

**URBAN-RURAL LINKAGES: COVID-19 IMPACTS ON SOKO  
MJINGA MARKET CENTER AND RURAL SMALLHOLDER  
COMMUNITIES IN KINALE WARD, KIAMBU COUNTY.**

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Planning

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**Declaration**


This Research Project is my original work, and it has not been presented for examination in any other university.

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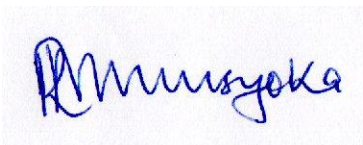
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**Dedication**

I dedicate this research project report to the Urban – Rural Linkages team at UN-Habitat, to my parents; Mr. Benson Gathura and Mrs. Mary Gathura and my spouse Sir. George Muchai.

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May the Almighty God bless you all abundantly.

## **Abstract**

Market Centers in rural areas are the first point of interaction between urban and rural areas. They are the starting point of the food supply chain as they act as the urban support base for rural development. Since the emergence of COVID-19, the global markets and all vulnerable people in the urban and rural communities have encountered immense challenges due to the government-led response measures to the pandemic. This study sets out to explore the impacts of the Covid-19 pandemic on small market centres and the rural smallholder communities in their hinterland and their implications on urban-rural linkages, which is an area that has received limited attention, and it is thus a gap in knowledge that the research aims to address.

The research setting of Soko Mjinga Market Centre and the land uses in its rural hinterland targeted all small holder farmers in the four locations of Kinale Ward. The study which used a cross-sectional design drew its sample from the traders who buy from the farmers, the drivers who transport food to different parts of the country and key informants that included the chiefs, the agricultural officer, the market representative and the county physical planner. The study conducted two focus group discussions with five leaders and it administered face-to-face interviews drawn from a simple random selection of ten households from each of the four locations, a convenience sample selection of ten drivers targeting their different destinations and a purposive sample of five key informants. The main type of rural land use in Kinale ward was agriculture where crop production and dairy farming were practiced. Crops planted were mainly kales, spinach, cabbage, carrots and Irish potatoes. Forestry was the second largest form of agricultural land use, where farmers herd their cattle in the forest.

The key findings of the research show that there was no significant change in the type of agricultural land use due to Covid-19. However, the quantity of the farm produce to the market centre was greatly reduced during the Covid-19 pandemic. The study equally observed that the agricultural land in Kinale and Magumu Wards was diminishing through uncontrolled land subdivision in the settlement scheme, which poses a threat to local food production and national food security at large. Covid-19 led to far-reaching negative impacts such as inaccessibility and closure of the market, reduction in demand and supply, disruption in the food chain, reduced interaction between buyers and sellers, low prices for agricultural produce, increased number of brokers and increased food waste. There was however improved sanitation and an improvement of household income when revenue collection was relaxed. Covid-19 impacted on the smallholder farmers in different ways such as decreased farm-based income due to low quantities and low sale prices for agricultural produce. For off-farm income, it was mainly due to lack of opportunities to work and lack of transport opportunities to access work. Due to the travel restrictions, it was difficult for the farmers to access the over-shot prices of farm inputs. The Covid-19 negative implications on urban rural linkages was observed through transportation distortions and disruptions to the flow of food and people to various parts of the country. The lockdowns and movement restrictions by closure of county boundaries impeded the rural communities from accessing hospitals and vital medicines. The restrictions temporarily introduced weak linkages from the urban markets to the rural markets. The linkage was however stronger from the rural markets to the urban markets because of the much-needed food supply.

This study recommends the formulation of an all-inclusive plan for a more sustainable Soko Mjinga market centre and its rebranding to refrain from the name “Mjinga” which connotes ‘fool’, ‘stupid’, ‘uneducated’ and ‘illiterate’. The study equally recommends the formation and registration of a smallholders’ savings and credit cooperative society; and that the smallholder farmers be enlightened on different ways of doing online marketing using smartphones, radios and televisions. The study further suggests more broader policy, legislative, governance and theory-oriented interventions to policymakers and planners in order to mitigate the negative impacts on small market centres and rural smallholder communities so as to build their resilience against future pandemics.

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## List of Abbreviations and Acronyms

AIDS	-	Acquired Immune Deficiency Syndrome
CBD	-	Central Business District
CBO	-	Community Based Organization
DRC	-	Democratic Republic of Congo
FAO	-	Food and Agriculture Organization
FGD	-	Focus Group Discussion
GIS	-	Geographical Information Systems
GOK	-	Government of Kenya
ICT	-	Information Communication & Technology
KCB	-	Kenya Commercial Bank Ltd
KNBS	-	Kenya National Bureau of Statistics
NTSA	-	National Transport Service Authority
OECD	-	The Organization for Economic Cooperation and Development
SDGs	-	Sustainable Development Goals
UNESCO	-	United Nations Educational, Scientific and Cultural Organization
URL	-	Urban-Rural Linkages
USDA	-	United States Department of Agriculture and Rural Development
WHO	-	World Health Organization

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Introduction and Background to the Problem**

Urban-Rural Linkages (URL) have been defined as the shared flow of goods, people, services, money and environmental services with most of the linkages having direct or indirect impacts to food systems (Forster, Santini, Edwards, & Flanagan, 2015). URL has equally been defined as the encapsulation of the flow of goods, information, people, finance, information, and social relations while creating links between rural and urban areas (Tacoli, 2015).

In many regions of the world, the increased production of perishable goods and high-value foodstuffs that include vegetables, dairy products and fruits has been established to arise from increased urban demand. This is mainly evident in regions where rural and urban areas are well connected in terms of transport, communications and other forms of resource endowment such as electricity and efficient market dynamics (Davila, 2010). Policy options point for the need for infrastructural developments, which are critical in the establishment of efficient rural-urban linkages.

Market places act as a nodal point where social and economic activities occur in a collective manner (Friedmann, 1972). Market centres are defined and characterized by higher population densities, complex buildings and increased commercial and industrial activities. In rural areas, market centers play a crucial role in the general development through the provision of goods, agro-processing facilities, supply of factors of production, provision of links to the larger markets for rural products and as a center for knowledge and information dissemination (Mueller & McConnell, 2020). The centers are the key nodes in market systems that harbor facilities and essential amenities that allow for certain functions to run. These activities make market centers in rural areas initiate the process of formation of urban areas.

Rural areas act as a ‘back-cloth’ where the market centers are etched (Friedmann, 1972). Friedmann (1972), in his center-periphery concept of economic development, captures the relationship between the market centers and the rural areas. The author provides insights to the structural relationship between urban centers that are more developed and the less developed rural

peripheries in a certain region. The author shows the model of core periphery regions as core, semi-periphery and periphery and these areas are seen to be inter-dependent through resource exchange.

Market centers form the initial point of interaction for the interrelationship that exists between urban and rural areas. Therefore, their proper functioning is important to the economists as well as to urban and regional planners. Market centers are the starting points of the food chain as they act as the urban support base for rural development. Therefore, this means that urban and rural development is highly dependent on the continued operation of the market centers. With the onset of the COVID-19 pandemic the market centers began to experience unprecedented socio-economic and physical impacts, which could be partly attributable to the lockdowns and closure of businesses, the mutating spread of the disease and the requirements for sanitizing and social distancing.

COVID-19 disease was first detected in December 2019 in Wuhan China. The World Health Organization (WHO) declared COVID-19 as a global pandemic in March 2020 due to its accelerative spread across the world. WHO prompted countries to adopt preparations and response strategies in accordance with the Global Strategic Preparedness and Response Plan (WHO, 2020). They continued to indicate that the pandemic was not only a public health crisis but a global urgency that would have an effect on all sectors of the economy. To date the negative impacts of COVID-19 are still being felt in terms of their social and economic ramifications. Economically, the global economy contracted by 4.3% and global employment reduced drastically. The effects were more felt in developing countries where more people were plugged deeper into poverty (Eichegreen, 2020).

In trying to curtail the impacts of the pandemic, national governments around the world imposed measures to prepare and respond accordingly. These measures led to closure of offices and workplaces, learning institutions, temporary travel and social gathering restrictions (Nicola, Alsafi, & Sohrabi, 2020). Flexible work-from-home programs and virtual meetings have since become the new norm. However, industries such as food, health and infrastructure such as electricity were considered essential. People who offered these essential services could not work remotely hence

they retained their physical work routines. Response plans for industries were developed and aligned with the state of affairs in a manner that business continuity was encapsulated to ensure continued operations. These plans included control requirements to mitigate the effects and the prevalence of the pandemic through cleaning exercise, sanitation procedures, disinfection of facilities, screening of workers for COVID-19, and education programs for all workers to prevent the spread of the Corona virus.

The government-led response measures of coronavirus brought about a process known as ‘de-globalization’ that was characterized by the forced lock-downs and cessation of movement across borders. It prevented normal flows of food, capital and humans and it caused businesses and production centres to shut down. This resulted in widespread effects in every industry across the world including the manufacturing industries, the tourism industry, the aviation industry, among others. However, the food industry which is the major sector in regards to the economy, was seen to be the most affected than any other industry across the globe. Various challenges were faced by some food companies due to a drop in income, while other food companies were working hard to meet the overwhelmingly growing demand (Glauber, Laborde, & W. Martin, 2020).

The food industry generally involves five stages, which include the agricultural production stage; the stage of post-harvest handling of the produce; the processing stage; the distribution or retail services stage; and finally the stage of consumption of the food. COVID-19 has not been seen to directly affect the production of food unlike other pandemics such as foot and mouth diseases. However, the government restrictions in the transportation of goods and services was the main effect on agricultural production and distribution.

At the very start of this global pandemic, the demand for food by consumers had grown, store shelves were emptied and this led to excessive purchase of essential products. Food safety and reliable food supply became a global concern worldwide leading to food security being associated with consumer’s access to food as opposed to food availability. Although urban and rural market centres were positively crucial to ensure food security and as an essential sector in the provision of goods such as food and other commodities, they were equally disproved on the basis of being

major causes in the faster transmission of Covid-19. The question was therefore whether or not rural market centres could be subjected to a total shutdown.

The Europe Food Safety Authority stated that the COVID-19 was not transmitted through food consumption but through different environments such as plastic, steel, card board, which acted as a source of foodborne transmitters (Workie, Mackolil, & Joan, 2020). They also indicated that the virus was highly transmitted in crowded places. This was also evident in a research done at Xinfandi Market where the number of infections were rapidly rising. Hygiene control and protective measures such as personal hygiene, sanitization of surfaces, safe handling of food commodities, wearing of protective gears such as masks, gloves and helmets and maintaining social distance were therefore recommended so as to ensure continuity in the flow of food (WHO, 2020).

In the context of the foregoing, this study sets out to explore the impacts of the COVID-19 pandemic on Soko Mjinga market center and the rural smallholder communities in its hinterland of Kinale Ward. It will equally seek to assess the potentials that the pandemic presented as opportunities that could be harnessed in order to enhance resilience in future potential pandemics. On the basis of its findings, the study further seeks to explore the implications towards urban-rural linkages and particularly the role of the market centre in strengthening the interrelationship between the rural and urban areas and in turn to recommend policy, legislative and governance interventions in order to mitigate the negative impacts and to build resilience in future potential pandemics.

## **1.2 Statement of the Research Problem**

The outbreak of the COVID-19 pandemic and the government-led initiatives to contain it have had a widespread effect on rural economies across the world. The pandemic resulted in adverse impacts on all aspects of the global community. The rural communities were affected both directly and indirectly through the preparatory and response measures put in place to limit the spread of the disease (Phillipson & et.al, 2020). The rural areas have been particularly vulnerable due to their characteristics of a non-diversified economy, poor infrastructure, low incomes and inadequate savings (OECD, 2020). This may have forced the rural communities to continue to work, not to

observe the measures of keeping distance and sanitizing their hands regularly and even fail to visit the hospital when they fell ill (Luca, Tondelli, & Åberg, 2020).

Market centers in rural areas are anticipated to be centers of growth and development. This implies that the growth should be widespread across the rural environment as well. They provide the locus for physical growth on aspects such as transport services in a manner that enables efficient linkage in the regional development network. They act as a source of food and livelihoods for people living in the contiguous urban-rural areas through the food supply chain. Therefore, any loose interconnection caused by any factor would adversely lead to food insecurity.

The research setting of Soko Mjinga market centre, located at the border of Magumu and Lari wards, on the Nakuru-Nairobi Highway, serves as a central place where farmers sell their fresh farm produce as well as dealing with food collection, storage, distribution, wholesaling and retailing. Its strategic location attracts substantial traffic from heavy trucks, medium sized lorries, pick-ups, personal private vehicles, among others. The traffic emanates from traders, retailers and buyers from the vast region of the Kenyan demography such as the Coast, Eastern, Rift Valley, Central, Western and North-Eastern regions of Kenya. They gridlock at the market to be loaded with perishable goods destined for consumption in the six aforementioned regions, which qualifies it as one of the busiest markets in the country. The market attracts thousands of retailers and distributors across the country. The market strengthens the urban-rural linkages by connecting the rural agricultural produce to the urban centers. It creates food supply chain-related activities, non-farm business and job opportunities in its immediate rural and peri-urban hinterland and urban areas beyond its locality. It also promotes urban technical support and supports local investments in rural farms in its immediate neighbourhood.

Traders in Soko Mjinga scramble towards motorists in personal vehicles to hawk their produce once the drivers stop to buy food commodities. This was seen to be one of the effects that led to the quick transmission of the corona virus since traders did not regularly wash their hands, use sanitizers or even observe social distancing when conducting their daily business activities. At the height of the pandemic, this led to the closure of the market by the County Governments of Kiambu and Nyandarua who took the initiative to fumigate the market and educate the traders on the safety



measures (Maina, 2021). Various alternative marketing strategies were evaluated to ensure continued functionality of the market. Several strategic options that ensured social distancing and imposed other safety measures were mooted where the traders would discontinue the culture of hawking and start selling their food produce from an enclosed market space.

However, just like many other crises, the COVID-19 pandemic brought forth opportunities to re-strategize, to rethink the existing systems in place and to consider adopting measures that would be more resilient to similar potential future shocks. Rural markets provided food to households and health centers during the confinement periods and urban dwellers had started to relocate to rural areas. The pandemic was seen to change the consumption and production patterns that could have potentially opened new opportunities for sustainable growth in rural areas.

Little or nothing is known or documented about the impact of Covid-19 in respect of the challenges and the opportunities that it may have presented in the selected study area. It is against this background that this study aims to investigate the impacts of Covid-19 in Soko Mjinga Market Centre and its surrounding rural hinterland with a view to systematically document the experiences. A subsidiary aim of the study is to synthesize the findings, to investigate the implications towards urban-rural linkages and to in turn recommend how to build resilience against the backdrop of a future potential pandemic.

### **1.2.1 Research Objectives**

The general objective of this study is to analyze the impacts of the COVID-19 pandemic on small market centers, the rural land uses and the smallholder communities in Kinale Ward, Kiambu County. The specific objectives are as follows: -

1. To examine the impacts of the Covid-19 pandemic on Soko Mjinga Market Centre and the rural land uses in Kinale Ward.
2. To examine the impacts of the Covid-19 pandemic on the rural smallholder community in Kinale Ward.
3. To examine the opportunities that Covid-19 may have presented to Soko Mjinga market centre and to the rural smallholder community in Kinale Ward.

4. To analyze the implications of the findings and to propose policy, legislative and governance interventions for strengthening the urban-rural linkages, for mitigating the negative impacts and for building resilience against future pandemics.

### **1.2.2 Research Questions**

This research raises a number of questions, the main ones being: -

1. What are the impacts of the Covid-19 pandemic on Soko Mjinga Market Centre and the rural land uses in Kinale Ward?
2. What are the impacts of the Covid-19 pandemic on the rural smallholder community in Kinale Ward?
3. What opportunities has Covid-19 presented to Soko Mjinga market centre and to the rural smallholder community in Kinale Ward?
4. What policy, legislative and governance interventions can strengthen the urban-rural linkages, mitigate the impacts and build resilience against future pandemics?

### **1.3 Scope of the Study**

The geographical scope of this study is limited to Soko Mjinga Market Centre and its rural hinterland in Kinale Ward. Soko Mjinga Market Centre is located at latitude 00 51' South and longitude 360 35.6' East. It is situated at the border of Magumu and Kinale wards in Nyandarua and Kiambu County respectively. The market centre is delineated on the southern edge by the A104 Nairobi-Nakuru Highway.

Kinale ward, which constitutes the hinterland of Soko Mjinga Market Centre, hosts farmers that mainly practice horticultural farming. Administratively, it comprises of Kamae, Kinale, Mukeu, Kamokombini locations which have a combined total population of 28,698 people (GoK, 2019). The study drew its sample from the four locations in Kinale ward since it encompasses the larger percentage of the farmers bringing their produce to the Market Center.

The theoretical scope of the study is limited to the investigation of the social, economic, physical, environmental and institutional impacts of the Covid-19 pandemic on Soko Mjinga Market Centre, on the rural land uses in its hinterland and on the smallholder community in Kinale Ward. The

scope of the study is equally limited to the analysis of the implications on urban-rural linkages and the formulation of policy, legislative and governance interventions for mitigating the impacts and for building resilience against future pandemics.

