would result to complexity for Europeans in getting adequate number of workers for their farms.

Moreover, economic position of this kind would be a political forum for the Africans in their agitation against racist colonial system. It was in mid 1950s that the development of African estates took a steady pace. This was as result of the government initiative (Bager, 1980:21). The Swynnerton Plan of 1954 which mobilized for an increase in commodity production on African small-scale farmers further intensified pyrethrum and sisal cultivation. New marketing avenues hence had to be established and therefore the marketing estates were used as a means to bridge the gap. The political environment at this period served to intensify the rise and rapid growth of African marketing estates (Bager, 1980:21).

Furthermore, the change of policy towards African estates by the colonial government and the mobilization of the African small-scale peasants were in light of the increased political tensions. Therefore it was a colonial government initiative aimed at creating a political buffer. For Africans, estates at this period served as a means to avoid non-African businessmen. These then explain the rapid increase in the number of the African estates in 1963 and after independence.

In a summary, it is evident that the European settlers via the favorable policy framework gained power over the economy until the official policy shift in 1920s. European access and security over land is believed to have promoted the increase of sisal acreage. Labour and tax

policies on the other hand availed the avenues for cheap workforce supply on settler farms. Colonial farmers' agitation to bar the progression of native settlements was driven by the desire to maintain the upper stake in the economy. However, with decline in Kenya's economic position following the World War One, policy shift towards African development arose however the settlers still maintained their position, controlling the base of African economic progress (Barnes, 1956:19); (Gikenye, 2010).

2.2 Emergence of Sisal Farming in Makueni to 1963

2.2.1 The Sisal Industry to 1957

Sisal farming in Kenya began in the late 1890s (Dawson, 1912:39). The early planting emerged from experiments that were done at mission stations. These experiments were on the varieties of Arabica sisal. It was in 1893 when the first planting was done at French Mission at Bura, Taita Hills (Dawson, 1912:39). It was from here that seedlings were transferred in early 1900 to St. Austin Mission in Nairobi. Further planting was carried out in St. Augustine's Catholic Mission in Kikuyu in 1901 and in the Church of Scotland mission at Kibwezi. This planting was done under irrigation (Dawson, 1912:39). During this early period the settlers received the seedlings from the missions (Barnes, 1956:20).

Sisal was an important cash crop in the early 1890s; the prices of sisal at the world market were very high. However, at the turn of the century there was over-supply in its production which subsequently resulted in the drop of prices. This problem arose from the regulation that had been put place in 1897 by the Foreign Office regulation on Certificates of Occupation of land for European settlers (Hills, 1956:9). According to this regulation, European settlers were expected to plant not less than a quarter of the land in cocoa, sisal, indigo and rubber among other plants that had been endorsed by the commissioner. Such regulation indicates the value that was attached to cash crop by the London market at these pioneer years (Hills, 1956: 9). The world sisal prices rose by 1910, and it was during this period that the Kenyan settler planter began venturing into sisal farming. By 1911/12 sisal was one of the key crops

and the sisal industry was gaining value and interest of potential investors. The colonial government also took keen interest in the sisal industry (Barnes, 1956:22).

Following the establishment of the British colonial rule in Makueni District in 1902, the colonial government set up administrative centers. Makueni Township became the administrative centre of the District, having been gazetted as township in 1906 (1st March, 1906 and1st January, 1910). Its boundaries were gazetted on January, 15th, 1910. Makueni District at this time comprised of Bomet, Belgut, Mbooni, Kibwezi and Lumbwa (KNA.DC/KER/3/3/5).

The exact year when sisal was introduced in the district is not clear. According to oral information generated from one of the estate official, it was established that sisal was introduced at different parts of the districts at different periods. In some areas, sisal growing was done on experimental basis whereas in some it was done on large scale. Introduction began from as early as 1900 up to the period at the end of First World War (Kitheko O. I., 1/8/2017). Indeed, this agrees with an archival source which reveals that sisal farming in Makueni District at its initial years was done on experimental basis. Agricultural experiment on different agricultural crops in Makueni District was done in the prison farm (KNA/DC/KER/3/9). This was an eleven acre piece of land divided into portions. Experiments on crops such as wheat, carrots, maize, and peas were carried out here. This was in the period between 1910 and 1916. Sisal was among the crops that had been planted in the prison farm. By May, 1916 , there were 21 month old sisal stumps that were growing in half an acre piece of land between the police lines and the clerks houses and a quarter an acre of ten (KNA/DC/KER/3/9).

In Kibwezi area, oral interviews attributes sisal introduction to both colonialism and missionary activities in the area. It is believed that prior to European settlement in the area, Christian missionaries of the Roman Catholic fraternity had toured the region in the period as early as 1900s (Kitheko, O. I., 1/8/2017). Missionary activities in Kibwezi are believed to

have influenced sisal farming. The Christian Missionaries of the Roman Catholic Church who had toured the area during their evangelism missions experimented with sisal farming in areas such as Kokwet, Forternan and in Kibwezi in Makueni County (Too, K.I.I.,16/7/2017). During this time there was little success; success in sisal farming became evident following European settlements in the fertile lands in the region after World War One. Therefore colonialism, through settlers accelerated sisal farming in the Kibwezi (Kitheko, K.I.I., 16/07/2017). This is indeed true given that by this time (Barnes, 1956:12), notes that most of the sisal seedlings in Kenya were obtained from the mission stations. Moreover, a lot of experiments were being done here. Indeed, Mistry (1960), observed that that the white settlers regarded Makueni as the Sussex of Kenya. Mistry stated that the white settlers were marveled by the vast unexploited fertile lands. These lands became available after the World War One and the scheme to settle the British army officers also ended at this period (Mistry, 1960). The end of the World War One resulted in European settlement. This was accomplished through the alienation of African land and the settlement of the ex-World War One veteran by the colonial government. The settled Europeans then began establishing sisal plantations (Too, K.I.I., 12/6/2017). Mistry (1960), noted that colonial settler farming began to take off consistently in Makueni after the World War 1.

During the early years of sisal farming, African labour was used to clear the vegetation for the establishment large scale plantations. At this time, the settlers were in charge of their own sisal growing and management (Too, K.I.I., 3/8/2017). These views concur with Anderson, (2005) and Zeleza, (1989:50) who indicate that African labour was needed to lay foundation for the colonial economy. Their labour played a vital role in the establishment of settler farms. In addition, the settlers received indirect support from the colonial government that created a conducive condition for the takeoff of their sisal growing. For instance, Africans had been banned from growing sisal in the region and the fertile lands with agricultural potentials were alienated, their indigenous livestock were also confiscated and their women, children and the elderly were pushed to reserves. The able bodied men on the other hand

were enticed with rewards such as food for work done which kept them coming to work in the European farms (Kitheko, O.I., 25/6/2017).

Between 1912 and 1914 there were large plantations not only in Kiambu areas and but also Kikuyu. In Lumbwa, Muhoroni and Makueni District young plantations were also coming up well than predicted. It had been estimated that by the March 1914, 5,000 to 55,000 acres of land would be under sisal. Moreover, vast areas of fertile land were equally viable for sisal cultivation. At this time the development of the industry depended solely on labour supply (Hills, 1956:34).

M. D. Le Poer Trench, sisal inspector from Jamaica, arrived in the country on January 14th, 1915 and began to work on the same month (Hills, 1956:34). During the 1915 Mr. Trench made a visit to ten plantations in both Kibwezi and Makueni District. In his annual report for the year ended 31st March 1915, Trench noted there was good progress in the plantations. He wrote: “The sisal has made better progress than I expected but owing to the altitude and climatic conditions, I still hold that Makueni District is not nearly good for sisal growing as are other sisal district which I have visited (Hills, 1956:34)” . By 1916, notable steps had been taken in the sisal industry countrywide. The formation of Sisal Planters Union was a significant step. An estimated 22,000 acres of sisal was under plantation. A small proportion of this sisal had reached their producing stage. In Makueni District, significant steps had also been made. There were sisal plantations in Makueni and Kibwezi areas and Trench during this period had toured these areas and indicated good progress in the plantations. However the growth of sisal was very slow and cases of hailstorms had been noted and this was setback and therefore shading was undertaken to mitigate the effects of hailstorms (Hill, 1956:45).

In other parts of the districts such as Fort ternan, in February, 1916 there were reports that three plantations had been neglected. The owners as result were instructed to put them in order. In Koru, there was an outbreak of Hemilea Vastatrix in two plantations. This was

attributed to bad conditions of the sisal crop farming in a few areas. A department was then instructed to prune and spray sisal. In general the sisal was doing well (Hills, 1956:45). In 1917 there was an outbreak of thrip a sisal disease that caused considerable damage in plantations. Valuable services were offered by Sisal Planters Union in spite of the inadequate funds. It was also during the same year that there was the establishment of district branches in every sisal plantation in sisal growing areas. This was following revision of the constitution the Union became more representative of sisal planters in the country. During the annual general meeting, Honorary District Secretaries were elected respectively by ballot. In Makueni, Koru, Fortternan the following were elected respectively J. Q. Orchardson, C. A .Orr (Forternan and Koru) and Conway Harvey (Hills, 1956:22).

Sisal growing in Kenya during its initial years was hampered by pests, diseases and inadequate number of laborers during the harvesting seasons (East African Protectorate, 1913). A government entomologist was appointed in 1908 and a mycologist in 1913. The duty of the entomologist was to carry out sisal research work. In order to control the spread of diseases, an ordinance was put in place to curb the spread of leaf rust. Sisal leaf disease ordinance had initially been enacted in 1904 which ruled out the importation of seeds and plants from other countries. Moreover, a sisal plantation inspector was in 1914 appointed whose role was to that of inspection of planters' farms as well advisory role on conditions that were likely to result in pests and diseases. The inspector was also charged with ensuring that the farmer took measures to curb the spread of diseases and pests in a specified time frame. Inability to comply with regulation given would be met with charges which were either imprisonment or fines. Proper practices were to be adhered to by the farmers (East African Protectorate, 1913:9); (Hills, 1956).

During the First World War1 period sisal farmers were affected by shipping restrictions that were placed on shipping of sisal. Moreover in 1917 sisal import into the United Kingdom was prohibited on grounds of conservation of the shipping space. This in turn resulted in

accumulation of sisal and lack of storage spaces for the ongoing harvest. With no sales going on, farmers were unable to maintain their plantations and pay workers which led to neglect and eventually led to outbreak of pests and diseases. This embargo was later lifted and some sisal was exported following Nairobi's interventions in London (Hills, 1956). Some of the diseases that rose during the war time included leaf rust, thrifts antestia among other infestations (Hills, 1956:60-69).

Given the hard economic times after the World War One, most Africans in the region were forced in squatting on the European farms. Most of their livestock, a major source of livelihood, had been slaughtered and confiscated to support the war and therefore, their only means of survival was squatting in settler farms (Kisangi, O.I., 25/6/2017). These sentiments concur with Hodges (1999:33), who noted that the aftermath of the war was labour crisis. African labour was in high demand due to economic devastations of this war. Women played a significant role during the World War I period. They ran farms and plantations while the male fork went to war (Hills, 1956:45).

In effort to control diseases and deal with the aftermath of the war, an inspector of plantations was appointed in 1924. The inspector was to set regulations to curb the spread of disease. Despite the appointment, the inspector was unable to cater for the demands that came from the sisal industry that was by this time generated a third of the sum of the a third of total worth of the country's sale overseas and ranked second in acreage that were set aside for sisal farming in European farms (Hills,1956). The Sisal Planters Union of Kenya was one of the bodies that the sisal farmers used as a means to ask for monetary from the state. It comprised of a branch organization with a spokesperson in the central council of the Sisal Planters Union. Attachment to the union was not obligatory. The union was the major body that served as a link between the government and the sisal industry. During the annual meeting of 1921, discussions were made concerning the formation of the sisal marketing estate (Hills, 1956:95). Other issues arising were the establishment of sisal board to deal with issues

affecting the industry. The board was to comprise of senior sisal officers, director of agriculture and three members of the council of KPCU (Hills, 1956:95).

During the period of 1924 to1929 the Sisal Berry Disease had affected some plantations in the district. By 1927, the sisal estates were doing well following the reduction of the disease attacks. It subsided following spraying and as a result the sisal industry in the district was awarded two prizes at the agricultural show. By this time however most parts of the district had not achieved their targeted production. In, South Lumbwa a good progress was noted. It was therefore clear that the district was headed for prosperity (KNA/DC/KER/1/2). In 1929 heavy losses were experienced in both Kibwezi and Makueni arising from pests, diseases and drought. Despite this, the acreage under sisal was steadily increasing and the district was able to obtain prices for exhibition at the farming displays in Nakuru and Nairobi agricultural shows. During the same period statistics on sisal showed that a sum of 4,765 sisal tonnes were put for sale in the settled areas within the country. Sisal was doing well in the district, in a forty acre piece of land, 3 years old sisal yielded over 20 tonnes. The location of farm was not mentioned. Increase in acreage of bearing sisal was also consistent over the period of 1928 to 1930. For instance in 1928 it was 1,393 and in 1929 it rose to 1,714 and in 1930 it was 2,375 acres (KNA/DC/KER/1/2).

In Lumbwa Industrial Mission sisal was also doing well. This mission station was a mission station established 1906 by reverend W.R Hotchkiss, an American Missionary. It was owned, run and managed by W.R Hotchkiss. The mission was geared towards self-support. Sisal was also grown in large scale alongside other crops such as maize (KNA/DC/KER/1/4). By 1930, sisal acreage had increased substantially and the district won various prizes for sisal at Nairobi Agricultural shows. At the beginning of 1931 to the end of 1933 Sisal Berry Disease was still a big problem and indeed it caused a lot of depression among planters. Sisal prices were also beginning to drop due to the world depression. The situation was so dire and as a result a plant inspector and a mycologist stationed at Kibwezi. They were expected to carry

out experiments and investigations with the hope of tackling some of problems in the area. A lot of rain was experienced in other areas such as Kibwezi and there were low expectations on good sisal yields (KNA/DC/KER/1/4). On some areas of Kibwezi, three sisal farms had already been neglected completely and shift toward tea production was evident (KNA/DC/KER/1/5). The investigations on the Sisal Berry Disease went on throughout this period and in 1933, Wilkinson of the Agricultural Department carried out some research and further investigations (KNA /DC/KER/1/6).

In Kibwezi, in 1935 the Lumbwa Industrial Mission was merged with the National Holiness Association. W. R. Hotchinkiss left Africa for America and settled there permanently (KNA/DC/KER/1/8). It was established that following Hotchinkiss's departure the sisal in this mission station, sisal was replaced by dairy farming due poor yields (Mursoi, O.I.,12/3/2019. Sisal yields in the deferent parts of the district were not promising with the exception of the settled area of Ng'oina which had good yields. In East Kibwezi, the conditions were quite unfavorable for sisal and shift towards the Blue Mountain variety had begun (KNA/DC/KER/1/8). E. Cuttington, went on with his experiments in Kibwezi farms in the year however his work was curtailed by lack of adequate funds.