#### **1.4 Assumptions and Limitations of the Study**

One of the limitations of this study is to assess all the small market centres and their rural hinterlands especially those that are located in Kiambu County. An assumption made by this research is therefore that the assessment of Soko Mjinga is representative of any other similar market centre that was affected by the Covid-19 pandemic. This research further assumes that the policy, legislative and governance proposals that will be formulated to strengthen the urban-rural linkages and for mitigating against the adversely negative impacts of Covid-19 can be validated and generalized for small market centres in Kenya, particularly those at county levels or even in other African countries, at national level. The study assumes that the proposals aim to mitigate the overall social, economic, physical, environmental and institutional impacts on small market centres and their rural hinterlands, and that better resilience will be built in the event of occurrence of a future pandemic.

Another limitation that this study is likely to encounter is to cover the entire scope of perceptions of traders, farmers, drivers and key informants from the perspective of the target population in Soko Mjinga market centre and in Kinale ward in general. An assumption is therefore made that the sample size identified through scientific methods will capture the broad perceptions of all the traders, farmers, drivers and key informants with respect to the actual impacts that were experienced during the height of prevalence of the Covid-19 pandemic. The findings of the research will thus be validated and generalized and will particularly be considered to be representative of all traders, farmers, drivers and key informants and even those at the county levels in general.

#### **1.5 Justification and Significance of the Study**

This study focuses on the impacts of Covid-19 on small market centres and the rural smallholder communities in their hinterland, which is an area that has received limited attention in the literature, and it is thus a gap in knowledge that the research aims to address. The empirical

research, which is carried out in Soko Mjinga market centre and its hinterland in Kinale Ward, has equally not been adequately addressed by other previous studies. The study is equally justified by the need to improve the understanding of the interplay between the impacts of Covid-19 and its implications on urban-rural linkages. No other study has illuminated the interplay from an urban and regional planning perspective in Kenya.

The significance of the study lies in the evolution of the policy, legislative and governance interventions that need to be formulated for strengthening the urban-rural linkages, for mitigating the negative impacts and for building resilience against future pandemics. The study will therefore be of significance to policy makers, professionals and researchers particularly on the perceptions of Covid-19 by the rural communities. It will thus help in devising policies and formulating action plans that are aimed towards developing mitigation strategies that are informed by empirical evidence. The significance of the study equally lies in its contribution towards urban and rural planning and management in general, towards policy, legislative and governance formulation and towards scholarship in the overall filling of knowledge gaps in the planning of small market centres, smallholder rural communities and in the formulation of risk, disaster and pandemics' management plans.

### **1.6 Structure and Organization of the Study**

This introduction chapter serves to give retrospective information to the study area. It includes the introduction and background to the problem from a global perspective, the statement of the problem from a local perspective, with the aim of clearly depicting the planning challenge that could be attributed to the impacts of the Covid-19 pandemic on small market centres and the rural smallholder community in its hinterland. The chapter also highlights the objectives of the research and the questions that the study aims to investigate. It equally spells out the justification and significance of the study as well as the assumptions and limitations of the study. The chapter concludes by outlining the overall structure and organization of the study.

Chapter two offers definitional, conceptual and theoretical perspectives of small market centres and rural smallholder communities. It also highlights the collective impacts of the Covid-19 pandemic on the global community, on the rural communities and their implications on urban-

rural linkages. The chapter equally reviews the opportunities that may have emerged with the prevalence of Covid-19 and the plausible planning and policy interventions. The chapter further reviews case studies which offer useful lessons and best practices globally, regionally and nationally. The chapter concludes by developing the conceptual framework that guides the researcher to formulate the methodological approach for empirical investigation.

Chapter three outlines the methodological approach that is invoked towards the sampling procedures, the tools and methods of collection of both primary and secondary data, the techniques of data analysis and interpretation and finally its eventual presentation. Chapter four presents the situational analysis of Soko Mjinga market centre. It outlines the historical evolution of the Soko Mjinga market centre from its embryonic inception up to date as well as providing its detailed locational context, its demographic and physiographic characteristics and its policy context. Chapter five seeks to examine the general research objective by analyzing the aggregate impacts of Covid-19 on Soko Mjinga market centre and on the rural smallholder community in Kinale ward. Chapter six undertakes a synthesis of the research findings and it further examines the fourth research objective by elaborating some of the planning, policy, legislative and governance interventions that are aimed at mitigating against the adversely negative impacts, at strengthening the urban-rural linkages and at building resilience against the occurrence of a future pandemic. The chapter concludes by drawing recommendations and conclusions as well as outlining the areas for further research.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.0 Overview**

This chapter presents the definitional, conceptual and theoretical perspectives of small market centres and rural smallholder communities. It commences by discussing the concept of a small market centre, its characteristics and its spatial functionality attributes. The chapter reviews the socio-economic, physical, environmental and institutional impacts of Covid-19 on the global community and particularly on the rural communities and their implications on urban-rural linkages. The chapter equally reviews global, regional and national level case studies and it concludes by developing the conceptual framework for the study.

### **2.1 The Concept of Small Market Centres**

The market centre is a meeting point for buyers and sellers where they come together to trade (Awuor, 2007). Market centres are forms of social arrangements that create subtle environments for both buyers and sellers to acquire information and exchange goods. According to Mutizwa-Mangiza (1991) small market centres are central places which serve the immediate socio-economic needs of the people living in that area. This definition is supported by Wekwete (1998), who notes that these centres provide goods and services to the people in that area as well as its neighbourhood.

The Kenya Physical Planning Handbook (2007) suggests that market centres serve a catchment population of 15,000 people, while rural centres have a resident population of between 2,000 and 10,000 people and serve a catchment population of 40,000 people. Market centres and rural centres tend to serve a population that is spread over a vast geographical region which is characterized by wide-ranging areas whose common economic activity is agriculture.

#### **2.1.1 Functionality and Performance of Small Market Centres in Rural Areas.**

Sagi (2014) argues that small market centres in rural areas depict almost similar features which include spatial aspects such as being either scattered, thin, either underdeveloped or developing. They comprise of a small number of sellers, spatially overlapping, with weak infrastructure, barely any advertisements, little or no awareness and that farm produce is in plentiful supply.

***a) Population Characteristics***

According to Gajar (2015), demographic characteristics and population are important aspects in a market centre especially in rural areas. Demographic characteristics determine the performance and behaviour of traders and consumers at the market centres. Gajar (2015) continues to argue that more people move towards the centre of the market because of the social and economic opportunities that it offers.

***b) Commercial Activities***

The type and the nature of the economic activities or the commercial activities determine the characteristics and the performance of a market centre (King, 2011). Some of the indicators used to measure these activities include the variety of goods and services offered, traders' concentration, value of fixed assets, footfall during market and non-market days, parking lots availability and consumers origin. King (2011) continues to argue that a well performing market centre is expected to have rich varieties of goods and services and a broad caliber of retailers who give customers the incentive to return and remain loyal to the market.

Market centres with a wide range of commercial activities means a growing rural centre and it offers employment opportunities to the people in the rural areas. These was observed in rural centers of China, Mexico and South Africa by Manta, Sanjay & Ahuja (2014), who in their work reported positive changes in their wages. This was an indication of increased performance of rural centres.

***c) Farming System***

According to Gajar (2015), the growth of the market centre is highly dependent on the system of farming in the surrounding area. The presence of large-scale commercial cash crops for export leads to growth in the local economy through creation of jobs and increased consumer markets for the farm produce such as yams, arrow roots and sweet potatoes. In small scale farming, on the other hand, it tends to serve the same local population that produces the same food.

***d) Storage and Processing Facilities***

The availability of storage facilities creates the key difference between perishability and the preservation of fresh farm produce. These facilities help to reduce presence of middlemen who are

oftentimes a nuisance to the farmer. They also create additional employment opportunities for the locals. Such facilities comprise of cold storage for fish, fresh meat and greens.

***e) Market Administration***

According to Nirmalya & Chattopadhyay (2015), there are three types of market centres, namely periodic, wholesale and retail. The authors define periodic markets as authorised gatherings of sellers and buyers of goods meeting at an approved place at intervals. The periodic markets are held on specific days of the week at a fixed location where exchange of the goods and services can occur and they are mainly found in common in rural areas. Surbhi (2018) defines wholesale markets as the ones where goods are sold in bulk. The retailers that buy the goods from the wholesalers then proceed to sell the goods in smaller quantities to the final consumers. In Kenya, an example of a wholesale market is the Wakulima market, which is located in the CBD of Nairobi.

***f) Roads and Transport***

The means of transport play a crucial role in determining accessibility to the marketplaces, to the hinterland populations and to other market centres that are connected. In Kenya, the main means of transport observed at market centres are lorries, trucks, public transport vehicles and motorbikes. Satterthwaite & Tacoli (2003) argue that the existence of cheap means of transport such as the use of motorbikes (also known as ‘Boda Boda’) have had a positive influence on the performance of the market centres since they bring together people and goods at an affordable cost.

A lot of studies have been done on small market centres in rural areas positioned along major roads. The studies have concluded that the roads are the most essential determinants of a performing marketplace. This is because they provide the much-needed accessibility to the market and in return they determine how effective goods and services are dispersed in and out of the market centres.

***g) The Spatial Structure of the Market Centre***

According to Tracey-White (1995), physical and geo-spatial dimensions are critical issues that determine the functionality of the market centre. They help to bring out the relationship between the markets and the pattern of rural settlements, the location, nature of agricultural land utilization,



linkages provided and/or created by the roads, the agglomerating functions of the markets and the interdependence between the rural and urban areas where the circle of influence falls.

#### ***h) Rural-Urban Settlement Patterns***

According to Gajar (2015) features around the site of the market centre determine the use and patterns that will be taken. The author continues to point out that market locations determine the settlement patterns surrounding it. In rural centres, the external structure of the market is influenced by natural environmental factors such as rivers, lakes and hills that give the shape of the rural settlement pattern and physical infrastructure such as roads which define the direction of growth.

## **2.2 Theoretical Framework**

This study draws from three theories that may help explain the underpinning conceptual models that may enhance the interrelationship between small market centres and the rural communities in its hinterland in the context of enriching and enhancing stronger urban-rural linkages.

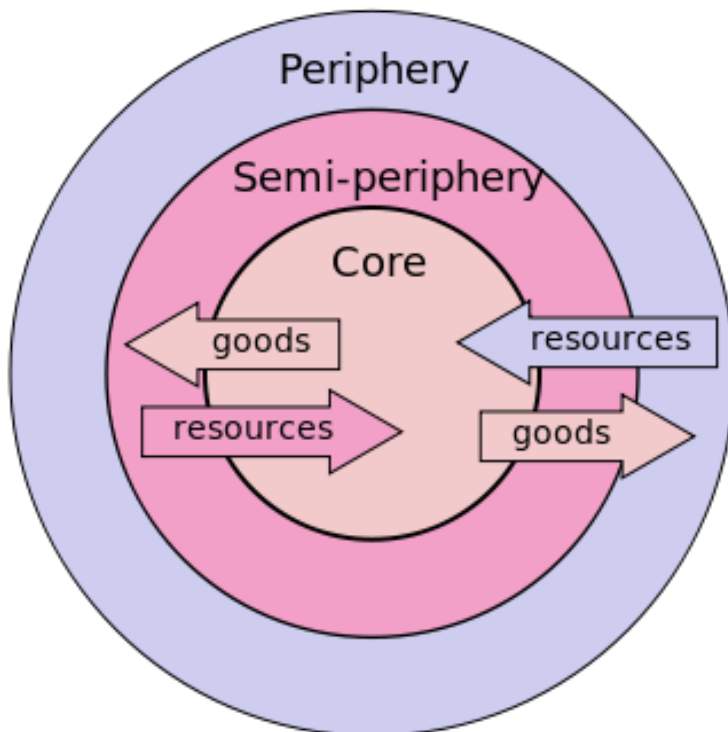
### **2.2.1 Core Periphery Theory – Friedmann 1966**

The core and the periphery are distinguished by this theory. While simultaneously subordinating it in the social and economic spheres, the core (the market centre) contributes to the growth of the periphery. The core has a higher concentration of people and wealth than the periphery. At the core there is core infrastructure such as hospitals, schools, a good transport system while at the periphery the infrastructure could be poor, there could be limited services such as lack of accesses to piped water. At the core it is considered that there are more job opportunities while at the periphery there are fewer job opportunities. At the periphery it is further assumed that the activities are mostly agricultural or extraction of raw materials while at the core most people are employed in tertiary sectors.

The term "core peripheral relationship" refers to the interaction between the core and the periphery. The spread effect refers to the periphery's benefit, and the backwash effect refers to the periphery's detriment. The spread effect occurs when the core establishes an industry in the periphery that leads to increased job opportunities thereby providing the people in the periphery with a regular source of income. This also leads to more investments happening in the periphery which in turn leads to improvement of infrastructure.

Backwash effect happens when the core develops more and attracts workers from the periphery therefore leading to drained labour in the periphery. The activities in the periphery are affected thereby affecting their source of income which leads to a decreased purchasing power. This results in the core area growing while the periphery lags behind or even stagnates may depend on growth that is primarily fueled by the core area's resource demands.

**Figure 2.1: Core-Periphery Inter-Relationships**



Source: Tunner (2016)

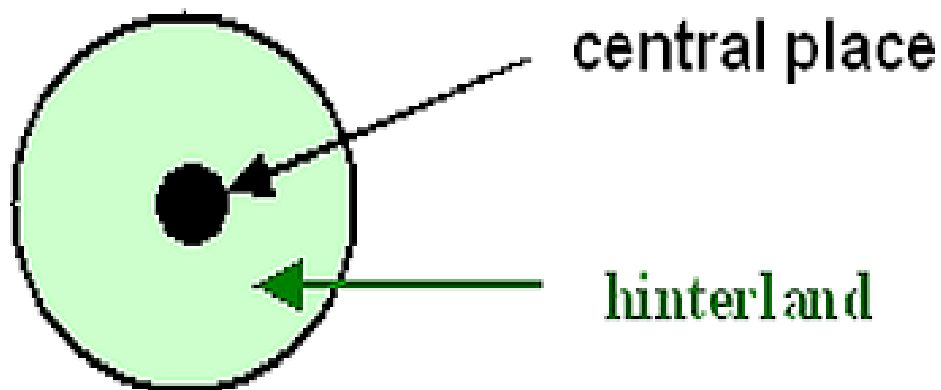
### **2.2.2 Central Place Theory**

According to Walter Christaller's Central Place Theory, market hubs serve as the focal point for supplying nearby residents with goods and services. Additionally, they serve as the primary means of assembling regional produce for bulking up and transporting it to the hinterland. The region around the service-providing market center is referred to as the hinterland. According to the theory a network of market hubs in a region is said to establish a hierarchy of catchment areas or spheres of influence. The range or the threshold for economically providing goods or services is what determines the limit of the catchment area. Although catchment areas are supposed to be circular,

in practice transportation routes and other geographical considerations determine where the centers are located and how the catchment areas that surround them are shaped.

The theory also takes into account the spatial distribution of population, allowing for more logical development of residential areas and freshly exploited areas. The theory therefore serves as a foundation for the design and organization of market centers by providing a framework for the development of residential neighborhoods and new urban regions in vacant lands next to the market.

**Figure 2.2: The Inter-Relationship between the Central Place and its Hinterland**

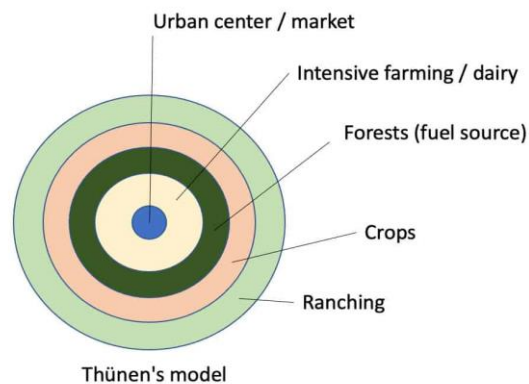


Source: Malczewski (2009)

### **2.2.3 Von Thunen Location Theory**

The hypothesis clarifies how and why the utilization of agricultural land changes with the proximity to a market. Von Thunen stated in his models that the intensity of a given crop's production decreases with increasing distance from the market. Additionally, he contended that, when all other environmental factors are held constant, the type of agricultural land use will vary with the proximity to the market.

**Figure 2.3: The Inter-relationship between the Market and Agricultural Land Use**



Where are the best places for farming located? The answer is unmistakable for every farmer, regardless of the crop or type of livestock raised: as close to the core market as is practical. The market is the final destination for agricultural products made all around the area.

## **2.3 The Impacts of the Covid-19 Pandemic on Global Food Markets & on Food Security**

### **2.3.1 The Social, Economic, Physical and Environmental Impacts**

A distinctive combination of shocks to both commodity and food markets was unleashed by Covid-19 whereby it impacted both demand and supply simultaneously. For example, a significant fall in the demand for gas and fuel for transportation vehicles and machinery was witnessed due to the shutdown of travel which was implemented by many countries (SPECIAL-FOCUS, 2020). Lower prices and demand for oil led to the rise in the prices of crops used for biofuels such as corn and soybean oil.