At the turn of 1936, the hope of growing sisal in North Kibwezi was diminishing except with some few Estates. Several experiments were carried out with little success. It was therefore clear that East Kibwezi was unsuitable for sisal growing. Experimental works went on geared towards overcoming the Sisal Berry Disease.

The Antestia had been done away with by W.G Dawson. He successfully overcame it through method of dry pyrethrum spraying (KNA/DC/KER/1/9). Sisal experiments on the Sisal Berry Disease went on in the district. E. Cottington who was also in charge of the experiments was transferred in March, 1936 to Kamba and during the same year in October, assistant agricultural officer was posted to the district (KNA/DC/KER/1/10). Period 1936 – 1946 came with so much suffering not only globally but also nationally. In Makueni District, however a

lot of prosperity was experienced in both Kibwezi farms and the Kamba land in general. A steady market price as well as abundant harvests in different agricultural produce was noted. Sisal production went on and marketing was done through the Kenya Farmers Association (KNA/DC/KER/1/9).

2.2.2 The Emergence of Settler Sisal Estates and Sisal Marketing during Colonialists

The sisal estates were British government colonialist strategy adopted to intensify sisal cultivation. The settlers were therefore forced to join these estates in order to grow and market this crop (Develtere, 1994); (Barnes, 1976:1); (Hills, 1956:62). During colonialism, the indigenous trade on the crop was highly contained and they would only join estates that would perform services such as processing, providing extension services and milling. Moreover, the marketing of the crop was in the hands of the colonial government that was responsible for pricing regulation (Barnes, 1976). Between the periods of 1900 to 1933 the marketing of sisal was charged with rudimentary institutions and individuals (Sisal Board of Kenya, 2014). The pioneer sisal farmers had to form individual marketing companies to market their own crops overseas. These companies undertook the handling of sisal from mills to the final stage of payment in London or other parts of the continent (Sisal Board of Kenya, 2014). Kenyan sisal was mainly processed and imported by the Germans during the period of colonialism whereas the British were the main consumers (Varqa, 2008:169). The Kenyan domestic market remained unexploited throughout the colonial period; the little that was consumed was restricted to the European expatriate and the British (arqa, 2008:69).

British settlers formed and use estates as profit generating tools. The estates therefore emerged as a response to the need to address socio-economic problems at that period which included among other issues low prices on agricultural products, poor transport and communication networks. Moreover, the new system of farming at this period involved large-scale production which was challenging. This therefore, triggered the need for association. Colonialism shaped the form and character of estates in Kenya right from its inception

(Ouma, 1989:34-35). The earliest Estate Association in Kenya at Kibwezi, Makueni County was formed in 1908 and was named Lumbwa Estate Association (Ouma, 1989:34); (Dondo, 2012:27). Its formation was spearheaded by the need to grant white farmers agricultural aid. Lumbwa Farmers' Estate Association was formed mainly to market agricultural produce for the settlers and for acquiring farm input at reasonable rates whereas Kibwezi Creameries was to market dairy services. Kibwezi creameries came into being in 1912 (Dondo, 2012:27).

In Kenya, the sisal estates and Sisal Planters emerged from the heavy expenditure that accrued from sea freights that necessitated their formation to cut the costs. This began with the creation of the Colonialists Association in 1903 (Hills, 1956). In 1914, the Colonialists Association received an invitation from the sisal planters from Jamaica. The Sisal Planters Association was also formed 1909 and it provided settlers with avenue to air their grievances and a means of political expression. In Makueni County, this association enabled the settlers to acquire land that was lying between Kiu and Forternan for their settlement (Hills, 1956:34). The Sisal Planters Union was formed in 1916 (Hills, 1956). The union received financial support from the banks and it also inherited some the assets from the Sisal Planters Association (Hills, 1956:45).

In post-World War One, the depression necessitated the need to encourage the output of primary products by the Africans in the African areas. This was an effort of Mr. Holm who was in charge of European agricultural production. The role of the Europeans was that of technicians, overseers and advisers. There was also the mobilization for the formation of the estate enterprises, Land Banks among other things to promote economic development (Hills, 1956:62). This began with the formation of the Kenya Farmers Association. The association came into being in 1919 (Hills, 1956). It was formed by the colonial state to provide a platform for white settlers to sell their cash crops such as sisal and other crops overseas and within the colony. This association was the sole distributer of agricultural tools, seeds and fertilizers. Africans did not benefit much from the association; they were often forced to

depend on the local markets because their cash crops such as maize were often rejected by the association on grounds that they did not meet the required quality standards (Leys, 1975).

The government justified settler support and production on grounds that the Africans were too ignorant to produce commodities needed for sale overseas. Despite the governments support, the settlers crop output was insignificant even in situation where production and marketing was reserved for them. Their high standard of living was too high for production (Leys, 1975). This period was also marked by the emergence of Sisal Companies in Kibwezi, Makueni County. African sisal estate societies in Kibwezi were preceded by settler sisal companies. Their operations were governed by the Company's Act (Too, O.I., 23/7/2017). Kibwezi Company Limited was among the earliest companies that dealt with sisal farming. It began its operation as an individual company that was owned and ran by an Italian settler who was nicknamed 'Tino'. This was established through an oral interview with a former sisal estate agent in the area (Sang, O.I., 23/6/2017). The settler was nicknamed by the locals. This Italian settler came in the area as an explorer via the Kenya Uganda railway and ex-World War 1 veteran. Following the end of World War One Tino' settled in Kibwezi regions of Kibwezi as a settler who was not only large scale dairy farmer but also as a large maize and sisal producer (Sang, O.I.,23/6/2017). Oral interviews with a former colonial estate agent revealed 'Mr. Tie' who also originally established sisal estates companies such as Chepkitar Farmers' Estate Company Limited and Koisagat Farmer Estate Company Limited respectively. These settlers were marveled by the vast, empty, virgin land of Kibwezi that had conducive climate favorable for agriculture. They established large sisal plantations in the region that are still in existence 100 years later (Ngok, O.I., 23/6/2017).

The completion of the Kenya Uganda railway 1901 and the accessibility of Kibwezi, region via rail provided a viable means of transport for transportation of heavy machinery from both Italy and Scotland via the port of Mombasa that enabled Tino to construct one of the massive sisal sisal estates in the region. The sisal estate was used for wet processing of sisal and sisal

production during the colonial era and even after independence. Fortternan railway station played a crucial role since it was centre for loading agricultural produce such as sisal, tea and other agricultural produce for export and off-loading manufactured materials from overseas (Cheruiyot, O.I.,25/6/2). Africans at this time following the devastations of World War One, were desperately in need of means survival hence provided casual labour in sisal farms and in the dairy farms in exchange of basic needs such as food. Their labour was also crucial in the construction of the Kapngetuny Sisal Sisal estate (Ng'etich, O.I., 24/7/2017). These sentiments agree Kosgey (1981), who states that the Kamba became labourers and producers in various parts of the colony. In areas such as Londiani-Kibwezi where sisal was being grown, their labour was used massively in the settler farms. Furthermore, she notes that that the lack of grazing land due to land alienation forced them into squatting (Kosgey, 1981). Land alienation resulted in land scarcity which in turn made respondents seek for opportunities of work. Most of these respondents landed in settlers' farms as squatters. Taxation in form of poll and hut tax equally forced Africans to employment in European farms (Zwanenberg et al, 1975).

Bulldozers imported from Europe were useful in landscaping and ox- ploughs were used to till sisal farms before sisal growing and other imported machines were used for spraying sisal to control pests. The construction of the sisal estate began in 1923 and ended in the early 1930s and became operational to date. By 1923, Tino had 200 acres that was under sisal. The sisal estate was managed by Mr. Tino till 1977 (Kitheko, O.I., 24/7/2017). The white settler generated his own power from the available water resource. Water turbine generators were used to extract power from moving water. He had built a water reservoir and channeled water through tunnels at high pressure by use of gravity into an intake point. The water then at high pressure turned the turbines connected to a generator at high speed. The hydropower plant worked through the use of energy generated by falling water to produce electricity. It therefore involved the use of turbines which converted kinetic energy generated by falling water into mechanical energy.

The mechanical energy produced was then converted into electric energy. Then the generator uses the mechanical energy from the turbines to generate electrical energy. The strength and energy of falling water pushed alongside the cutting edges of the turbines causing them to spin and as it spins it converts mechanical energy from the turbines into electric energy. Energy that was generated from water turbines generated electricity and steam that was used to process The Company processed large tonnes of sisal that was primarily for export and little for local consumption throughout the colonial and independence period. Barriers were erected to prevent Africans accessing the sisal farms from growing sisal. Rules had been outlined by the settlers and those who dared to go against them would be threatened with guns and those who dared to grow sisal, their sisal were uprooted and banished from the area (Kosgey, O.1., 23/6/2017). Africans who worked in the sisal estate as casual labourers were rewarded with skimmed milk (Koskey, O.1., 23/6/2017).

However, in the years following World War Two pressures from the locals led the casual labourers being paid 3 rupees per month later on, Africans who agitated for change. Mau Mau uprising in the 1950s led to an increase in their payment. Payment in form rupees and shillings was introduced. Other would be tricked with gifts and the most aggressive were given cows and banished in the area. By 1977 Africans were paid 52 shillings (Yegon, F.G.D., 14/7/2017); (Too, K.I.I., 2/8/2017). By 1963 exploitative in nature of the company was evident, Africans never benefited from the activities of the company since no one school was constructed nor any social facility (Ng'etich, K.I.I., 12/6/2017).

Kibwezi Company Limited was not the only company involved in sisal farming in Kibwezi. In 1930s, another company emerged in the same division. Its emergence is believed to have been influenced by Kibwezi Company Limited. The name of the company was Almora Estate Company Limited (Ngok, K.I.I., 23/6/2017). The Almora Estate Company Limited was in charge of the Almora Sisal Estate. This was settler owned sisal estate. Almora Company Limited was a sisal Estate had been established in Koisagat in Kibwezi area largely to benefit

the white farmers and the colonizing state (Ngok, K.I.I., 23/6/2017). The first settler to occupy the land was an Italian nicknamed 'Mutua' by the local. He had 1,000 acres of sisal plantation and a sisal processing and marketing sisal estate. The company came into being as individual settler sisal growing and sisal marketing company. The company was in charge of wet-processing of sisal for export. The settler also owned a dairy farm. 'Mutua' in dialect literally means 'to settle'. He was nicknamed 'Mutua' because of a prominently long and curved nose. 'Mutua' was also a former World War One veteran (Ngeno, F.G.D., 24/6/2017). He later transferred the land to the second settler who was named James Warrant Douglas who was a dairy farmer (Koisagat Development Plan for 2015). Unlike his predecessor he was interested in dairy farming and therefore he demolished most the sisal and he pursued dairy farming (Chepkwony, K.I.I., 23/6/2017); (Koisagat Development Plan for 2015).

In 1932, there was the enactment of the Estate Society's Ordinance. This move was a significant one in the advancement of agriculture in Kenya. It promoted the registration the Kenya Estate Creameries which operated at Lumbwa, Nanyuki and Naivasha. Thika Planters Estate Union played a role in purchasing farm supplies for sisal growers from different districts in Kenya. The registration of this union marked the commencement of the large estate movement among the sisal growers. It enabled them to promote sisal marketing through the pool orders. The union began with a membership of seven planters and within a period of three years the number had increased to four hundred planters and charged its name.

The Sisal Board of Kenya during this time was responsible for licensing, promotion and inspection of sisal growing (Sisal Board of Kenya, 2014). The Sisal Liaison Office was opened in London, November 1933 (Sisal Board of Kenya, 2014). This was aimed at promoting sisal consumption globally. Henceforth, the sisal industry was under the Sisal Board until in 1946 (Sisal Board of Kenya, 2014). The mode of selling Kenyan sisal through the Kenya Sisal Auction commenced both in the years 1934 as well as 1935 (Sisal Board of

Kenya, 2014). Moreover, the section involved in liquoring of the sisal as well as the Sisal Board came into being. This was geared towards encouraging grading and sale of sisal. It was also during the same year that the sisal auction was inaugurated and auctioning began. A sisal research station was opened in 1944 under the control of the sisal planters. This became the genesis of the Sisal Research Foundation (Kegode, 2005).

In 1946, the Sisal Marketing Board was born supported by the Sisal Marketing Ordinance numbers six (Agriculture and Food Authority, 2016). This board was responsible for sisal marketing activities that entailed sale of sisal at central auction, financing, making liquor as well as central warehousing. In 1960, the sisal ordinance Cap III was enacted through, the consolidation of the Sisal Marketing Ordinance as well as the Sisal Industry Ordinance under Cap. No XXVI of 1960. By July, 1960 the Sisal Ordinance Cap III was executed. It was also at this time that the Sisal Board of Kenya as well as the Sisal Marketing Board was set up under the same law.

Under the sisal Act of 1971, the Sisal Marketing Board was done away with functions of the Sisal Board of Kenya. The control of the sisal industry was in the hands of the Sisal Board of Kenya until in 2001 when Cap III was amended and a New Sisal Act launched. The roles of the Sisal board of Kenya under the new act include formulation of policies to promote sisal, processing, production, marketing within the country and globally. Its role specifically deals with registration and licensing of sisal operations in the country that include auctioneers, management agents and sisal marketing agents (Sisal Board of Kenya, 2014).

2.2.3 Emergence of Sisal Farming among Africans (1958 – 1963)

The interwar period, 1936 – 1945 was followed by efforts towards allowing Africans to engage in sisal farming (KNA/DC/KER/29). Africans in Makueni County never had a chance to grow the crop until 1950s. Their work was relegated to tending white settlers sisal prior to this period (Too, O.I., 24/7/2017). Sisal farming in Makueni County among the Africans like in other parts of Kenya emerged following a mass demand by the indigenous respondents to

participate in the economy and the government desire to promote mass production of sisal (Barnes, 1979). These demands began as early as 1930, following the implementation of the Devonshire white Paper Report of 1923 (Agriculture and Food Authority, 2016).

It was in 1930s when the state consented to sisal cultivation among Africans in Kisii County as well as Meru Counties. This was following the issuance of Devonshire White Paper of 1923 by the Colonial Secretary that indicated that, African interest in the colony had to be paramount. It is important to note that, little improvement was made following the declaration (Sisal Board of Kenya, 2014). In 1932, the Sisal Industry Ordinance was endorsed by the colonial government under the request of Africans. During this time they were only designated few acres of the lucrative commodity. The British government therefore controlled much of the sisal production in Kenya during the colonial period. It was until the commencement of revolt by the Mau Mau in 1952 that Kenyans demanded to have power over sisal cultivation. By 1954, the share of control amounted to 5,000 acres of sisal farms (Pendegrast, 1999).