Covid-19 mitigation strategies drove a wedge between consumers' and producers' prices of goods or between exporters and importers. A good example is how the travel ban and lockdowns disrupted the food supply chains and as a result it led to food insecurity concerns. This triggered hoarding by consumers and it led prices to be pushed higher at the consumer level while ample harvests for foods such as grains could influence producer prices to fall (SPECIAL-FOCUS, 2020). Disruptions of supply chains affected the export sector of the perishable goods such as fruits and vegetables (World-Bank, 2020a). For instance, when Europe banned travel to East Africa, Kenya's exports of fresh flowers dropped nearly 80%. Many companies that produced, packed and exported

the flowers were closed down. Production of crops was also affected due to the travel disruption since key inputs were not available. Unavailability of pesticides for example adversely affected crop protection which would most likely reduce yields (Schmidhuber, 2020)

Global food markets remain adequately supplied after the productive harvests, especially in wheat and maize farming. Stock-to-use ratios are high based on historical standards for major staple food commodities. Nevertheless, recent developments in trade restrictions by some regions and key exporters such as Russia who are key wheat exporters and Vietnam in rice export, as well as hoarding by some importers (e.g., rice by Philippines, wheat by Egypt and Saudi Arabia), have raised concerns about food security (Glauber J. D., 2020). If such concerns became widespread, hoarding would arise as another prevalent issue (Schmidhuber, 2020).

Food markets were impacted by trade restrictions put in place. For instance, if food exporting states restrict exports or if closure of borders affect the trade of goods. Such policy responses have had an adverse impact on the food market. In 2007-2008, during the food crisis, many countries adopted trade restrictions which led to an increase in global food prices. It was estimated that 45% of the increase in world wheat prices during this period was due to such policies (Martin, 2011). This is a clear indication that policy actions by individual large countries could destabilize markets.

Compared to industrial commodities, the world's agricultural markets have been less impacted. Prices of the main agricultural commodities have reduced by about 9 percent since January 20, 2021. Compared to industrial commodities, this modest decline shows a lower income elasticity in the demand for agricultural goods and, hence, less demand because of the current global recession.

Covid-19 had an impact on the design and plan of a market centre. Research done at Xinfandi Market where the number of infections were alertly rising showed that COVID-19 was not passed on through food consumption but through different mediums such as plastic, steel, cardboard, which acted as sources of foodborne transmitters (Workie, Mackolil, & Joan, 2020). Other health researchers also indicated that the virus was highly transmitted in crowded market centers. Hygiene control and protective measures such as personal hygiene, sanitization of surfaces, safe handling of food commodities, wearing of protective gears such as masks, gloves and helmets and maintaining social distance were therefore recommended to ensure continuity in the flow of food (WHO, 2020).

### **2.3.2 Institutional Interventions**

In China, the government opened a 'green Channel' for agricultural products and proscribed movement by setting up roadblocks (Swinnen & McDermott, 2020). An emergency alert was issued by the Ministry of Agriculture and Rural Affairs speaking to the related department to keep order in food markets and ensure sufficient supplies of eggs, meat and milk. E-commerce and delivery companies played key logistics in the home delivery of fresh groceries. E-commerce companies launched an App where fresh groceries would be delivered with zero contact by personnel. This minimized the potential risk of prevalence and transmission by visiting crowded marketplaces to buy food stuff (Swinnen & McDermott, 2020).

It was equally proposed that there would be transparent market data and information flow that would improve the government's overall management of the commodity market. Consequently, this would help prevent panic buying and also help farmers to make rational production decisions. Sound market supervision would need to be done to avoid potential speculations at all stages of the supply chain.

It was proposed that the government would need to introduce enabling policies for agriculture in general so as to increase support for production entities. It would also need to reduce tax burdens on farmers' enterprises. Trade would remain open to enable the international market channels play a vital role in preventing food shortage while also mitigating possible global economic downturn. Globally, all parties involved in export and import of key foodstuffs would enter into a consensus that trade barriers would not be imposed as a response to the COVID-19. They would need to focus on measures that would help stave off a global recession and minimize a further rise in food security. The governments would therefore be ready to provide a stimulus including resources to contain the spread of the virus and ensure availability of health care.

### **2.4 The Impacts of the Covid-19 Pandemic on the Rural Smallholder Communities**

Worldwide, there exists around 570 million small households and globally those farming two hectares or less take up approximately 75% of the agricultural land (Jacqueline & Claudia, 2016). Smallholders are considered to be those farmers cultivating from less than 10 hectares of land and engage in subsistence production with inadequate ties to commercial and large-scale production owing to constrained land and socio-economic capital to poor access to markets. (Food and Agriculture Organization (FAO). , 2012). Smallholders are a vital part of the food production

system since they contribute to the majority of production in most low to middle income regions (Herrero, et al., 2017).

Based on a survey carried out in low-income and middle-income countries i.e. Kenya, Uganda, Zambia, Vietnam, Rwanda, Tanzania, and Burundi, on the perceived effects of COVID-19 restrictions on smallholder households, it was evident that the rural communities were highly at risk during the pandemic (Hammond, et al., 2022). From the survey, the smallholder households mentioned disruption of mobility which had an impact on the ability of farmers to buy and sell farm produce. It was also evident that 40-45% of the smallholder household off-farm income generation was affected leading to severe effects on their livelihoods. The biggest cause of decreased income from farm production was reported to be low sale prices for agricultural produce and for off-farm income it was mainly due to lack of opportunities to work and lack of transport opportunities to access work (Hammond, et al., 2022).

From the same survey the causes of disruption of food purchases were high market prices to buy food, a lack of cash to purchase food and closure of markets and lack of access through transport. A low price for agricultural goods and a high purchase price for the foodstuff were observed which indicated market failures and traders attempting to buffer their own risks. They observed reduced transportation linkage was a greater obstacle to making sales or purchases than closure of markets. Farmers complained of expensive and unavailability of farm inputs. Due to travel restrictions, accessing of the agricultural inputs was close to impossible.

On the positive side agricultural labour was reported to have increased due to the massive immigration from urban to rural areas, and there was also increased family time available for labour (Hammond, et al., 2022). According to a report by OECD (2020), the relocation of people living in urban centers from urban to rural areas could have resulted in a positive impact on consumption despite the expected downturn in consumption due to some of the control measures adopted such as confinement. By use of transactional data, US researchers asserted that there was a temporary rise in consumption of goods whereas, the consumption of luxury goods declined in rural and urban areas (OECD, 2020).

Although the agriculture sector has been typically categorized as an indispensable activity, and thus retained during quarantine, labor demanding sectors critical for the rural economies were experiencing labor shortages (Glauber, Laborde, & W. Martin, 2020). Some challenges such as

shortage of workers are noteworthy where some governments and jurisdictions who relied on foreign workers said that they may have missed out on their planting season due to closures of borders that led to decreased flow of labour.

Mohsin & Liu (2021) noted that, globally, the COVID-19 outbreak had caused substantial adverse impacts to health and business sectors. In their research they noted that since the COVID-19 outbreak, the local communities globally had experienced a multitude of psychological and socio-economic problems. For instance, local peoples' livelihoods had been affected due to the fact that lockdowns had interrupted social mobility due to restricted access to some basic human needs such as food.

In addition, since people were expected to keep social distancing and minimize movements by staying indoors, this had resulted in loneliness due to the reduced contact with friends and families. In turn, this has led to increased anxiety, depression among other psychological disorders. According to a survey from WHO on 130 countries, 16 of the States reported that the pandemic undermined mental health programs in 93% of States from around the world (WHO, 2020). The outbreak of COVID-19 resulted in massive business disruptions including those in self-employment that went bankrupt and faced liquidity problems due to the mitigation strategies that were adopted that required strict measures such as lockdowns and social distancing.

In rural communities, the COVID-19 pandemic had considerably increased the level of panic, anxiety and uncertainty. In China, the government took vast and stern measures to restrain the spread of COVID-19 while also ensuring that the effects were minimized as well as those on businesses and the economy (Mohsin & Liu, 2021). Due to measures that required isolation and cessation of movement, people faced alienation, depression and anxiety that was triggered by the concern of contracting the disease and lack of social interaction. According to a study done by Wang et al (2020) most people lived with the fear of being infected with the disease at 75.2%, whereas 53.8% of participants in the research expressed moderate to severe psychological effects by showing signs of depression at 16.5%, anxiety at 28.8% and high stress levels at 8.1%.

The disruptions had a significant impact on the agro-food sector in most rural regions – this drove down the prices of some commodities while putting pressure on rural businesses (OECD, 2020). For instance, in the UK 25% of the dairy farms had become financially impractical due to decreases in aspects such as milk demand (FAO, 2020). Other tailbacks for rural businesses included



tightened credit situations, supply shortages and delays in processing plants (i.e., shortages in the packaging of agro-food products across Europe).

Mueller & McConnell (2020) highlight the concerns on the capacity of rural regions to adopt and implement the control measures such as quarantines especially with the consideration of the low administrative capacity. Rural areas judiciously tracked the possible shortages in medical care staff and made adequate plans to address such issues. According to Luca, Tondelli, & Åberg (2020), some of the challenges concerned how to provide crucial medical care and testing facilities to traders in the market centers and rural communities, especially given the high number of vulnerable groups in the rural areas such as the elderly and indigenous populations. The authors suggest that, countries and sub-national governments would have needed to implement broad, inclusive and innovative solutions (e.g. mobile medical services) to ensure health services to the elderly population was adequately provided.

## **2.5 Covid -19 Pandemic Interactions with the Rural Land Uses**

In many developing nations, agriculture is the backbone and provides incomes to more than one billion people across the world (WHO, 2020). The preventive measures adopted to control the disease prevented the efficient production and distribution of agricultural commodities. Agricultural production involves a long process that starts from planting, tending to the plants, harvesting, processing, packaging and shipment. In all of the stages, labour is involved. Due to their sensitive nature and dependency on market value chains, the agricultural sectors are considered less resilient (Workie & et.al, 2020). Travel limitations enforced by governments across the world to stem the spread of Covid-19 hinder all these activities.

The Covid-19 outbreak had varying effects on forestry, fishing, and agriculture. Some were less impacted if their operations were considered "important," if contracts for produce had already been established for medium- or long-term delivery and feeding into vital industries that processed food, fish, or timber, and if direct farm payments were still being made. Furthermore, the majority of farms in the UK were family-run operations with on-site labor and capital, good social distance, and many of them still producing a considerable portion of their produce for domestic consumption.

However, certain haulage, auction mart, and animal sales operations appeared to have been seriously impacted. Additionally, individuals who sell directly to consumers through on-farm

stores as well as those who provide the hotel industry with food for consumption outside the home were negatively impacted. These had to change to accommodate a new food supply chain. Given sufficient personnel, shortages on supermarket shelves in some regions may have temporarily allowed farms and food processors to store unsold inventories and enhance turnover.

The latter effect, though, was probably going to disappear quickly once hoarding stopped. Some agricultural enterprises were able to shift their output from supplying the outside-the-home sector (such as the hotel industry) to supply chains for inside-the-home food consumption (such as supermarket-led).

## **2.6 Implications of the Impacts of Covid-19 on Urban-Rural Linkages**

Urban-rural links are crucial because many households in various settlements around the world reside in, rely on, and work within rural and urban ecosystems that support human life outside of political and administrative sectors (UN-HABITAT, 2019). Urban rural connectivity is the mutual, ongoing flow of people, goods, money, and environmental services between rural, peri-urban, and urban areas.

The Covid 19 virus spread to many nations in Africa, Asia, and Latin America since it knew no borders. Some of these nations used social distancing strategies and imposed restrictions on travel between cities and the peri-urban, rural, and territorial areas that surround them, imitating the traditions of nations in the northern hemisphere. Moving was quite challenging due to this (UN-Habitat, 2020)

The situation was grave in the southern hemisphere since a sizable portion of the urban and rural poor kept moving in order to maintain their means of subsistence and access money and food for their households. There are hundreds of millions of smallholder farmers, market-going women, and day laborers who were simply unable to maintain their social connections while living in cramped informal settlements (UN-Habitat, 2020).

Schools, pubs, restaurants, and markets were shut down in certain nations throughout the world as populations prepared for a lockdown that would last for several weeks, but governments remained dedicated to preserving vital economic activity and the food supply. Both urban and rural areas were impacted by the closing of marketplaces and businesses that sold food and services. The virus spread to neighboring towns, cities, and rural areas due to urban-rural movement.

Farmers' markets were shut down during the Covid 19 pandemic, while entry to others was restricted for a set amount of time. This had detrimental effects on farmers as well as consumers at a time when people may have been relying more on regional and culturally familiar cuisine. Most metropolitan areas relied on road transportation for food delivery, which was being increasingly threatened by administrative limits on mobility, worry about contamination or logistical issues such as closure of gas stations and related catering and hygiene services, and other factors. (UN-Habitat, 2020).

Urban and peri-urban agriculture were not regarded as critical economic activity in several countries, which placed severe restrictions on farming activities. In addition to the limitations on short supply chains and territorial markets, some nations placed restrictions on the export of agricultural products, while net importer nations faced difficulties due to the limitations on commodity flows.

Government measures to put up masks and other protective equipment such as gloves so as to prevent spread of the virus led to an increased demand for medical supplies in cities. With mobility being a problem this might have exacerbated the limited availability of PPE and medical personnel in rural areas and small towns and cities who already often lack the same level of health service provision as cities.

UN-Habitat came up with an integrated urban and rural approach in the COVID-19 response. These approaches included the following: -

### **1) Locally Grounded Interventions**

These interventions stressed the significance of the local context in comprehending the COVID-19 prevention strategies suggested, such as social withdrawal, working from home, utilizing alcohol-based hand sanitizers, and frequent hand washing, among others. Consideration was to be given to the local contexts that included rural residents, the poor in both urban and rural locations, the homeless, those residing in nursing homes, individuals with impairments, and other vulnerable groups.

National governments were requested not to just copy and paste policies from other nations without first establishing their relevance to the local situation. For instance, if small towns and rural areas were at risk of the COVID-19 virus spreading, the norm of enforcing a 14-day

quarantine for urban to rural migration may not have been possible without additional, locally and culturally relevant measures. There was a chance that certain rural and small towns would have poor reporting services, which would have reduced visibility, limited access to testing facilities, inadequate health facilities, bad information technology facilities, and restrictions on the availability and access of food.

## **2) Governance Integration**

Urban-rural links were suggested to be included in multi-sector and multi-stakeholder interaction by UN-Habitat. The health sector could not solve COVID-19 alone because it had damaged all other industries in addition to health, making it too constrained to do so. A number of important aspects of life, including food supplies, the hotel and tourism sector, transit networks, companies, and religious life, had all been severely impacted. As a result, any actions taken would have engaged all pertinent sectors, authorities, and stakeholders in both urban and rural locations.

## **3) Data Driven and Evidence-Based Approach**

UN-Habitat suggested, among other places, that local knowledge be combined with institutional data collecting in dense slum areas as well as dispersed rural areas. Information regarding COVID-19's effects on health, the economy, and society needed to get to the general public as well as the necessary municipal and federal authorities. Existing data gaps from the pre-COVID era were to be addressed by new emergency approaches to integrated and participatory information flows, data collection, and participatory monitoring.

## **2.7 Opportunities Emerging with the Covid -19 Pandemic**

### **ICT Innovations**

The use and spread of digital tools had been accelerated by the COVID-19 dilemma. Measures of confinement encouraged remote working, remote learning, and e-services. This was crucial in rural locations where travel distances and times were sometimes longer. All of this might have increased rural places' allure.

Government and commercial operators were required to raise investments to realize their potential benefits as a result of changing behaviors and increased willingness to accept digital solutions.

Increased service connectivity in rural areas further opened doors for employment, collaboration, and regional integration between rural areas and their surroundings.

### **Promotion of Urban-Rural Linkages**

The usage of remote dispersed networks was to strengthen the connections between rural and urban areas because of the high concentration of jobs in large urban centers. This idea also reflected a trend towards more flexible working arrangements, such as working from home, juggling several time zones, and itinerant workers, as opposed to typical office-based arrangements (remote workers traveling around different locations). A different chance might have been presented by shifting societal and policy preferences in favor of nearby services, increased local consumption, and the resurgence of strategic industries.

### **Enhanced Rural Tourism**

It's possible that consumer preferences changed to favor regionally produced goods, tourist attractions, small local enterprises, and primary farmers. For instance, in terms of tourism, busy locations experienced significant declines in visitor numbers, whereas more people chose to visit remote, smaller locations. As part of its recovery strategy, the Veneto region (Italy), for instance hoped to use lesser-known UNESCO historic sites to divert visitors away from Venice and directed them towards other attractions.

### **Enhanced Market Systems**

Finally, to prepare for the economic shock, this crisis gave rural communities a chance to rally and fortify their local networks and cooperative institutions. Tight community networks that could self-organize to adapt to structural changes tended to be advantageous in rural settings. Community fleets that transport elderly people and medical personnel were an example of a local initiative that temporarily arose to address the pandemic's immediate economic and social effects. These initiatives were effective tools for long-term promotion of wellbeing and cohesion in rural communities.

## **2.8 Planning and Policy Interventions**

### **2.8.1 Design-Oriented Interventions**

It is crucial for planners and municipal authorities to comprehend the micro-geographies of markets rather than hurriedly closing them. According to a study done in Ghana, the market structure aids in the transmission of the virus. The constant breach of social distance in markets is

therefore explained by spatial, social, and economic factors. To start, most market infrastructure in developing and impoverished countries is physically crowded and highly inhabited, making it nearly impossible to maintain or keep social distance.

In order to reduce transportation, the market hubs should be situated so that small-scale farmers may easily access them. They ought to be built to offer large amounts of storage. In order to reduce food waste along the food value chain, market centres should take into consideration advanced storage structures like go-downs and cold rooms. To generate new markets by selling their unsold goods to food banks and to connect farmers and vulnerable individuals during a pandemic, food banks should be taken into consideration in market centres. This can be done through farmer's community-based organizations that enter into contractual agreements.