In Makueni County, by the last part of 1957, there was already fifteen acres of the crop growing in native settlement areas (KNA/DC/KER/29). African attention and interest on sisal was also increasing steadily in viable areas. The first harvest on African areas was also expected in the end of 1958. The year 1957 was a significant year in Makueni District, marked by the formulation of long term plan for animal prosperity and African agriculture. A lot of emphasis was geared towards tea and sisal production in viable areas (KNA/DC/KER/29). Towards Kenya's independence, efforts were put in to promote sisal farming in African areas. This was done in order to supplement other crops such as tea and maize. The government through public Barazas encouraged individual sisal farming. The district officers as well as the agricultural officers held several meetings across the districts in order to mobilize individual progressive farming. Loans were also given to farmers through

the collaboration of the government and the African District Council. These loans largely targeted the areas that were underdeveloped such as Kimulot (KNA.DC/KER/1/28).

2.3 Summary

This chapter looked into the emergence of sisal estates in Makueni County in from 1923 to 1963. Using theoretical tool of collective action theory this chapter notes that, the Kamba had an organized pre-colonial socio-economic system that was largely subsistence and aimed at self-sufficiency. Economic activities were accomplished through cooperation; labour for instance, was generated from the entire geographical community (Bororiet) or from the immediate neighborhood (Kokwet). This is clear pointer that indeed, there existed traditional forms of cooperation in African societies even before colonialism.

Collective action theory was also useful in explaining the emergence estates among the Europeans. We established that the inadequate transport and communication network, large-scale sisal production necessitated the need for cooperation among the Europeans in order to solve the socio-economic problems at that time. Europeans were formed such as the Kenya Farmers Association, the Sisal Planters Union in order to address economic problems collectively at the same time step up sisal production that required large-scale production which could not be accomplished by one individual.

The modern estate in Kenya emerged during colonialism. Their emergence is attributed to British settlers who wanted to use them as profit generating tools. We also established that, sisal was introduced by the colonial settlers and Roman Catholic Christian missionaries in Makueni County. The exact timing when sisal was first introduced is not clear. However, oral interviews revealed that sisal was first introduced in the early 1900 and sisal experimental planting began in 1910 up to the period after to the end of World War 1. The marketing of sisal at this period was charged with individual companies and firms who undertook the handling of sisal from mills to the final stage of payment following their sale in London or other parts of the continents. Kibwezi Company Limited and Almora Estate Company

Limited were among the earliest sisal growing companies in Kibwezi, Makueni County. Lumbwa Farmers Association however was the earliest estate movement in the Kenya and Makueni County formed in 1908 which is believed to have set a base for the emergence of other estates in Makueni County including that of sisal. At this period the colonial government influenced the development of estate indirectly. African participation in the estate movement was minimal. Africans in Kibwezi like in other parts of Kenya had been banned from growing sisal as well as from forming and joining estates. Therefore, sisal farming in Kibwezi was a settler's affair during this period. It was later in 1957 that Africans began engaging in sisal driven by government effort to promote progressive farming. By this time, Africans were anxious to acquire lands given that most of them were landless. Sisal farming was not the driving factor.

CHAPTER THREE: GROWTH OF SISAL FARMING IN MAKUENI, KENYA 1980 - 2000

The transformation of the smallholder sisal industry grew rapidly following the Kenya's attainment of political independence. The attainment of independence in Kenya was a significant event to all Africans in Kenya. It was a turning point that brought about significant social, economic and political transformation in the country (Sigilai, K.I.I., 24/6/2017). This is clearly demonstrated in a statement made in an interview with an estate official who said: To the indigenous respondents in Kibwezi, Makueni County, independence meant freedom from colonialism and a new beginning. It marked an end to colonial aggression, oppression, poverty and landlessness. Squatters in the region were very happy. This echoed the first president's sentiments that 'Uhuru', the new government fight against poverty, ignorance and disease. (Kemboi, K.I.I., 3/8/2017) Indeed, Africans in Kibwezi, Makueni County were anxious to take over their previously alienated land from the white settlers who were then the dominant lot in the ownerships of all means of production in the region including cultivation of significant produces like sisal, tea, and maize. They were also dominated marketing and trade. There were large plantations under sisal and tea with own marketing companies. To the settlers it was such a bitter event (Lelei, K.I.I., 22/7/2017).

When Kenya attained independence, the government adopted a similar approach as the colonial government where it went on with the roles of formulation, legislation and the disbandment of policy regarding estate (Tegemeo Institute of Agricultural Policy and Development, 2012). Most of the economic sectors developed by colonial powers were inherited by Kenyan post-independent regimes at independence in, 1963. Few changes in the economic sector structure were undertaken. The establishment of regional and local estates for marketing and the provision of credits and inputs was one of the major policies to improve the small-scale agriculture (Varqa, 2008:69). A small-scale farmer required to register with the local estate structure for marketing and processing of their sisal (CBK: Sisal Traders Licensed Dealers, 2007). With a target of sharing economic costs, most small-scale

sisal farmers were legally bound to be members of the KPCU (Varqa, 2008:71). Focusing on small-scale sisal production, the independent Kenya, government noted that, apart from the changes in farm structures in terms of land possession a blend of other aspects would be significant in establishing consistent foundation for the growth and expansion of sisal production. These included, among others improving sisal market access, promoting sisal quality and quantity. The government therefore undertook some steps in order to achieve such objectives.

3.1 Provision of Extension Services

In 1964 – 1980 in Kenya, sisal farmers joined sisal estates. This was largely driven by their desire to promote and benefit from the sisal crop. Moreover, the government contributed immensely to this through support for sisal estates targeting at improving sisal quality, yields and returns by providing essential services to farmers at a cost. Such services include, offering extension services, sisal milling, and sisal husbandry, offering of credit facilities to enhance and manage the marketing of sisal among other aspects (Kenya Planters Estate Union, 2010). The sisal estates in the country are geared towards promoting the crop yields as well as overall predicament of the sisal cultivators. Estates involved in agriculture have been acknowledged for potentiality in promoting profitable advancement regionally (Government of Kenya, 2010). Estates potentials were not fully recognized in the colonial era and they therefore began to be appreciated and began to flourish in post-independence period in most African countries. The government of Kenya began to acknowledge and promote estate movement as an avenue where cultivators could jointly use to accomplish agricultural might as well as economic advancement in the country. The government therefore worked towards strengthening the organizational capacity of farmer's estates through providing for avenues to solve the problems that arose from the sector through the creation of the Ministry of Agriculture (KNA.Makueni District Annual Report, 1965). Moreover, folks in the rural set up were heartened to engage in sisal farming and the administration went on to provide support through provision of credit facilities, loans as well as agro-chemicals (CBK, 2011). In

Kibwezi and the entire Makueni District, Kabianga Farmers Training Centre was also undertaking grassroots approach aimed at improving agriculture through follow up and recruitment (KNA.Makueni District Annual Report, 1965).

3.2 The Setting up of the Estate Bank and the Sisal Research Stations

In addition, in 1965 the government under the Estate Societies Act set up the Estate Bank. The bank was charged with the provision of general loans, start-up costs and provision of credit to build sisal estates (Estate Bank of Kenya, 2011). It also went ahead to launch a broad program targeting sisal in Kenya. This was aimed at transforming the sisal industry into a powerhouse. To achieve this, government set up Sisal Research Stations in various highlands where sisal was grown. In addition agricultural officers were expected to interact with farmers on regular basis through promoting the use of pest control measures as well as manure in order to promote the crop productivity and quality (Gitu, 2012:20). In Makueni County, Koru Sisal Research Institute had already been set up in 1959 to offer the above services. The institute was set up in Khitari farm that was purchased by the Sisal Board of Kenya. The institute was set up to provide site to look into problems regarding sisal growing under warm conditions as well as under high rainfall. Moreover it provided technical advice on best sisal management practices among other issues. Today and then the substation plays a significant role since its acts as a sisal growing advisory centre for farmers in Kisumu, Makueni, Nyando, Bondo, Siaya, and the Kamba district (Sisal Research Institute, 2016).