### **2.8.2 Theory-Based Interventions**

The central place theory will serve as a foundation for the design and organization of market centres by laying the groundwork for the development of new urban and residential areas on vacant land next to the market. Under COVID-19, buildings and services improved quality of life in two key ways. First, by offering the population access to healthcare. Planning for markets in rural regions as growth poles must take care to give good access to high-quality healthcare facilities and services as well as provide a variety of local amenities in order to retain these functions.

### **2.8.3 Policy-Based Interventions**

Rural communities are in desperate need of immediate assistance in the form of direct cash transfers to needy households, food assistance, the stability of the prices of essential items for purposes of daily living, and the provision of adequate healthcare in the area. Therefore, government and NGOs must act right away to solve these issues, which necessitate strong and resolute leadership in the public sector, the medical community, and larger society. Planners and decision-makers need to develop short-, medium-, and long-term plans for how to revitalize and rebalance the rural economy following the pandemic. A comprehensive socioeconomic development strategy should be created in this regard for the various sectors, including business and agriculture. Measures to ensure the safety of agricultural workers should be taken by countries whereby onsite healthcare professionals should be considered so as to track the status of the health of the workers.

The government working with other stakeholders and expertise such as planners should work in leveraging the technology by speeding up investments in digital infrastructure and supporting ecosystem to increase the uptake of digital tools in rural areas. Reforms and self-reliance policy efforts should be implemented to motivate rural populations to support local commerce and agriculture. The government should concentrate on assisting small businesses and local agriculture, as this will eventually result in self-sufficiency. This would suggest that government funding should be used to assist local farmers and enhance the supply chain so that local commodities are more widely available than imported ones.

To address the urgently needed national food demand brought on by the crisis, the government should implement a fair-trade policy by easing required food import restrictions and lowering commodities taxes. Proper public awareness should be provided such that the people become more informed and not to hoard essential items and more awareness needed to have been created in order to maintain basic hygiene which was vital for stabilizing the conditions for conducting day-to-day activities at the market centres.

## **2.9 Case Studies**

### **2.9.1 Ghana – Mitigating the Spike in Rising Food Prices in Market Centres**

According to Asante's research in Ghana, the COVID-19 pandemic had a socioeconomic impact on markets in the form of higher food prices, police brutality towards some vendors, financial hardships brought on by the lockdown order, and hasty relocations and decongestion efforts that enforced social segregation among vendors. In Ghana market trading is primarily dependent on imported commodities from far-off nations like China, India, and Vietnam as well as nearby nations like Burkina Faso and Nigeria. Sharp price increases in food were observed in urban marketplaces all around the nation amid the shortages in supply brought on by the global upsurge in COVID-19 cases.

On March 28, the President announced a partial lockdown of two cities, namely Greater Accra and Kumasi. A day afterwards, there was an apparent sharp price increase in numerous markets throughout Greater Accra and Kumasi, and the cost of food products had increased by a factor of two to three. The price rises extended to locally made goods as well as imported foods. Many consumers were shocked by the sharp spike in pricing because urban markets provided residents

with access to reasonably priced food. Because of the high pricing, customers had to buy fewer products than they had anticipated or spend more money on the same items. Numerous customers said that the vendors had purposefully raised food prices to capitalize on panic buying. However, dealers contended that suppliers had raised the costs of the goods, causing a matching rise in pricing.

In Greater Accra and Kumasi, only market vendors engaged in the manufacturing, distributing, and selling of food and beverages were excluded from the partial lockdown. The Ghanaian President instructed members of the Ghana Police Service and Ghana Armed Forces to strictly enforce the lockdown even though markets were open for business. The Ghanaian authorities advised people to shop in their local markets for food during the lockdown to avoid the often heavy traffic in the city centers. Some urban poor people ignored the lockdown order, nevertheless, as they traveled great distances to shop for cheap food at the central marketplaces. Sadly, some security guards started to use excessive force against some traders who were allowed by the lockdown order to buy large quantities of goods from the central market to fill their establishments in the neighborhood markets.

The Ghanaian government was quite particular about enforcing social segregation in marketplaces before, during, and after the lockdown, especially in the epicenters of Greater Accra and Kumasi. Social distance, however, was the government's COVID-19 prevention tool that proved to be the most challenging to implement in Ghanaian markets since vendors still maintain tight relationships with both their clients and one another. Due to this, numerous municipal authorities in Greater Accra, Kumasi, and other regions of the nation fired vendors forcibly and shut down some markets till further notice.

Municipal authorities used two strategies to address the issue of traders returning to the marketplace with the ultimate goal of enforcing social estrangement. One strategy was to move some traders to a different area of the city. For instance, in Takoradi, the municipal administration forcibly moved all minor traders from Takoradi Market Circle to Jubilee Park, which was the site of the city's celebration of Ghana's independence. The alternative strategy aimed to split up large commodity groupings into smaller groups so that they could switch up the market days.



### **2.9.2 United Kingdom – Setting up Food and Drink Networks**

The European Union created a platform with an expanding selection of open-source hardware and software products to help citizens, businesses, and public institutions with their daily tasks (OECD, 2020). A food and drink company network was established in Scotland, UK, in the Forth Valley area, northwest of Edinburgh, to highlight the region's abundant local food supply. The community helped the local economy by enhancing the local food supply chain by making purchases locally.

By providing aid for private storage of dairy and meat products in particular, the European Union announced additional exceptional measures to support the agricultural and food markets most affected by the current crisis. This led to a reduction in the supply of products on the market and, in the long run, restore the market's equilibrium.

### **2.9.3 United States – Partnerships between Groups and Private Businesses**

The United States launched a partnership with groups and private businesses to provide children in a small number of rural schools that were closed due to COVID-19 with roughly one million meals per week (OECD, 2020). Farmers could advertise their businesses and connect with customers using the free Local Food Directory Update and Registration portal offered by the Department of Agriculture and Rural Development (USDA) for retail and wholesale food outlets.

The USDA created a number of initiatives to support rural housing providers and safeguard residents. Tenant vouchers for payment assistance for multiple family residents were created with immediate rural development assistance. Additionally, the specialized Rural Development Voucher Program Office devised mechanisms for direct and guaranteed multi-family vouchers.

## **2.10 Conceptual Framework**

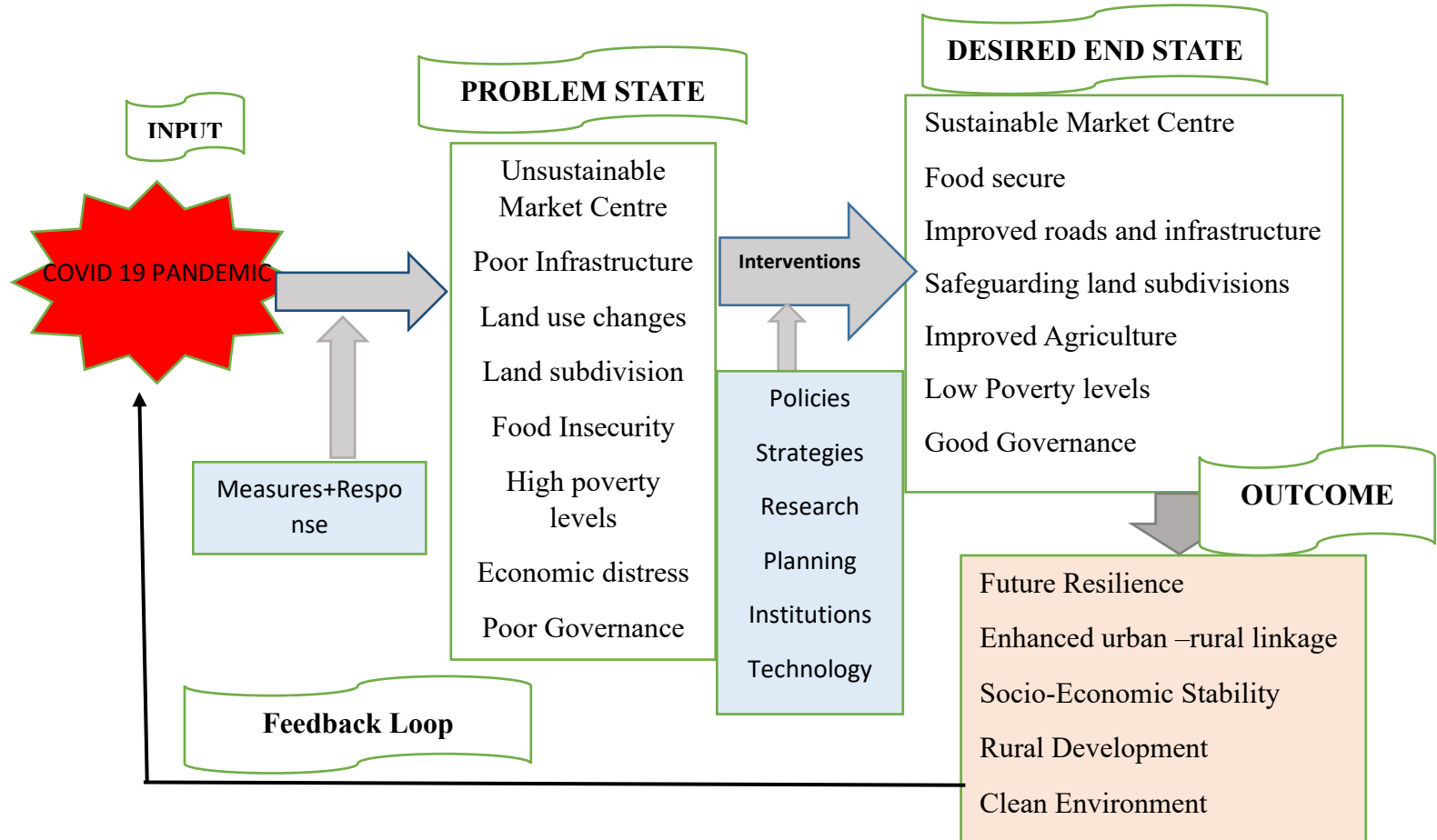
A conceptual framework is an illustration of what a researcher expects to find through his or her work where relevant variables for the study are defined and mapped out showing how they relate to each other (Ravitch & Riggan, 2016). It can be written or be a visual representation of an expected relationship between variables. According to Ravitch & Riggan (2016), a conceptual framework serves as an integrating ecosystem that aids the researcher in bringing all aspects of a

study together through a process that shows their connections, overlaps, tensions and the context shaping the setting of the research.

A conceptual framework is designed depending on what kinds of relationships the researcher expects. In this case the researcher tests a systems approach relationship where the system is a function of its component and each component interacts, interconnects, interrelates and in some cases influences each other. The dependency and the interrelation between the system components adds to the whole system. It can be open or closed whereby open system interact with their environment and with other system while close system interacts with the environment very minimal (Stowe, 1873). In the context of this study, Soko Mjinga Market centre, the Kinale settlement and its rural community are the sub-system. Contextually, Covid-19 is a negative input into the system, which finds the market centre ill-prepared and hence unsustainable with zero or poor infrastructure services and utilities to safeguard the people against its severe effects. The emergence of Covid-19 found the Kinale area at a problem state of land over subdivision, with high poverty levels, as food insecure and with the rural community of Kinale in a situation of economic distress.

Interventions such as policies and strategies are required to be introduced in order to transform the sub-system and to put it into a desired end state of a sustainable market, a food secure area, with improved infrastructure and one that is an economically stable region. The end state is to have better outcomes that have long term effects which include but are not limited to aspects such as future resilience in pandemics, enhanced urban-rural linkages and overall rural development.

**Figure 2.4: Conceptual Framework**



Source: Author, 2022 (Adopted and Developed from Literature Reviewed)

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **3.1 Overview**

A researcher's technique or plan for tackling a topic is known as their research methodology (Creswell & Fetters, 2004). The research methodology that has been employed in this study is explained in this chapter. The chapter commences by explaining the research design and it also outlines the target population, the sampling techniques, the data types and methods, the techniques of data processing and the process of data interpretation and presentation.

### **3.2 Research Design**

The study employed a non—experimental approach and it specifically adopted a cross-sectional descriptive survey design, where mixed methods were used. According to Kemper & Stringfield (2003), a mixed method design is a one that uses both qualitative and quantitative data collection and analysis concurrently, where two types of data are collected and analyzed in sequential forms.

This study employed both qualitative and quantitative approaches. A qualitative research method is an approach that locates an observer in the world and uses an interpretive, naturalistic approach to the world and the researcher does not tamper with the phenomena of interest (Denzin & Lincoln, 2005). A quantitative research method on the other hand has been defined by Weinreich (2009) as an approach that is used to test theories, determine facts, demonstrate relationships between variables and to predict outcomes.

The research followed all mandatory guidelines such as ensuring that all Correspondents were of 18 years and above; that face-to-face data collection was done while observing Covid 19 measures and protocols; that data collection was conducted between the working hours from 8.00 a.m. to 5.00 p.m.; and that the researcher must have had an introductory letter from the institution.

### **3.3 Target Population**

The whole group of respondents who fulfill the specified set of criteria is referred to as the target population (Shukla, 2020). Taking into account the study's need for data, the target population was first chosen as the basis for forming the criteria for administration of the tools for field survey. To

make the data collection and the analysis easier, the population was separated into strata. A sampling of the target population was equally done in order to lower research costs, to shorten the study time, to cover a larger range of topics, and to provide greater accuracy.

In this study the first set of the stratum for the target population constituted the smallholder farmers who brought their farm produce to Soko Mjinga Market. This category of smallholder farmers was drawn from Mukeu Location in Mugumu Ward, and from Kamae, Kamukombini, Kinale and Mukeu locations in Kinale ward. The second category of the first stratum of the target population was drawn from the traders who bought from the farmers. The third category in the first stratum was drawn from the drivers who transported the food crops to different parts of the country.

The second set of the stratum for the target population constituted the Key Informants who comprised of the Chief - Kinale Ward, the Chief - Magumu ward, the Soko Mjinga Market Representative, the Agricultural Officer - Kinale Ward, and the Lari Sub-County Physical Planner.

### **3.4 Sampling Design**

#### **3.4.1 Sample Unit, Sample Frame, Sample Size and Sampling Technique**

According to Taherdoost (2016), a sample is a group of people or items chosen from a larger population for measurements in research. A population on the other hand is the entire group that the researcher seeks to draw conclusions about. Sampling therefore is the process of selecting a sample from the population (Shukla, 2020). For a researcher to answer the research questions, there is need to select a sample drawn for the target population since he/she does not have enough resources or time to study the whole population. This helps the researcher in having an easier time during data collection and analysis.

In this study a decision concerning the sampling unit had to be made before selecting the sample. The sampling unit was a geographical one which contained two Wards, that is Magumu and Lari Wards. A sample list from which the sample is to be drawn was prepared. The study deployed stratified random sampling where the target population was grouped into three strata and each stratum had equal questionnaires and were randomly sampled. To determine the sample size, the following formula was used (Kothari, 2004): -

$$n = \frac{\frac{z^2 \cdot p \cdot q}{e^2}}{1 + \frac{z^2 \cdot p \cdot q}{e^2 N}} \quad \text{where;}$$

n = Sample Size

N= Population which is 28,698

Z= 1.96 (Constant)

P= 0.5 (Sample Population)

q= 0.5(1-p)

e= 0.05 (given precision rate or accepted error)

$$n = \{(1.96^2 * 0.95 * 0.05) / 0.05^2\} / \{1 + (1.96^2 * 0.95 * 0.05) / 0.05^2 * 28,698\}$$

**n= 75 sample size**

The sampling was based on a confidence level and precision rate concerning the population of Kinale, Kamae, Kamokombini, Mukeu in Kiambu county which had a total population of 28,698 as per the 2019 population census. A margin of error of 5%, confidence level of 95% was used and a sample size of 75 was derived.

A multistage sampling technique was used where, purposive sampling was carried out to select the four locations of Kinale ward. Stratified random sampling was used to select the households in the four locations and the household were randomly picked in their respective locations. Convenience sampling was used to select drivers and traders in the market center. The researcher employed the use of research assistants to assist in administering the questionnaires. This helped in having the questionnaires being administered on the spot since the drivers and the traders irregularly came to the market centre and randomly went away after completing their usual routines. It was therefore found hard and actually it would be impossible to keep tracing them at a later date. The key informants were selected through purposive sampling. This is a non-probability sampling technique that allows the researcher to select the sample based on the key informant's and focus group's knowledge and skills.

### **3.5 Data Sources, Types and Collection Methods**

Data collection is a vital process in research. There are different methods used to carry out data collection and they are categorized into two i.e. primary and secondary data (Ajayi, 2017). This

study applied different methods of data collection techniques. It used both secondary and primary sources of data collection methods.

### 1. Primary Data Sources

This is firsthand data gathered by the researcher and it is real time. In this study different tools and sources of primary data were used and they included the following: -

#### a) Household Questionnaire Surveying

A questionnaire was prepared and 40 copies made to collect and profile data of rural households in the hinterland. It included both open-ended questions and close-ended questions so as to seek information such as personal and household details, incomes, resources, land uses, farming and non-farm activities and also views on the COVID-19 Pandemic. The questionnaires were formulated using a desktop and copy-pasted in Kobo collect software tool that is used to collect and gather information. The questionnaires were then deployed on a mobile phone for easier and quicker collection of data.

#### b) Food Traders Questionnaires

The food traders' questionnaires were used to collect relevant data from at least three categories of food traders. A sample of at least 20 food retail traders operating in Soko Mjinga market centre were interviewed.