3.3 The Sessional Paper Number Ten of 1965

Furthermore, the Sessional paper No10 of 1965 recognized estates as instruments of economic development. It acknowledged estates movement as an instrument that farmers could use to attain agricultural and economic development in the region. This strengthened the capability of farmers to unravel problems arising from the estate segment. The state administration held up this by creation of the Ministry of Agriculture and further mobilizing farmers in the rural set up to grow sisal and in return the government would support them by

provision of the agrochemicals, loans and credit facilities (2011). Moreover the government encouraged farmers to join estates to promote support for the sisal crop. Government support for the sisal estates was aimed at quality, improving yields. The sisal estates were charged with providing extension services, provision of access to credit facilities and sisal husbandry (Kenya Planters Union, 2010).

In Makueni County, in the effort to promote estate effectiveness, the Kamba Estate Union became the District Union and was registered in June, 1965. The Kamba Sisal Growers Estate Society Limited also revised its by-laws and it became the Kamba Society Limited (KNA.Makueni District Annual Report, 1965). This move was meant to curb the formation and registration of single purpose estate societies. Multipurpose estate societies were seen as effective and had better chances of increasing turnover and business volumes (KNA.Makueni

District Annual Report, 1965). They were also easy to function in any type of area. Following its registration, a loan of Shs.40, 000 from AFC bank was approved and granted to the society. This was to be utilized in the building of second sisal sisal estate at Kebeneti. The construction of the sisal estate was aimed at boosting sisal production as well as increasing the quality of sisal processed (KNA.Makueni District Annual Report, 1965).

The year 1966 was marked by widespread emergence of self-help efforts in the entire Makueni County (KNA.Makueni District Annual Report, 1967). This was geared to benefit the community. In Londiani, Forternan meetings were held during the year and signified the sale of farms to company partnership. 12 farms were sold to estates and four others to individuals and two to ADC (KNA.Makueni District Annual Report, 1967). Sisal farming on the other hand was gradually getting on its feet since sisal production in small scale farms increased to 332 acres whereas in the large scale farms there was 2729 acres (KNA.Makueni District Annual Report, 1967). Several land purchase loans were approved by the land and Agricultural Bank Corporation in 1966. Eight of these loans totaling to £50,950 were approved. Land consolidation and registration was also taking place in the district, high

demand for land, combined with the rise of squatters and job seekers led to inconveniences to many land owners. Riots became rampant in towns too (KNA. Makueni District Annual Report, 1967). In Roret area, a sisal estate society and sisal estate which was involved in sisal growing remained active and the most successful in the district. Generally, societies in the district were largely affected by lack of skilled and competent leadership. Membership was vibrant though (KNA. Makueni District Annual Report, 1967).

In November the same year, 5 tonnes of sisal were dispatched with 80 percent of it being classified in the four classes. More planting took place 36 acres were planted in April however, this period was followed by dry weather which resulted sisal decline. By the end of 1963, there was approximately 218 acres that was under sisal in native settlement areas and total production of that year was 24 tonnes. The number of growers had risen to 435 while the nurseries in place were three with 90,000 seedlings. In Koru sisal substation, in 1962, there were 218 areas of Buni sisal and a sale of 19.5 tonnes was made that year which increased to 24 tonnes in 1963 (KNA.Makueni District Annual Report, 1963). In Forternan and Koru area there was a lot of improvement in terms of quality and production following better management. In Londiani areas, the state undertook actions geared towards improving the sisal culture in plantations. Loans were given and more effort was put to improve farming method (KNA.Makueni District Annual Report, 1963).

CHAPTER FOUR: DECLINE OF SISAL FARMING IN MAKUENI, KENYA 2000 – 2018.

4.1 Decline of Sisal Farming in Kenya 1963-1978

In Kenya the industry enjoyed some government protection mainly in the 1960's and 1970's (Odhiambo *et al*., 2004). The government subsidies were however, removed in the 1980's dealing a major blow to the once thriving Kenyan sisal industry. This phenomenon was not limited to Kenya. Between 1963 and 1978, the production of sisal in Kenya was declining steadily. The decline in sisal production is a result of a number of factors, one of which is the decline in smallholder sisal sales to the sisal estates that process fibre and leaf. The reduction in smallholder sales was partly due to poor marketing outlets and to use of old, slow hand-decorticating methods.

There was increased interest in land registration throughout the district. The alternative of owning land through direct negotiation between the owner and the buyer was on the rise. That was done on "willing seller, willing buyer basis". This process involved groups of respondents organizing themselves up into societies or companies. This was because very few individuals could raise sufficient money to purchase large farms individually (KNA.Makueni District Annual Report, 1968). Furthermore, to ensure that individual farming was progressive, a by-law was passed through the African District Council in which orders were to be placed on the Kamba farms for those who failed to develop their holdings for instance, failure to carry out bush clearing. This policy was believed to have been the first one of a kind in Kenya even though it had been applied previously in European farms. Firm treatment of the disobedient was to be applied. This also involved setting up a new agricultural committee under the agricultural ordinance. Each division had two and three from Kibwezi (KNA.DC/KER/1/28).

In 1957, fifty one farmers in Mbooni area obtained sisal seedlings from a nursery that had been established in Mbooni Division. Sisal at this time was restricted to regions lower than

five thousand eight hundred foot contours. These were areas along Mwala however sisal farming had not got the attention of the Kamba. This was resulting from the efforts involved in groundwork of both the land and holes that was needed to establish a sisal farms. The number respondents willing to engage in this were a few (KNA/DC/KER/1/28). At independence in 1963, significant progress among Africans in the Kamba area was noted, there was the construction of two small sisal estates, and a production of approximately 15 tonnes of clean sisal (KNA.Makueni District Annual Report, 1963).

The decline of sisal production caused by inadequately organized and inefficient marketing system. The sisal producers depended entirely on marketing agents to sell their produce abroad. The agents look for markets and organize shipping and insurance on behalf of producers. The agents also negotiated sisal prices on behalf of producers. The commission, brokerage, and handling charged by agents in Kenya discouraging small scale farmers from selling their produce abroad (Githire, 1989).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

In this chapter, we discuss the results of the study, present the conclusions and recommendations.

5.1 Summary

This study focused on the history of sisal farming societies in Makueni County, Kenya in the period 1965 to 2018. In Chapter one, we presented the setting upon which this study was grounded and contextualized. The setting points out Europe as the birth place of the cooperative movement whose take off was sparked by the Industrial Revolution in Europe in the early nineteenth century. The cooperative movement at this time was shaped by social and economic forces that emerged in response social stresses of that time, evolution of market based economy among other factors. In Africa and Kenya, the formal form of the cooperative movement was born during the colonial era. It is from Europe that the idea is transferred to Africa during the colonial era having been stirred by the desire to bring social-economic changes during this period and hence formed a major component of modernization. It is important to note that Africans had their traditional forms of cooperation even before colonialism. Colonialism transformed traditional forms of co-operations into the formal forms.

5.2 Conclusion

The study concludes that the exact year when sisal was introduced in the district is not clear, at the same time Sisal farming on the other hand was gradually getting on its feet since sisal production in small scale farms increased to 332 acres whereas in the large scale farms there was 2729 acres and finally The decline of sisal production caused by inadequately organized and inefficient marketing system.

5.2 Recommendations

Government agencies and development partners promoting sisal propagation and cultivation should study and analyze the factors affecting sisal cultivation and adoption in all the ASALs areas in Kenya for strategic planning. Due to illiteracy level of the community media channels should be explored to create awareness in local language to encourage understanding and implementation of ideas and programs in the easiest ways possible. The government should devise effective communication mechanism to the community regarding all the legal requirements and procedures regulating sisal cultivation and trade in the country. The communication should prioritize public training. The training should aim at achieving voluntary compliance because of realized benefits as opposed to enforced compliance by policing. The institutions promoting sisal cultivation in the country should provide technical support as well as favorable market and marketing channels. The government through the Ministry of agriculture should consider offering government incentives to the sisal farmers in order to encourage them to participate more in sisal.

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APPENDIX I: INFORMED CONSENT FORM

Dear respondent,

The researcher is a student undertaking a degree course in Master of Arts in history in Mount Kenya University carrying out a research on "**The History of Sisal Farming in Makueni, Kenya 1965-2018."**

For this study I request you to give me some time as you was asked some questions. I will maintain your privacy and confidentiality about your information. Your name will not be written on any of the materials, and only the researcher will have access to your information. Your participation is totally voluntary, and you may change your mind and withdraw at any time before and during the study. We will not pay or give any reward for this participation. If you want to take part to participate in this research, please sign the form below. In case of any complaint, please contact;

THE CHAIRMAN, ERC, MKU
P. O. Box 342-01000
THIKA

Participant:

| --- | --- | --- |
| Code of Participant | Signature | Date |

Researcher: Signature Date

…… …… ……

APPENDIX II: Interview Questionnaire for Farmers/Marketers

The purpose of this interview schedule is to collect information on sisal plantation in Makueni County. The information collected was treated with confidentiality and used for the purpose of this research.

PART ONE: BIO DATA

1. What is your gender?

Male Female

2. Age of the farmers?

20– 30 years

31– 40 years

41-50 years

15 – 60 years

16 – 70 years

71 And above years

3. Income level

Between 0 and 20,000 shillings

Between 20,001 and 40,000 shillings

Between 40,001 and 60,000 shillings

Between 60,001 and 80,000 shillings

Above 80,000 shillings

4. What is the percentage portion of income is derived from agricultural activity?

5. What is the highest level of education achieved?

University/college level

Secondary level

Primary level

None

PART TWO: Growth of sisal farming in Makueni (1980-2000)

6. Are you aware of sisal plantation as a commercial enterprise?

Yes and already farming (Year of planting

7. Yes with interest but not started farming

Yes and already growing naturally in my farm

Yes but have not had interest

No but already growing naturally in my farm

Not at all

8. If you are aware of sisal plantation how did you learnt about it?

From Tahidi CBO plantations

From ADRA Kenya Farmers

From a friend or relative within Makueni

From a friend or relative outside Makueni county

Media

Not aware

9. If you have planted or wanted to plant sisal, where would you get the seedlings?

Own nursery

From Taihidi sisal plantation

From ADRA Kenya farmers

From a friend or relative within Makueni

From a friend or relative outside Makueni

Uprooting from the wild

No idea.

10. Sisal plantation may require several activities from planting to maturity. Describe the various steps and activities involved from land preparation to harvesting

11. The government engages extension services to train farmers on farming activities including how to market their products. Has the extension services assisted you in your farming activities?

YES NO

a) Yes, (how and when

b) Sometimes (give last time

c) Rarely. Can't recall when last

d) Never

e) No idea the services exist

11. If you have not been assisted, what areas do you feel the extension services would assist you?

12. If you have been growing sisal, where do you market your products?

a) To Tahidi CBO plantation

b) ADRA Kenya framers

c) Through a friend, relative or business person within Makueni

d) Through a friend, relative or business person outside Makueni

e) Don't market at all

f) No idea it's sold

13. If you have not started growing sisal are there plans to start and when

a) Yes this season,

b) Yes next season

c) Yes within five years

d) Yes after market has been established

e) Not sure of future plans

f) Never (give reasons

14. Are you registered as a sisal farmer?

a) Yes (Name registering authority).

b) No but have applied to.

c) No but planning to apply

d) No I'm not aware of any registration required

15. Are you a member of a group that promotes the sisal plantation and marketing activities?

a) Yes already a member (Name of the group

b) No but planning to join (Name of the group

c) No (I don't know of any group)

d) No and not interested in joining any

16. If you have planted what reason has made you plant and if you have not planted what reason would make plant sisal.

17. What reason discourages you from planting sisal in your farm?

18. Any remarks and observation useful for this study

PART THREE: The decline of sisal farming in Makueni (2000-2018)

19. What is the size of the farm in acres?

Up to 5 acres

6 to 10 acres

11 to 15 acres

Above 15 acres

20. Any other activity apart from farming?

Yes No

If yes. Specify

21. Any other occupation apart from farming:

Yes No (If yes, which one

22. Economic activities currently in the farm

a) Cash crops

b) Food crops

c) Fodder crops

d) Dairy farming

e) Beef farming

f) Poultry farming

g) Bee hives farming

h) Others

23. How long have you used the farm in the above identified economic activities?

1 years

2-5years

6-10years

Over 10years

24. What has the above economic activities enabled you to achieve?

Enough for education of my children and all my domestic needs

Enough for education of my children only

Enough for my domestic needs only

Not enough for my domestic needs.

Neither of the above

25. Do you have constrains associated with economic activities you have identified above?

Yes No

25. If yes, which are these constraints?

26. How do you handle the constrains identified above

27. Are you aware of sisal plantation as a commercial enterprise?

Yes No

a) Yes and already farming (Year of planting

b) Yes with interest but not started farming

c) Yes and already growing naturally in my farm

d) Yes but have not had interest

e) No but already growing naturally in my farm

28. If you are aware of sisal plantation how did you learnt about it?

From Tahidi CBO plantations

From ADRA kenya Farmers

From a friend or relative within Makueni

From a friend or relative outside Makueni county

Media

Not aware

29. If you have planted or wanted to plant sisal, where would you get the seedlings?

Own nursery

From Taihidi sisal plantation

From ADRA Kenya farmers

From a friend or relative within Makueni

From a friend or relative outside Makueni

Uprooting from the wild

No idea.

30. Sisal plantation may require several activities from planting to maturity. Describe the various steps and activities involved from land preparation to harvesting?

31. The government engages extension services to train farmers on farming activities including how to market their products. Has the extension services assisted you in your farming activities?

Yes, (how and when

Sometimes (give last time

Rarely. Can't recall when last

Never

No idea the services exist

32. If you have not been assisted, what areas do you feel the extension services would assist you?

33. If you have been growing sisal, where do you market your products?

a) To Tahidi CBO plantation

b) ADRA Kenya framers

c) Through a friend, relative or business person within Makueni

d) Through a friend, relative or business person outside Makueni

e) Don't market at all

34. If you have not started growing sisal are there plans to start and when

Yes this season,

Yes next season

Yes within five years

Yes after market has been established

Not sure of future

Never (give reason

35. Are you registered as a sisal farmer?

Yes (Name registering authority)

No but have applied to

No but planning to apply

No I'm not aware of any registration required

Are you a member of a group that promotes the sisal plantation and marketing activities?

Yes already a member (Name of the group

No but planning to join (Name of the group

No (I don't know of any group)

No and not interested in joining any

36. If you have planted what reason has made you plant and if you have not planted what reason would make plant sisal

37. What reason discourages you from planting sisal in your far?

APPENDIX III: Focus Group Discussions Interview Questionnaire for Regulators (2000-2018)

The purpose of this interview schedule is to collect information on sisal plantation in Makueni County. The information collected was treated with confidentiality and used for the purpose of this research.

1. What are the major economic activities in this area?

2. Are you practicing sisal plantation for commercial purpose or have you ever practiced sisal plantation for commercial purpose in the past two years?