**Plate 3.1: Food Trader Interview at the Market**



Researcher  
carrying out  
trader's  
questionnaires

Source: Field Survey, 2022

### c) Drivers' Questionnaires

Different types of transport were used to carry farm produce either from the farm or from the market to different destinations in the country. Therefore 10 questionnaires were administered to drivers of lorries, Matatus, Probox and motorcycle cyclists. This enabled the researcher to gather information on transportation of farm produce, commodities and people amidst the Covid-19 pandemic.

### d) Key Informants' Interviews

Face-to-face interviews were carried out and detailed questions were asked and probed to enrich the qualitative data. The interviews were structured where the questions were created prior to the interview. A key informant guide was used to ensure that the same areas of information are collected from each interviewee, this will help to bring more focus. Interview questions were administered to the key informants such as the Chief of both Kiambu and Nyandarua County, Agricultural Extension Officers, Soko Mjinga Market Administrator, the Physical Planner Lari Sub-County and the Physical Planner Kiambu Sub-County. The interview questions were administered orally and the answers were written down in a notebook (see the Plate 3.2).

**Plate 3.2: Key Informant Interviews in Kiambu County and in Kinale Ward**



Source: Field Survey, 2022



### e) Focus Group Discussions

Focus group discussions (FGDs) are described by Kabir (2016) as an in-depth field approach focusing on a single issue that gathers a group of similar people to talk about themes on a study agenda. Its objective is to facilitate an open dialogue in which participants' thoughts, feelings, and views are utilized.

In this study the FGD was planned and structured with an open-ended format. A focus group discussion guide was used. The FGD was structured to take at most two hours. The aim of the FGD obtained more information and provide additional data so as to ensure trustworthiness and credibility. These groups entailed a lorry driver, a middleman, a trader, Mzee wa nyumba Kumi representative, Youth Representative, Women representative and a small scale farmer. Their responses were recorded on note book and also audio recorded using a smart phone.

**Plate 3.3: Focus Group Discussion at the Chief's Office in Kinale Ward**



Source: Field Survey, 2022

### f) Observation

An observation guide was prepared and used to help identify the conditions of the market centre and the types of businesses carried out, the facilities and the infrastructures services therein. Photos were taken to document the existing facilities and their prevailing conditions.

## **2. Secondary Data Sources**

This is the data collected by someone else earlier also referred to as past data such as government publications, journals, websites, internal records, books etc. The study reviewed literature from books, journal articles, websites to gather information on Covid-19 impacts, small market centers and it reviewed case studies in other countries. It reviewed annual government reports such as the KNBS Housing and Population Census reports, the County Integrated Development Plans from Kiambu and Nyandarua Counties. Government publications about market revenues was obtained and reviewed from the local government offices.

## **3. Spatial Data**

Visual aids such as maps, sketches and photographs were used to strengthen illustrations in answering the questions of land use changes. These spatial data were collected from the Survey of Kenya, the County Government of Nakuru and from the Ministry of Lands, Nakuru County. Physical planning data capture and acquisition techniques will be used and the tools to be used will be GIS and AutoCAD soft wares.

### **3.6 Data Analysis**

The data collected from the field was gathered, edited to ascertain its suitability and accuracy. The data was grouped into the following categories: -

- i. The quantitative data was analyzed using descriptive statistics methods and presented in the form of tables, percentages, graphs and charts
- ii. The qualitative data was analyzed through the use of content analysis of the questions administered with reference to the study objectives.
- iii. Spatial data which in the form of maps was analyzed and photos were used to enhance clarity

### **3.7 Data Interpretation**

The outcomes of the data analysis gave rise to knowledge that served as the foundation for this study's discussion, interpretation of the findings, conclusion, and suggestions. Data management and geographical information systems (GIS) software were utilized to handle, manage, and

document the data. Data was represented in the form of bar charts, graphs, pie charts, maps, photographs and tables.

Cross tabulation, frequencies, and descriptive ratio statistics were used to provide descriptive statistics. A contingency table was produced by the technique of cross tabulation using the multivariate frequency distribution of statistical data. The use of content analysis to organize, retrieve, and evaluate the questionnaires' unstructured data was widespread. This aided in categorizing, sorting, organizing, and studying the relationships between the data. The data was exported to Microsoft Word after analysis in order to properly present the study's recommendations, developing issues and for drawing recommendations and conclusions.

Maps and physical development plans of the market centre and their surrounding rural environments were analyzed so as to come up with new proposals regarding the physical development of the Market Centre.

### 3.8 Data Need Matrix

**Table 3.1: Data Matrix**

	<b>Research Objectives</b>	<b>Data Needs</b>	<b>Data Types</b>	<b>Data Sources</b>	<b>Collection Methods</b>	<b>Analysis Tools/ Methods</b>	<b>Presentation Methods</b>
1	To examine the impacts of the Covid-19 pandemic on Soko Mjinga Market Centre and the rural land uses in Kinale Ward.	Rural land use changes over different time periods	Land use maps Spatial temporal changes	Maps Spatial data from Survey of Kenya	Analysis of LandSat Images observations	ArcGIS/ Google Earth map	Maps
2	To examine the impacts of the Covid-19 pandemic on the rural smallholder community in Kinale Ward.	Food markets Rural households Public transportation system	Quantitative, Qualitative & Descriptive Data	Document review  Field Survey	Questionnaires Key Informant Interview observations	SPSS + Narrative Analysis	Bar charts Pie charts tables
3	To examine the opportunities that Covid-19 may have presented to Soko Mjinga market centre and to the rural smallholder community in Kinale Ward.	Farmers income Food prices Technology enhancement Condition of the infrastructure	Quantitative Qualitative Spatial data Descriptive statistics	Field Survey	Questionnaires Key Informant Interviews Focus Group Discussions	Narrative Analysis	Report presentation
4	To analyze the implications of the findings and to propose policy, legislative and governance interventions for strengthening the urban-rural linkages, for mitigating the negative impacts and for building resilience against future pandemics.	Policy formulation  Government to leverage the opportunities	Quantitative Qualitative Spatial data Descriptive statistics	Synthesis of the Findings	Synthesis of the Report	Report writing	Report presentation

Source: Author, 2022

**CHAPTER 4:**  
**SITUATIONAL ANALYSIS OF SOKO MJINGA MARKET CENTRE AND ITS**  
**HINTERLAND IN KINALE WARD**

**4.1 Introduction**

This chapter presents a situational analysis of the Soko Mjinga market centre and its hinterland in Kinale ward. The chapter outlines the historical background of the market centre, defines its contextual location, its population and demographic features, the socio-economic aspects, the social and physical infrastructure, the natural and geological features as well as its physiographic conditions. The chapter concludes by presenting the legal, policy and institutional frameworks.

**4.2 Historical Background of Soko Mjinga Market Centre**

**4.2.1 The Embryonic Inception Stages: From 1980 to 2020**

In the 1980's, during the era of the late President Daniel Arap Moi, there was a small population of people that lived in the colonial village of Kinale and farmed in Kinale forest. Women and their daughters would routinely take their fresh farm produce to the roadside of the Nairobi-Nakuru highway from where motorists would stop their vehicles and buy from the farmers. The farmers would sell their produce in large quantities at comparably cheaper prices than other markets in the city of Nairobi. It was equally a popular stop-over for politicians who preferred to “buy from the simple small-scale trader, *mwananchi*”, in the quest for popularizing the symbolism of “big people” boosting business of “*watu wa mashinani*” (i.e., the local or the village people. The market gained popularity due to its locality, the freshness of the farm produce and the seemingly low prices.

The market was presumably started by about 20 traders and it was earned the name Soko Mjinga. The name reflects its origin based on the absurdity presented by the dominance of illiterate/semi-illiterate, small scale informal food traders and their chaotic market activities on the one hand and their seemingly stupidity in relation to motorists' buyers during the *Nyayo* Era. The farmers mobbed motorists, each of them vending their wares and the buyers would call them “wajinga” i.e. ‘fools’. The name Soko Mjinga has thereafter stuck for close to 34 years.

The late President Daniel Arap Moi was their occasional customer with his favourite purchase being black beans. He would step out of his Stately limousine and choose what he wanted to buy in the form of either roasted maize or other farm produce. Later, he gave a directive in the form of

an Executive Order for Kinale forest to be hived off and that that the farmers be allocated 35 plots, which was to be utilized as farm produce market. The smallholder farmers were then allocated five acres per household within the forest and this is what transformed into what is now known as the present day Kinale Settlement Scheme.

The 35 plots allocated to market were just surveyed, allotment letters issued but no sub-division was carried out. Up to date the market is still a gazetted space under the jurisdiction of the Kenya Forest Service, but the County Government of Kiambu has plans underway to formalize the market centre. Due to lack of security of tenure, farmers and traders in Soko Mjinga have put temporary structures. The traders/farmers have been selling from this market centre without any shed or any other related market infrastructure which is incommensurate with its large-scale business activities.

#### **4.2.2 Pre- and Post-Covid 19 Eras: From 2020 to Date**

Geographically, the market is located between Magumu ward in Nyandarua County and Kinale ward in Kiambu County. Before COVID -19 pandemic, both counties collected revenue from the traders on a scheduled plan. On one week the Nyandarua County Government would collect revenue while the following week the Kiambu County Government would collect their share of revenue. The County Government of Nyandarua in conjunction with Japan International Cooperation Agency (JICA) later built a formal market that is about 1.5-2 km away from Soko Mjinga and rebranded it Soko Mpya market. They hoped that the farmers/ traders would move from the Soko Mjinga market that had zero infrastructure and that they would occupy the newly built market which had modern infrastructure. However, farmers/ traders didn't not comply with the directive to relocate. They argued that they had already associated themselves with Soko Mjinga and that their customers /consumers were all too familiar with Soko Mjinga.

The Soko Mpya market was thereafter neglected. It was however not until the COVID-19 pandemic hit the country that several traders/farmers realized its vital infrastructure when some of them in Soko Mjinga market centre were positively diagnosed to be infected by the virus. The infections and mutating spikes led to a total closure of the market for a period of two weeks as part of precautionary measures. The two County Governments forced the traders to move from Soko Mjinga market to Soko Mpya Market in Nyandarua County.

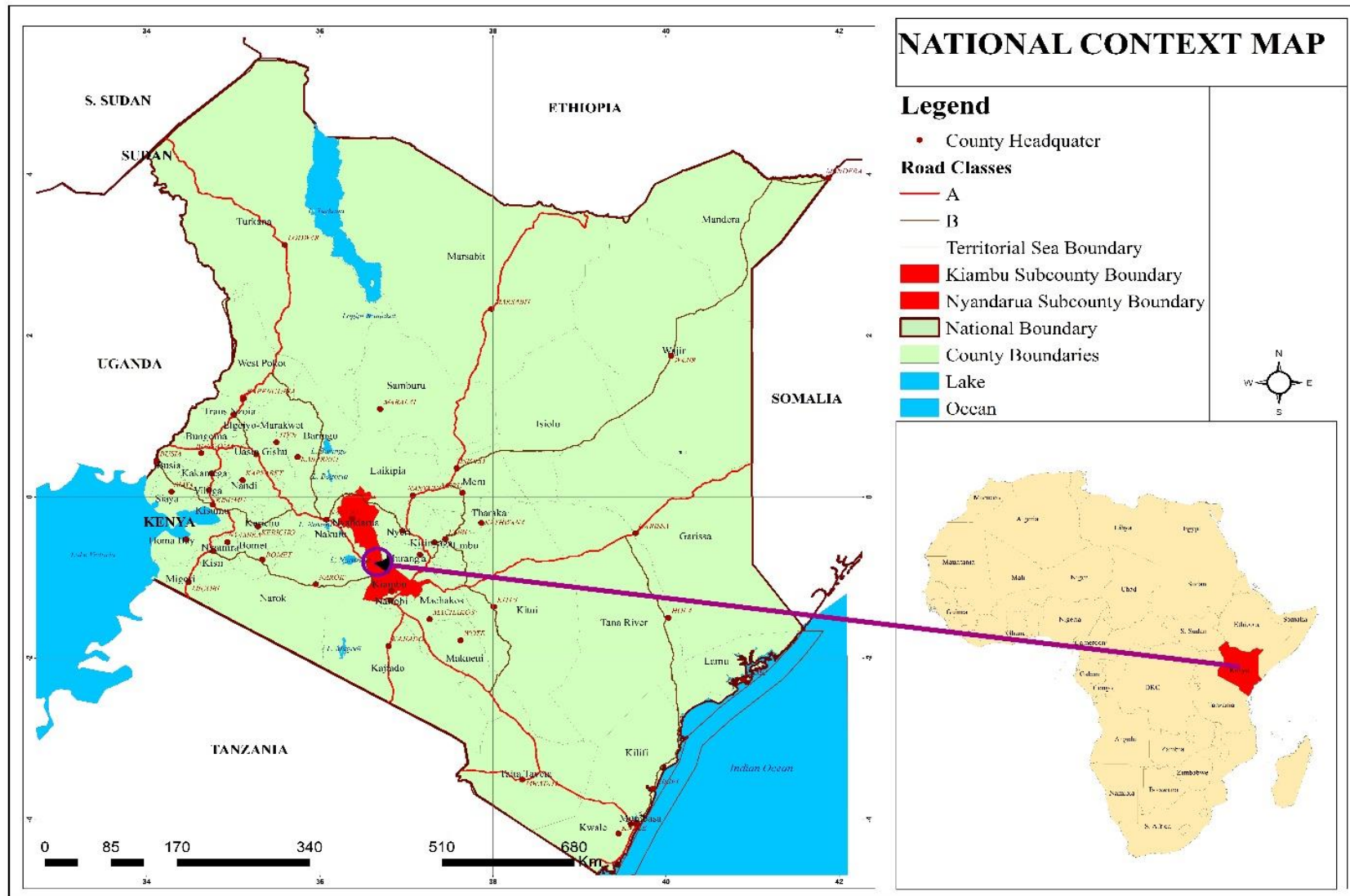
After the COVID-19 measures were lifted traders/farmers started moving back one by one to Soko Mjinga market at their usual spot. They religiously observed COVID-19 measures such as sanitization and they also developed water points where traders and farmers would wash their hands from. They also observed social distancing and putting on of masks. Some traders especially who belonged to Magumu Ward in Nyandarua County were left operating from Soko Mpya Market. Farmers from Kinale ward whose proximity to Soko Mjinga market was appropriate went back to trade at their usual market centre. As part of government considerations, revenue collection was lifted and till to date traders from Soko Mjinga market do not pay any revenue to the County Government of Kiambu.

Traders/farmers from Kinale are now of the opinion that the County Government of Kiambu should erect a structure at the Soko Mjinga site. The structure would be developed into a modern market center where the smallholder farmers from Kinale ward would sell their farm produce from. They would then pay their revenue comfortably to the County Government of Kiambu where they actually belong and it is where the latter owes allegiance towards service delivery. A new name would however need to be branded to the food market in order to refrain from the name “Mjinga” which connotes to ‘fool’ ‘stupid’ ‘uneducated’ and ‘illiterate’.

#### **4.3 Contextual Location**

Contextually, Soko Mjinga market centre is located at the border of Kinale and Magumu wards in Kiambu and Nyandarua Counties, respectively. It is approximately 50 kilometers from the CBD of Nairobi. It is adjacent to and equally accessed from the A104 Nairobi-Nakuru highway. Plans of expansion of the busy highway, in the 147km road project from Kamandura to Mau Summit, are underway owing to its huge significance. The significance of the highway owes in part to its linkage to the Northern corridor and partly to its importance as the one linking the port of Mombasa to the neighbouring Southern Sudan, the landlocked countries of Uganda, Rwanda and Burundi and even beyond to DR Congo.