Yes No

3. Have you ever received training on sisal plantation?

Yes No

If yes, who organized the training

4. What factors hinders sisal plantation in you

5. Are you aware of any legislation governing sisal plantation?

Yes No

If yes name them

APPENDIX IV : LETTER OF INTRODUCTION

Mount Kenya University

DIRECTORATE OF GRADUATE STUDIES

MAHS/2018/23182

15th October, 2021

The Director, Research Coordination Division
National Commission for Science, Technology & Innovation
Utalii House, 8th & 9th Floor
P.O Box 30623- 00100
NAIROBI

Dear Sir/Madam,

RE: KIVUVA MARK KISANGI – REGISTRATION NO. MAHS/2018/23182

The purpose of this letter is to introduce the above named student who is pursuing **Master of Arts in History Studies** in the **Department of Languages and Humanities** in the **School of Social Sciences.**

The title of his research is *"The History of Sisal Farming in Makueni, Kenya, 1965 - 2018 "*

He has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data for his research between **October and December, 2021.**

Any assistance accorded to him will be highly appreciated.

Thank you.

Mount Kenya University
P.O. Box 342 - 01000, THIKA
Office of the Director
Graduate Studies

Dr. Samuel M. Karenga, Ph.D
Director, Graduate Studies
Enc.

APPENDIX V: E.ETHICAL CLEALANCE CERTIFICATE

Mount Kenya University

REF: **MKU/ERC/1937**
TO: **KIVUVA MARK KISANGI**

Date: 23 September 2021

REG: **MAHS/2018/23182**

Dear Sir/Madam,

RE: THE HISTORY OF SISAL FARMING IN MAKUENI, KENYA 1965 – 2018

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **1010.** The approval period is **23/09/2021 - 22/09/2022.**

This approval is subject to compliance with the following requirements;

i. Only approved documents including informed consents, study instruments, MTA will be used
ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

The Chairman
Mount Kenya University
Ethics Review Committee
P. O. Box 342 - 0100, Thika

Dr. Peter G. Kirira
Chairman, Mount Kenya University IERC

APPENDIX VI: NACOSTI PERMIT LETTER

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **276523**

Date of Issue: **12/November/2021**

RESEARCH LICENSE

This is to Certify that Mr.. Mark Kisangi Kivuva of Mount Kenya University, has been licensed to conduct research in Makueni on the topic: THE HISTORY OF SISAL FARMING IN MAKUENI, KENYA 1965 – 2018 for the period ending : 12/November/2022.

License No: **NACOSTI/P/21/13855**

276523

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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Appendix VII: Sample Size determination Table

Table for determining sample size of a known population											
N	S	N	S	N	S	N	S	N	S	N	S
10	10	85	70	220	140	440	205	1200	291	4000	351
15	14	90	73	230	144	460	210	1300	297	4500	354
20	19	95	76	240	148	480	214	1400	302	5000	357
25	24	100	80	250	152	500	217	1500	306	6000	361
30	28	110	86	260	155	550	226	1600	310	7000	364
35	32	120	92	270	159	600	234	1700	313	8000	367
40	36	130	97	280	162	650	242	1800	317	9000	368
45	40	140	103	290	165	700	248	1900	320	10000	370
50	44	150	108	300	169	750	254	2000	322	15000	375
55	48	160	113	320	175	800	260	2200	327	20000	377
60	52	170	118	340	181	850	265	2400	331	30000	379
65	56	180	123	360	186	900	269	2600	335	40000	380
70	59	190	127	380	191	950	274	2800	338	50000	381
75	63	200	132	400	196	1000	278	3000	341	75000	382
80	66	210	136	420	201	1100	285	3500	346	1000000	384

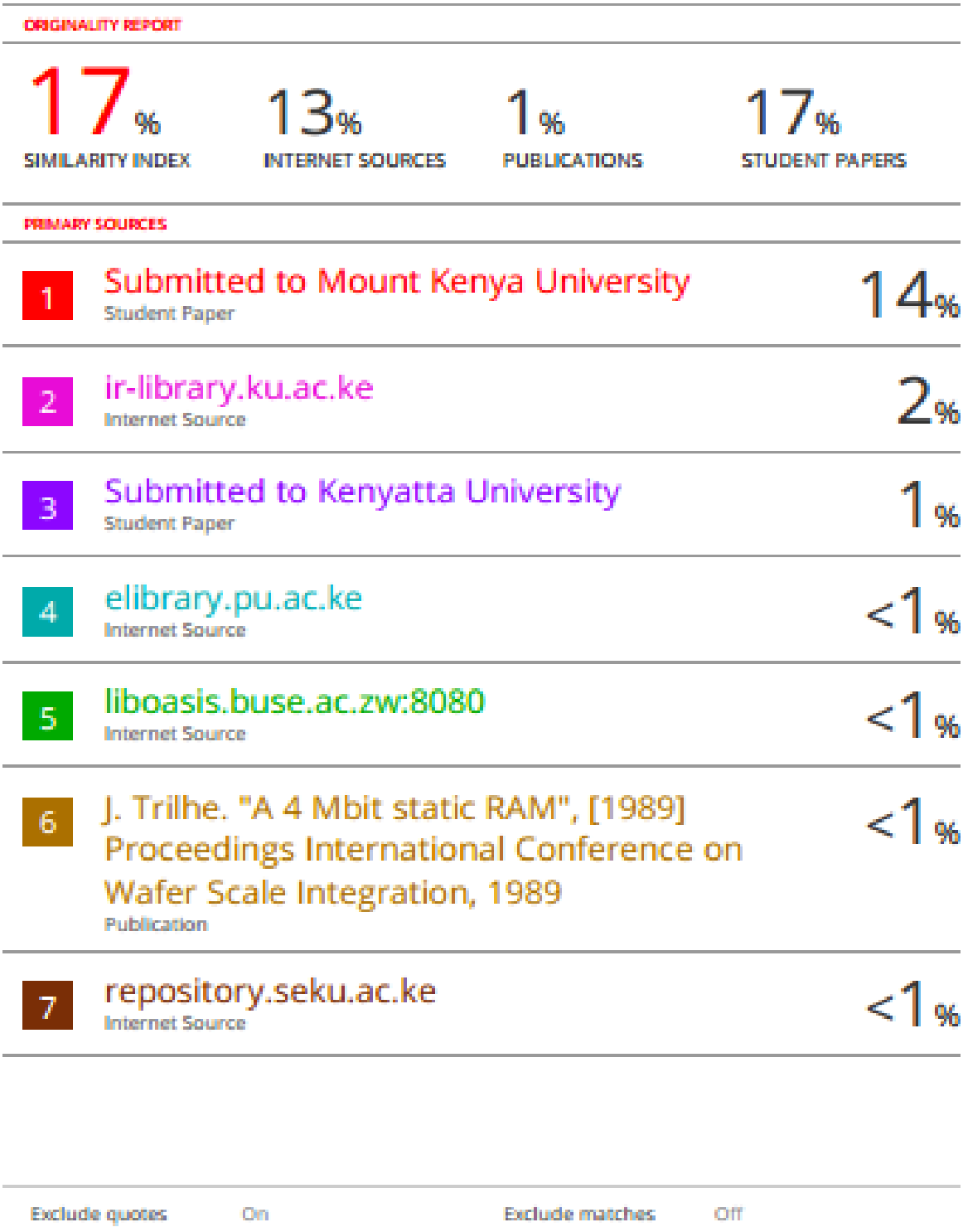
Source: Krejcie and Morgan (1970)

Note: N= population size **S**= sample size

APPENDIX VIII: Map of the Location of the Study

APPENDIX IX : Similarity Index

A HISTORY OF SISAL FARMING IN MAKUENI, KENYA 1965 – 2018



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