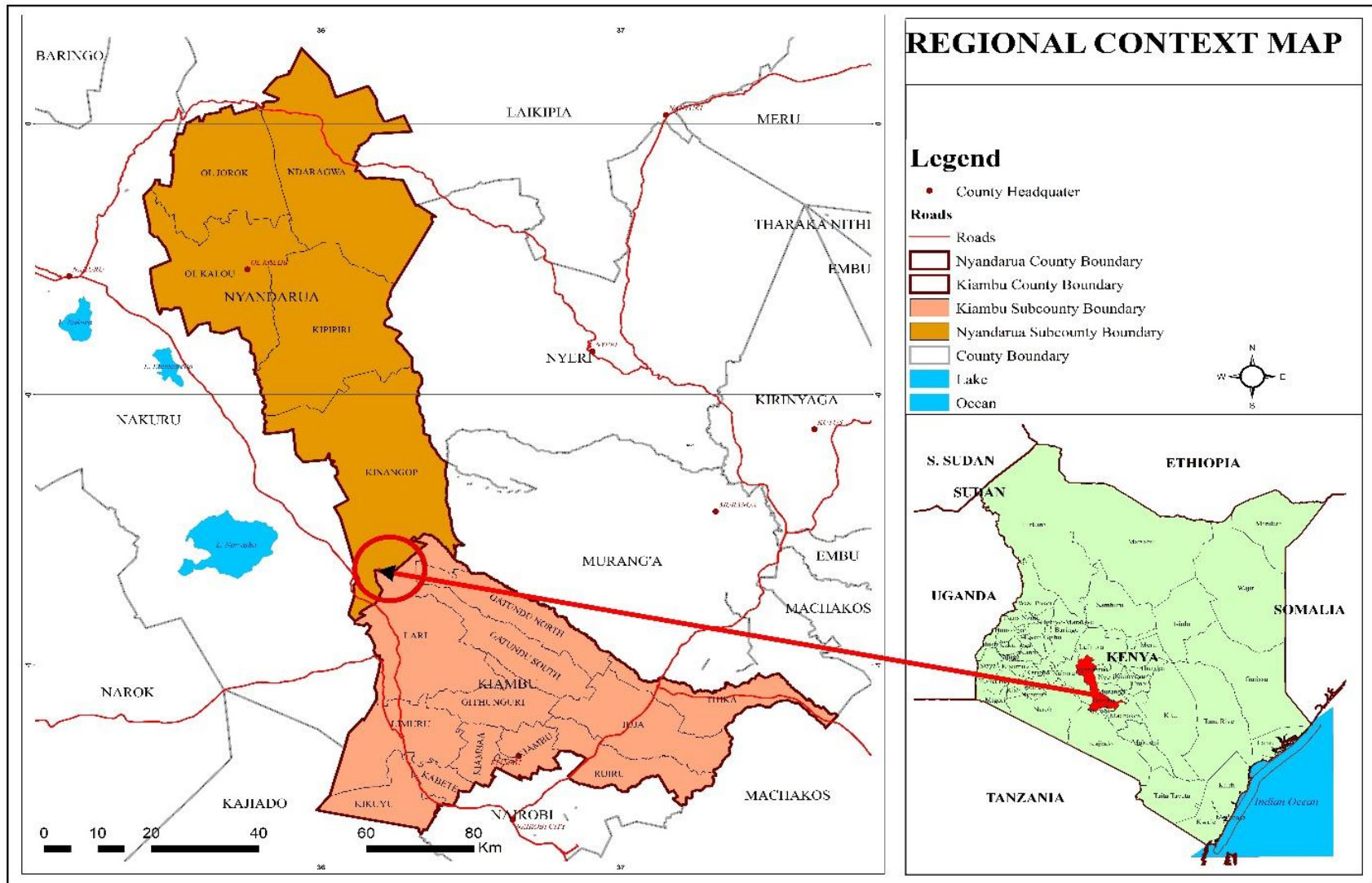
**Map 4.1: The National Context Of Soko Mjinga Market Centre**



Source: Author's Creation, 2022 (Adopted from ArcGIS 2019)

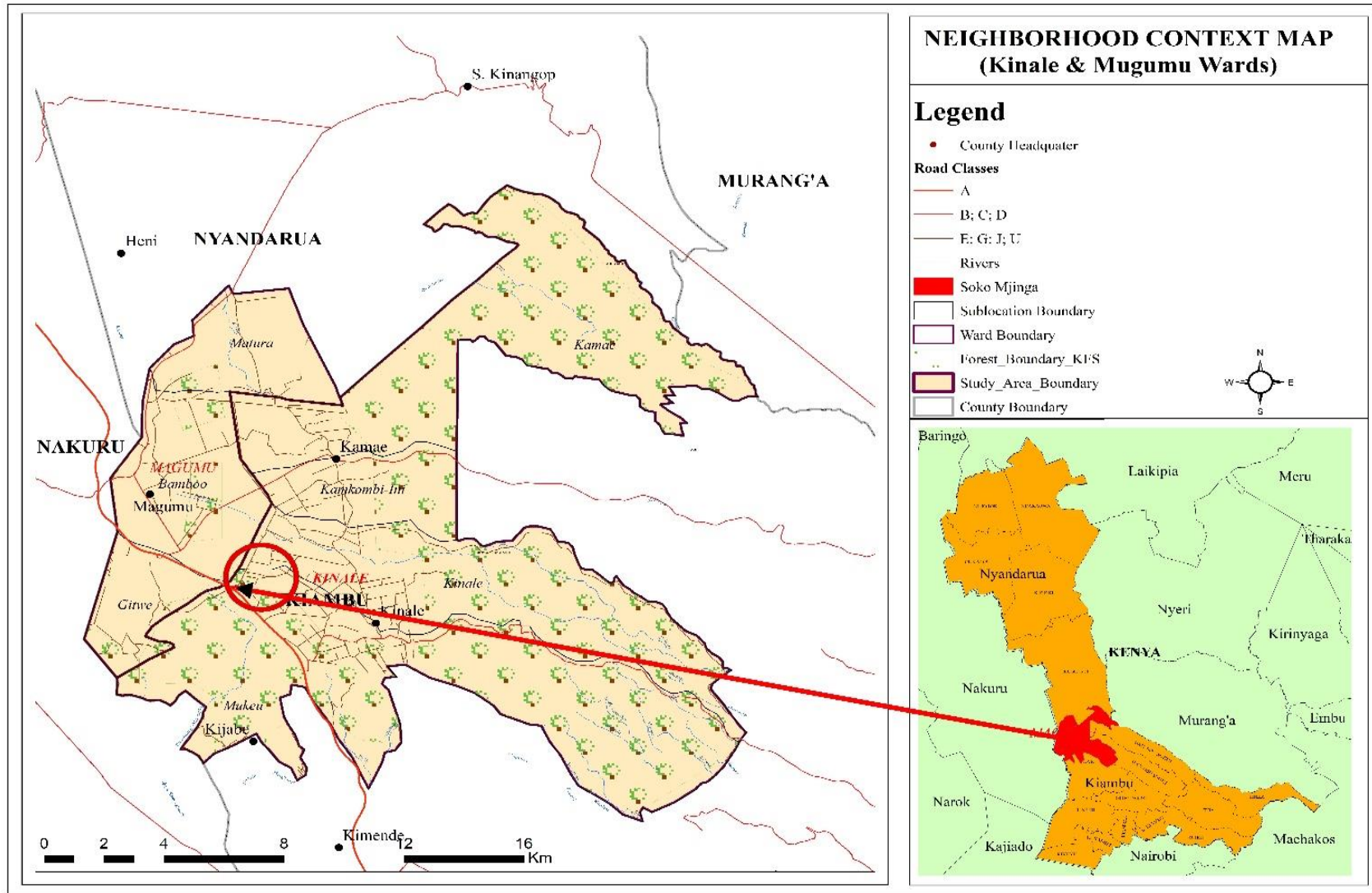


**Map 4.2: The Regional Context of Soko Mjinga Market Centre**



Source: Author's Creation, 2022 (Adopted from ArcGIS 2029)

Map 4.3: The Neighborhood Context of Soko Mjinga Market Centre



Source: Author's Creation, 2022 (Adopted from ArcGIS 2019)



#### **4.4 Physical Environment and Natural Resources**

This section presents an elaborate analysis of the physical environment of Soko Mjinga Market Centre and its hinterland in Kinale ward as well as its resources in order to evaluate how these may either enhance or inhibit its development.

##### **4.4.1 Climatic Conditions**

Climate is a phrase that has historically been used to refer to the average and variability of temperature, rainfall, and wind over an extended period of time. Since climate can change quickly over time, it takes a long time to see a variation between any two periods (Goosse H., 2010). Food insecurity is greatly impacted by climate change and it is affected both directly and indirectly by agricultural production systems. Indirect consequences include those that have an impact on outputs through changes in pollinators, pests, or species invasion. Some direct effects are those caused by changes in temperature levels and rainfall distribution on a particular agricultural production system. The study area has received numerous changes in climate. In February 2022, Kinale experienced hailstorms that destroyed their food crops (see Plate 4.1)

**Plate 4:1 Hailstorm that Destroyed Crops in Kinale Ward**

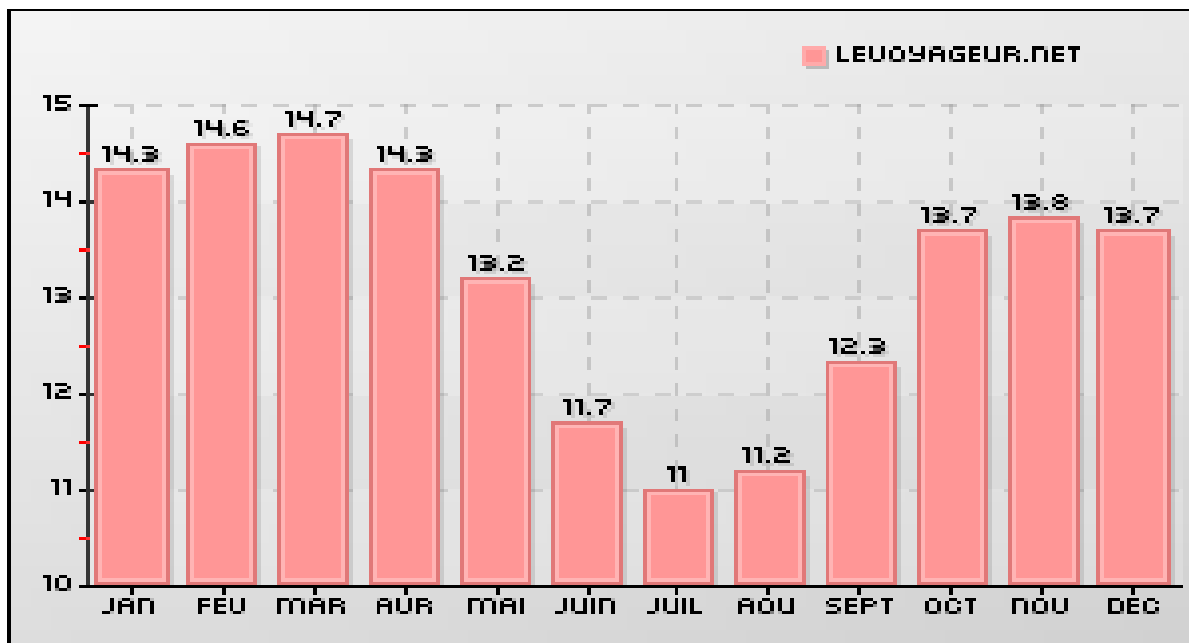


Source: Field Survey, 2022

#### 4.4.1 Temperatures

Temperature is a major factor in all types of agriculture because it affects both the growth of vegetation and the kinds of crops that can be grown. The project region cuts across as semi-humid area with a mean annual temperature of between 17°C and 20°C. It is in humid agro climatic zone 1, where average yearly temperatures range from 12-16°C. June to August is the coolest time of year, whereas February to April is the hottest.

**Figure 4.1: Temperatures in Kinale Ward**

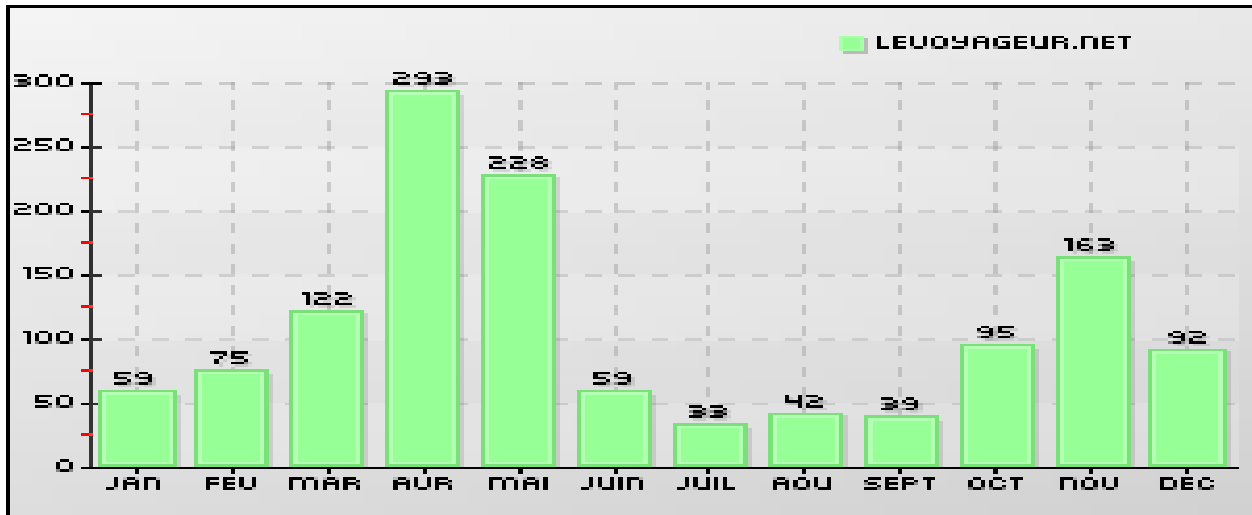


Source: Kenya Meteorological Department (2020)

#### 4.4.2 Rainfall

The region experiences between 1,000 to 2,000mm of annual rainfall on average, making it relatively moist for much of the year. Rainfall totals in the woodland area are relatively high, averaging over 1,350mm to 2,000mm. From March to May, there are long rains, and from October to December, there are short rains.

**Figure 4.2: Rainfall Data in Kinale Ward**



Source: Kenya Meteorological Department (2020)

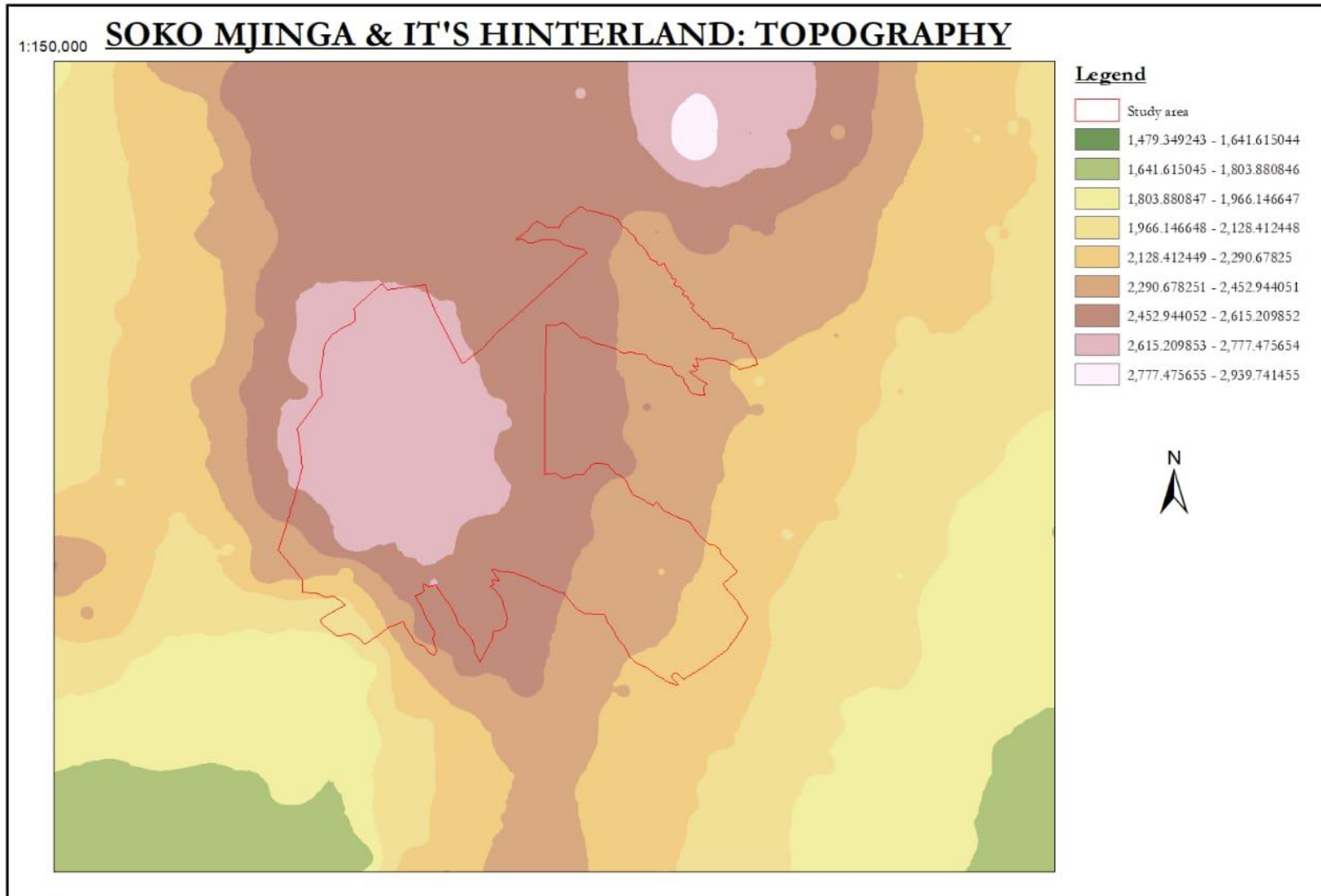
#### **4.4.3 Topography Drainage and Slope Analysis**

Topography plays a crucial role in soil formation in multiple ways such as regulation of soil hydrological regimes and controlling gravity driven soil movements (Fissore C, 2017). The content of soil water is hugely influenced by the slope gradient. In areas that are relatively flat, the content of soil water usually decreases with slope gradient due to higher lateral flow and depositional crusts that reduce infiltration. When the slopes steepen, frills may arise and this may disrupt the crust and favor higher levels of infiltration leading to positively correlated relationships between soil water content and the slope gradient (McCarty & Li, 2019).

The Aberdare Ranges, which are located in the Kinale area, are the source of several rivers that drain the region's deeply carved-out topography. The ideal radial and parallel drainage pattern was created by the Aberdare Catchment forest. The Thiririka and Ndarugu rivers are part of two sub-catchments that are made possible by the Aberdare plateaus. Maps 4.3 and 4.4 show that the area's flat areas make up the smallest percentage while its undulating areas make up the majority.

Soil Erosion is rampant in the area due to the terrain therefore farmers have designed gullies to prevent soil erosion. The hilly and dissected topography are a good scenery that stand a high chance of attracting tourists that would help boost the region's economy.

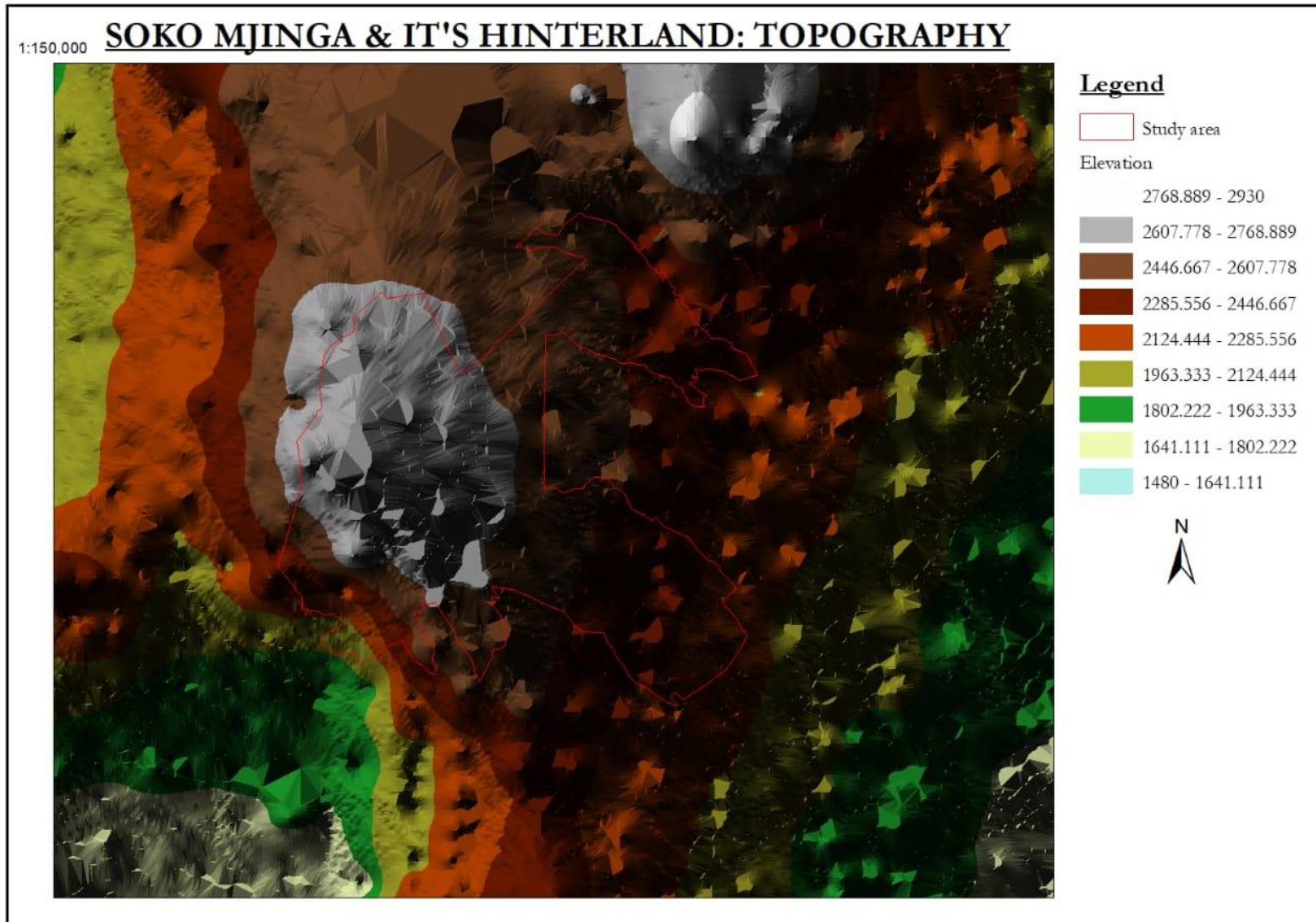
**Map 4.4: Topography of Soko Mjinga Market Centre and its Hinterland**



Source: Authors Creation, 2022 (Adopted from ArcGIS 2019)



**Map 4.5: Detailed Topographical Features of Soko Mjinga Market Centre and its Hinterland**



Source: Authors Creation, 2022 (Adopted from ArcGIS 2019)

#### **4.4.4 Geology and Soils**

Well drained soils dominate in Kinale area and three soil types are evident including regosols (characterized by low moisture content), Nitisols and andosols which are generally porous. The soils are classified as highly fertile, deep, well grained, red to dark reddish brown friable and smeary clay with a thick acid humus topsoil. Parts of the clay soil is over pisolitic or petroferrous rock material. The types of soil described are developed on tertiary igneous rocks. These high level of soil fertility support production of crops, especially vegetables. And for sure the area is known for the production of a variety of vegetables such as potatoes, carrots, kales, spinach, cabbages, broccoli, peas among others.

#### **4.4.5 Forests and Forest Resources**

Some of the forests in the project area include Kinale and Kamae and they are made up of natural indigenous trees and plantations. These forests form an important water catchment area for the ward. Kinale forest is a major water tower serving Kimende area, Limuru, Kikuyu, Nyabare, and Nairobi through river Thiririka and river Gatamayu which also forms Ruiru dam. The forests provide a wide range of products such as timber, fencing post and poles, source of medicine and wattle barks that are used in furniture making.

Kinale forest plays an important role to the farmers in the hinterland of Soko Mjinga market centre. Farmers carry out herding of their livestock in Kinale forest. They herd out their cows to the forest to graze in a particular space and later they relocate the grazing area to a different location. The Kenya Forest Service in Kinale allows farmers to carry out farming in the forest when the trees planted are young, so that they can take care of them through weeding as they cultivate around the trees. When the trees reach a particular canopy height the farmers are instructed to stop farming. This system is popularly known as the *Shamba System*, though it is quite controversial with environmental activists who advocate for full afforestation as opposed to agro-forestry.

#### **4.4.6 Environmental Ills Occasioned by the Farmers in Kinale Ward**

Kinale ward has a significant impact on the environment. Deforestation within Kinale forest has led to degradation of the catchment area. From the sample population, 88% of the people use wood and charcoal extracted from the forest as their source of energy. Saw milling is one of the leading business in the area. Poor reinforcement of the *Shamba system* has led to deep encroachment into the forest. This has led to degradation of the forest which is a major national water tower. Another



environmental ill arising from occupation of the farmers in Kinale forest has to do with problems of water and sanitation. About 90% of the population in Kinale have dug wells as their source of water and use pit latrines for waste disposal, which causes intense ground water pollution. Intensive horticultural farming in the area, which involves use of organic fertilizers is however a good practice for soil conservation purposes.

## 4.5 Demographic Information and Socio-Cultural Systems

### 4.5.1 Population and Density

Table 4.2 shows that Magumu and Kinale wards have different population sizes, densities and geographical areas.

**Table 4.2: Population Data for Kinale Ward**

Sub-Location	Totals	Female	Male	Households	Area in Sq. Km	Density
<b>Kinale Ward</b>						
Kinale	4,492	2,233	2,259	1,090	7.0	641
Mukeu	8,915	4,400	4,515	2,388	22.6	394
Kamae	6,999	3,442	3,557	1,898	8.9	785
Kamukombini	8,292	4,119	4,172	2,033	10.5	792
<b>Totals</b>	<b>28,698</b>	<b>14,194</b>	<b>14,503</b>	<b>7,409</b>	<b>49.0</b>	<b>585</b>
<b>Magumu Ward</b>						
Mukeu	2,913	1,461	1,452	812	6.7	432
<b>Totals</b>	<b>31,611</b>	<b>15,655</b>	<b>15,955</b>	<b>8,221</b>	<b>55.7</b>	<b>1017</b>

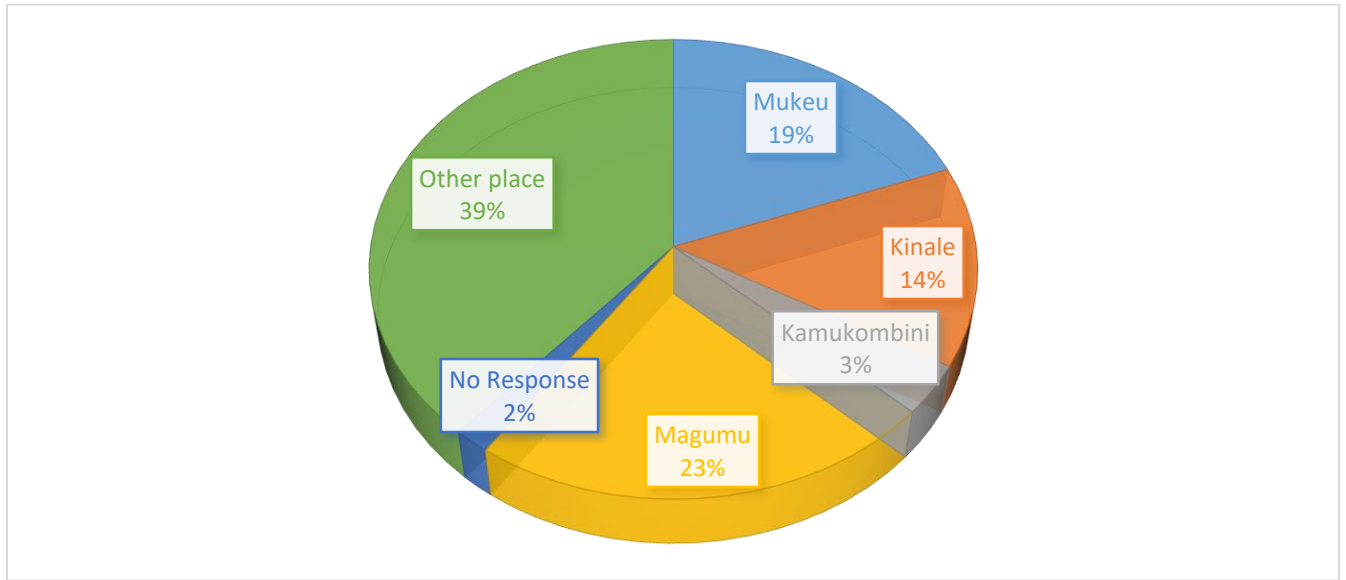
Source: Kenya National Housing and Population Census Report (2019)

Soko Mjinga is in Mukeu location which straddles both Magumu and Kinale wards. The whole of these area in the 1970's was the woodland now known as Kinale forest. Since the allocation of land by the late President Moi in the 1980's the population area has continued to grow gradually to the present day size of 31,611 (GoK, 2019).

### 4.5.2 Migration Trends

Kinale Ward has an active migration trend both into and out of the project area. From the field survey, 39% of the sample population, which was the largest percentage, came from other places such as Muranga, Nyeri and Nakuru (see Figure 4.3).

**Figure 4.3: Place of Birth of the Respondent**



Source: Field Survey, 2022

The results show that there is a significant rate of immigration. There are several reasons for the high rate of immigration to Kinale. The field survey showed that most people migrated to Kinale as a result of land allocation by the government since it created socio-economic opportunities related to farming, employment, business and marriage.

### 4.5.2 Socio-Cultural Systems

Socio-cultural forces are those present in cultures that have an impact on people's attitudes, motivations, and behaviors as individuals and as a whole. Such elements consist of either attitudes and child rearing practices; cross-cultural disparities, lack of exposure to other cultures, cultural identity, cultural change, and cultural inheritance; family Structure and Kinship Structure; religious beliefs and practices; and reputation, rituals, taboos and beliefs.

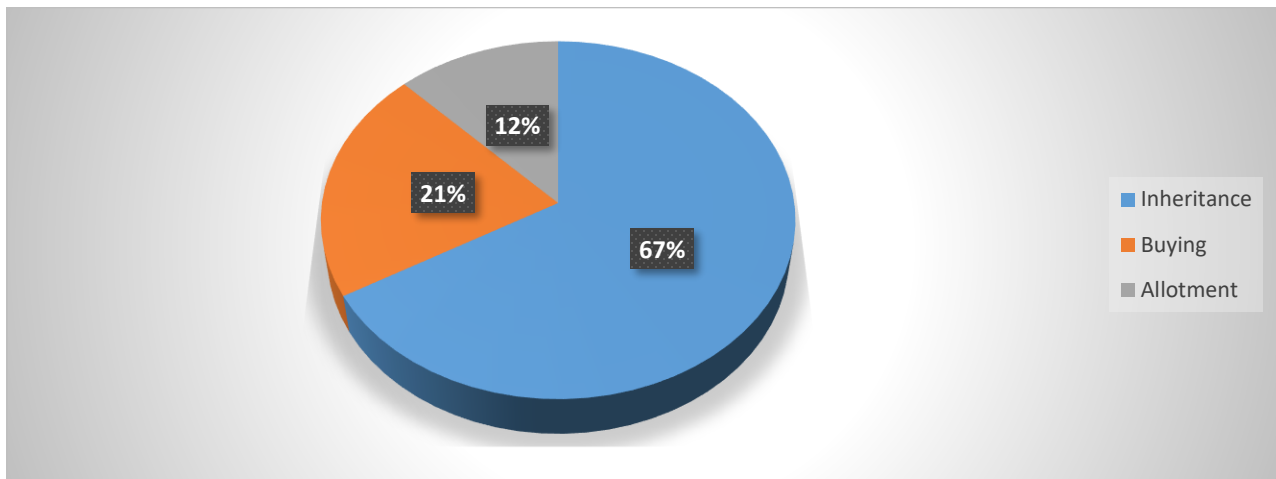
The term "culture" refers to a society's entire way of life. It includes the ingrained habits, viewpoints, attitudes, aspirations, and values that characterize a specific community or group. Every individual is born into a complicated culture, which has a significant impact on how they

live their life and behave. The Kikuyus, whose father serves as the head of the household, are the majority in Kinale. Land inheritance is a prominent cultural tradition in the region. This practice has led to a lot of land sub-division of agricultural land. Agricultural land is gradually diminishing, which poses a threat to the food security of the region and of the country at large.

#### 4.5.3 Land Ownership Systems

Chart 4.2 shows the mode of land acquisition in Kinale ward.

**Figure 4.4: Mode of Land Acquisition**



Source: Field Survey, 2022

The results of the study show that 67% of the people in Kinale largely acquire land and property through inheritance. The Kikuyu inheritance is through a will that is prepared by the father. Although each household initially had 5 acres allocated to them by the government, the land has over time been subjected to over subdivision for inheritance and for selling purposes. About 21% have acquired the land through purchase while only 12% own their original land allocated to them by the government. Property is divided among the sons so that each has a share of the property associated with his mother. This includes cultivated land, livestock and real estate.

## **4.6 Legal, Policy and Institutional Frameworks**

### **4.6.1 Legal Framework**

#### **1. The Constitution of Kenya, 2010**

This is the supreme law of the Republic of Kenya and it constitutes the two tiers of government structures namely the national government and the devolved county governments. It lays emphasis on equitable distribution of resources, the right to a clean environment, the regulation of laws on land use, it encourages and protects participation of the minorities, the marginalized groups and the old in all aspects of the development amongst other freedoms contained in the Bill of Rights.

In Chapter 5, Section 60, the Constitution of Kenya asserts that land should be held, used, and managed in line with the principles of equal access to land, the security of land rights, the productive and sustainable management of land resources, and the transparent and efficient management of land. Section 66 of the Constitution provides for the regulation of land use and property while also establishing a National Land Commission (Section 67) as the main body that shall monitor and have oversight responsibilities over land use planning. In the context of this study the research aims to ensure that the planned interventions for the market centre and the land uses in Kinale ward adhere to the aforementioned criteria.

#### **2. Agriculture Act, 2012**

This Act of Parliament encourages the development of agricultural land in accordance with recognized standards of excellent land management and land husbandry, as well as the promotion and preservation of stable agriculture, as well as provisions for soil fertility and conservation. The Act gives the Minister of Agriculture the authority to declare the essential crops to be grown, to set plant size restrictions for agricultural enterprises, and even give specific authorities the power to order the production of particular products and zone land in favour of specific agricultural industries. The Minister is given the mandate to fix different prices or different guaranteed minimum prices for different agricultural produce produced in different areas of Keya for different quantities, grades, qualities or varieties of any produce. The Act also protects land on high slopes from soil erosion protection of watercourses and protection against erosion by run-off water. In the context of this study this research aims to adhere to the provisions made in the Agriculture Act, 2012.

### **3. The County Governments Act, 2012**

It defines the powers and functions of the governors, county assemblies, county executives and the county public service board and their various roles in operationalizing the functions of the county governments in service delivery to the residents. The Act gives authority to the county governments to develop their county spatial plans which shall provide guidance and indicate where public and private land development and infrastructure investment can take place. Article 37 of the Act provides that a county executive committee shall facilitate, assist and monitor a municipality in the process of planning, formulation and adoption of the integrated development plan. Article 104 highlights that the county government shall plan for the county and no public funds should be spent outside the planning framework.

The planning framework should integrate physical, social, environmental and spatial planning. Also, it specifies the smallest planning authority as the ward and it aims to promote public participation and the incorporation of non- state actors in the planning process by all authorities. Article 107 specifies that the county shall prepare county integrated development plans, county sectoral plans, county spatial plans and cities and urban area plans. These plans are the basis for county budgeting and spending. For each city or municipality, there shall be 3 different plans i.e. land use plans, building and zoning plans, local recreational and public areas.

The Act further discusses relationships between county governments, suspension of county governments among others. In general, the Act gives the county the responsibility of coordinating countywide integrated development planning, ensuring countywide integrated planning, ensuring connections between county plans and the national planning framework, ensuring meaningful participation of citizens in the planning process, ensuring the collection, collation, storage, and updating of data and information suitable for the planning process, and ensuring the establishment of a GIS-based database system.

With reference to the study area the County government of Kiambu plays a major role in planning for the markets in rural and urban areas. They are key initiators, players and implementers of the plans and may partner with the national government through the national government, ministries and other private partners.

#### **4. The Land Act No. 6 of 2012**

The Act gives effect to Article 68 of the Constitution, which provides for the revision, consolidation, and rationalization of land legislation as well as for the administration and management of land and land-based resources in a sustainable manner, among other related goals. The Act guarantees equal access to land, the security of land rights, the efficient and transparent management of land resources, the conservation and protection of ecologically sensitive areas, and the abolition of gender discrimination in the law, customs, and practices surrounding land and real property.

The Act also regulates the administration of private land with regard to the following:- regaining possession of land following the conclusion of a contract for the sale of land; the vendor's right to regain possession; damages for breach of contract; the procedure for obtaining an order for possession; relief from revocation of the contract for the sale of land; land transfer; lease transfers; transfers subject to charge; transfers subject to lease; transmission on death; the effect of transmission on death; and transmission.

#### **5. The Crops Act, 2013**

In Part I (3), the purpose of this Act is to promote the production, processing, marketing, and distribution of crops in appropriate areas of the nation in order to accelerate the growth and development of agriculture generally, increase the productivity and incomes of farmers and the rural population, improve the investment climate and efficiency of agribusiness, and develop agricultural crops as export crops that will increase the country's foreign exchange earnings. This is done in particular to avoid needless regulatory bureaucracy in the crops subsector, reduce needless levies, taxes, or other barriers to the free movement of crop products, and provide for a rationalized taxation system. It also involves reducing unnecessary regulation or overregulation of the crop's subsector, reducing duplication and overlap of functions among institutions involved in the regulation of crop agriculture, fostering competition in the crop's subsector, and developing diversified crop products and market outlets; and attract and promote private investment in crop agriculture. The study will be guided by the Crops Act to help develop policies in regards to reduction of levies and taxes especially during times of pandemics, policies to help farmers promote their farm production, processing, marketing and distribution of their produce.

## **6. The Physical and Land Use Planning Act, No 13 of 2019**

Planning, usage, regulation, and land development are all governed by this Act in Kenya. The creation of physical and land use plans is the responsibility of the government, both at the federal and local levels. The use of land in Kenya will be based on a combination of the national, county, inter-county, and local plans, all of which must be coordinated. In their separate counties, county administrations have a role in controlling development. Therefore, all requests for development clearance must still be made in the appropriate county.

Subject to the provisions of this Act, Section 29, each local authority shall have the authority to prohibit or control the use and development of land and buildings in the interests of proper and orderly development of its area. Each local authority shall also have the authority to consider and approve all development applications and grant all development permissions. According to Section 30, it is unlawful for anyone to carry out development within the boundaries of a local authority without first obtaining the development license required by Section 33 from the local authority. According to Section 31(a), anyone in need of a development permit must submit an application to the Clerk of the local authority in charge of the region where the subject property is located using the form specified in the Fourth Schedule. According to Section 33(1), a local authority may, in relation to a development application that has been referred to him under Section 32, grant the applicant development permission in the form prescribed in the Fifth Schedule, with or without conditions, or may refuse to grant the applicant such development permission, stating the reasons for refusal.

This Act implements development control plans through development control measures highlighted in section 55. This study will undertake a public participation exercise through data collection activities both secondary and primary to get information on physical and social infrastructure which are primary components of developing any plan.

## **7. National Land Commission Act, 2012**

The National Land Commission is mandated to manage public land on behalf of the national and county governments. The National Land Commission is very instrumental in infrastructure development in a region. Through the acquisition and resettlement action plans the Commission

is able to compensate persons affected by infrastructure projects to pave way for construction. The Commission may also through compulsory acquisition acquire parcels of land to be used for public purposes for example public schools, water treatment facilities, research centers and other social infrastructure.

The National Land Commission also oversees physical and land use planning in Kenya and provides monitoring and evaluation frameworks and reports the same annually as per the Physical and Land Use Planning Act, 2019. Where necessary the National Land Commission may take part in physical and land uses development plans including regional and inter-county development plans.

Conflict resolution is also the National Land Commission's mandate. It may advise of issues affecting particular land and assist in out of court mediation to arrive at a consensus. Historical injustices subject to a particular region may also be dealt with by the Commission with reference to facts dated back and with government records. In the context of this study, the planning interventions will require to adhere to the requirements of the Act.

#### **4.6.2 Policy Framework**

##### **1. At Global Level-SDGs**

The United Nations adopted the Global Goals, also known as the Sustainable Development Goals, in 2015 to encourage action to combat poverty, hunger, AIDS, discrimination against women, safeguard the environment, and guarantee that by 2030 everyone on the earth will live in peace and prosperity. Since actions in one area have an impact on outcomes in other areas, the goals are interwoven, and development must strike a balance between social, economic, and environmental sustainability. In any situation, the knowledge, technology, and financial resources of the entire society are required to realize the SDGs.

This study is focused on the SDGs to help achieve the goal of ending hunger. The metropolitan districts that oversee the distribution and accessibility of the food produce share this duty with the rural farmers that produce it. This is due to the fact that ending hunger requires both adequate food supply and administration, such as transportation and refrigeration. The control of food access is



crucial for making sure that infrastructure and food systems can withstand calamities. The government should place strong policies related to food production, distribution and consumption cycles, so as to achieve the goal. It's the government's responsibility to strengthen disaster resilience like that of Covid-19 and to strengthen cross-boundary partnerships and stronger Urban-Rural Linkages.

## **2. At Regional Level- African Union Agenda 2063**

The African Agenda 2063 framework has 39 priority areas, targets, and indicated solutions in addition to a distinct vision, seven aspirations, and twenty goals. In the next fifty years, it is intended to lead Africa towards equitable growth and sustainable development. The African leaders adopted Agenda 2063 in 2013 to expand upon and hasten the implementation of earlier and current continental initiatives for growth and sustainable development. The Sustainable Development Goals and the Post-2015 Development Agenda have been taken into account by the African Agenda.

One of its goals is to encourage modern Agriculture and ensure increased agricultural productivity and production of farm produce. This is in line with the objectives of this research, therefore it will be contributing to the envisioning of the aspirations of the African Agenda 2063.

## **3. National level- Vision 2030 and the Big Four Agenda**

### **The Kenya Vision 2030**

This is a Kenyan blueprint covering a period of 2008-2030 that envisions in making Kenya a newly industrializing nation that offers all of its residents a high quality of life in a safe and secure environment. The economic pillar of the vision, which has three major pillars: social, political, and economic, intends to achieve an average annual economic growth rate of 10%. The vision has identified a number of flagship projects in each sector that will be carried out over the course of the vision in order to attain the targeted growth rate. These major initiatives have addressed issues in crucial fields like agriculture, education, health care, water, and the environment.

The foundation of this research study is the 2030 vision, which aims to support a creative, commercially focused, and contemporary agriculture sector. To achieve this, major institutions in

agriculture and livestock must foster agricultural growth, increase crop and livestock output, and improve our smallholders' access to markets through improved supply chain management.

### **The Big 4 Agenda**

On 12<sup>th</sup> December 2017, in his Jamhuri Day speech, His Excellency the President of Kenya, Uhuru Kenyatta conceptualized “The Big Four Agenda”. He developed this new approach of the medium-term planning, so as to accelerate the achievement of the Vision 2030 aspiration (MUTINDA, 2020). The Big Four Agenda was to focus on the issues that would have the greatest impact on the well-being of the people. Each of the four strategies areas would contribute to the MTP III of the Kenya vision 2030, the African Union Agenda 2063 and the SDGs (MUTINDA, 2020). The four agenda included food security, manufacturing, affordable health care provisions and affordable housing.

Food security being the first Agenda, the government addresses the challenges that hamper the goal of food security. Some of these challenges include inefficient marketing systems, poor rural infrastructure, limited agro-processing or value addition, underfunding in the agricultural sector among others. This research has set its base on the Big 4 Agenda and it will make sure Soko Mjinga market acts as an efficient market for the smallholder farmers in Kinale Ward, which is expected to have ripple effects and positive ramifications for food security locally and in the nation at large.

### **4. Kenyan Agricultural Policy**

The main objectives of Kenya's Agricultural Policy are to increase productivity and income growth, particularly for smallholder farmers, to improve food security, and to commercialize and intensify output. In order to accomplish the SDGs, the policy is focused on a few critical areas, including improving food security and ensuring there is no hunger. In particular, for small-holder farmers, it is concerned with raising agricultural output and revenues.

Smallholder farming is key to the country's food security and economy. They should therefore be approached as subjects rather than objects during policy interventions so as to help in achieving the SDGs goals and the Kenya Vision 2030. This study will therefore be contributing to the policy

interventions in the agricultural policy so as to come up with elaborated policy recommendations that will empower the smallholder farmers.

## 5. The National Water Policy

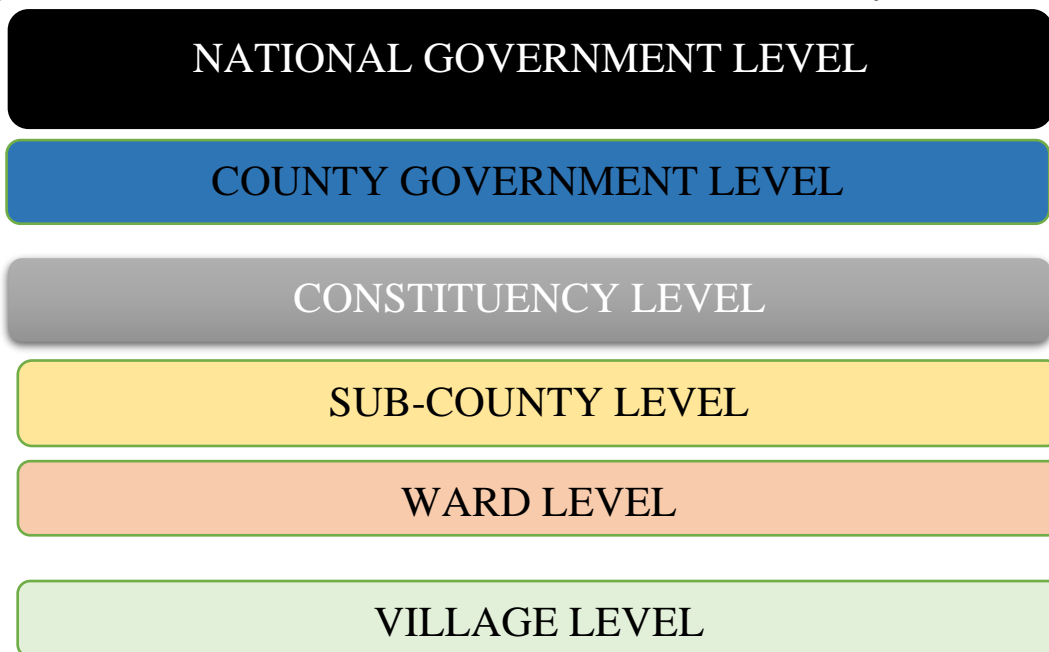
The policy came into force in the year 2002, after the enactment of the Water Act. Its aim is to ensure that all people have access to adequate quantity and quality water irrespective of their socio-economic status since ‘Water is Life’. This is through ensuring that the major water reservoirs are conserved to levels that would ensure continued supply of water.

### 4.6.3 The Institutional Framework

#### 1) The National Government

The constitution of Kenya provides for a central government with line ministries which are semi-autonomous governing agencies outlined in Figure 4.5: -

**Figure 4.5: Institutional Structure and Tiers of Governance in Kenya**



Source: Author, 2022 (Adopted from Literature Review)

#### 2) Financial Institutions

Private financial institutions in Kinale Ward include KCB Mtaani, Equity Mtaani and Mpesa services. Other informal financial institutions that play a big role in the distribution of finances include Merry Go-Round. These institutions provide financial lending services for their clients or

members in the study area. They facilitate the flow of money through the economy for example collect and provide funds for the necessary sector or individual.

### **3) Lobby and Welfare Groups**

The welfare groups in Kinale include the PEFA Group, Umoja Sacco and the Child Development center group which finance various development agendas and needy individuals in the study area.

#### **4.6.4 Community-based Organizations and Social Groups in Kinale Ward**

This section outlines how the residents of Soko Mjinga market centre and Kinale ward in general organize themselves for socio-economic development as a way to enhance their local quality of life.

##### **1. Age-mate Group-15 members**

This group is basically engaged in commercial farming and was brought about lack of employment. The group farms various crops such as cabbage, kales, potatoes, peas and carrots. The team receives training from Equity Bank Ltd. The bank offers loans to the members according to the amount of money saved.

##### **2. Kirasha Women Group.**

It is a self-help group of 10 members which is involved in table banking. The group offers loans to its members as business capital. If a member is in need she is loaned the amount of money the group has as saving. It has mainly helped the locals in educating their children by advancing them loans for paying of school fees.

##### **3. Kirasha Mwangaza Help Group.**

This group is composed of immigrants that were evicted from Burnt Forest and Molo due to either post-election violence, ethnic wars and/or land conflicts. It has 100 members whose aim is to buy their own land through the funds they raise in the group. They have bought tents and chairs using their savings and they rent them out as a way of raising more funds for the group.

##### **4. Githima Women Group**

The members of this group help each other to solve household problems and finances. The team has opened a bank account to help them in saving and get loans from the bank.

#### **5. Soko Ndogo Women Group**

It is a group of young women who came together to sell farm produce to meet family needs

#### **6. Kamae Men's Group**

The members of this group engage in dairy production. They collect milk together and sell collectively at various collection points.

#### **7. Kamae Children Development Centre.**

It is a faith based organization in Kamae that supports needy and orphaned children in education by paying their school fees.

**CHAPTER 5:**  
**THE IMPACTS OF COVID-19 IN SOKO MJINGA MARKET & IN ITS HINTERLAND**  
**IN KINALE WARD**

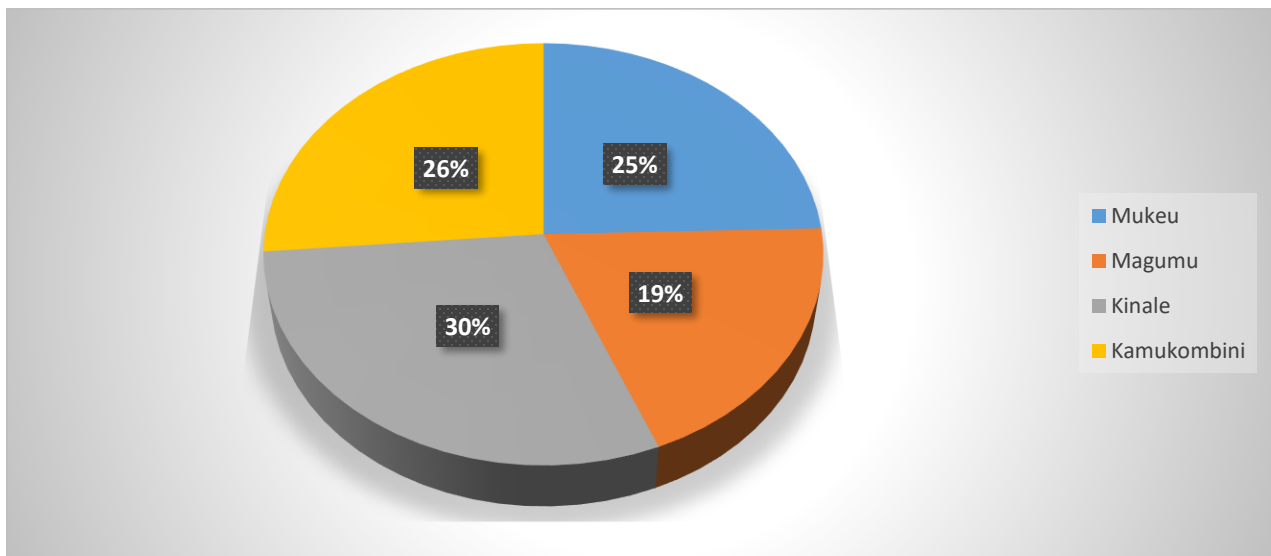
**5.1 Introduction**

This chapter presents the analysis and interpretation of all the primary data collected from the field survey undertaken in Soko Mjinga market centre and on the rural community in its hinterland in Kinale ward. Data was collected using various categories of field survey tools and instruments. They included questionnaires, which were administered to traders, households from the rural smallholder community and to drivers; focus group unstructured questionnaires; an observation checklist; structured interviews with key informants including the Chiefs, the Physical Planners, the Agricultural officer. The quantitative data was analyzed using descriptive statistics and it was presented in the form of tables, percentages, graphs and charts. The qualitative data was analyzed and it provided the information that formed the basis of discussions and interpretations of the findings.

**5.2 Response Rate and Distribution of Locations of Respondents**

The field survey results showed a response rate of about 93%. The response showed that 70 out of 75 questionnaires administered were fully responded to. Figure 5.1 shows the distribution of the respondents in Kinale Ward.

**Figure 5.1: Distribution of Locations**



Source: Field Survey, 2022

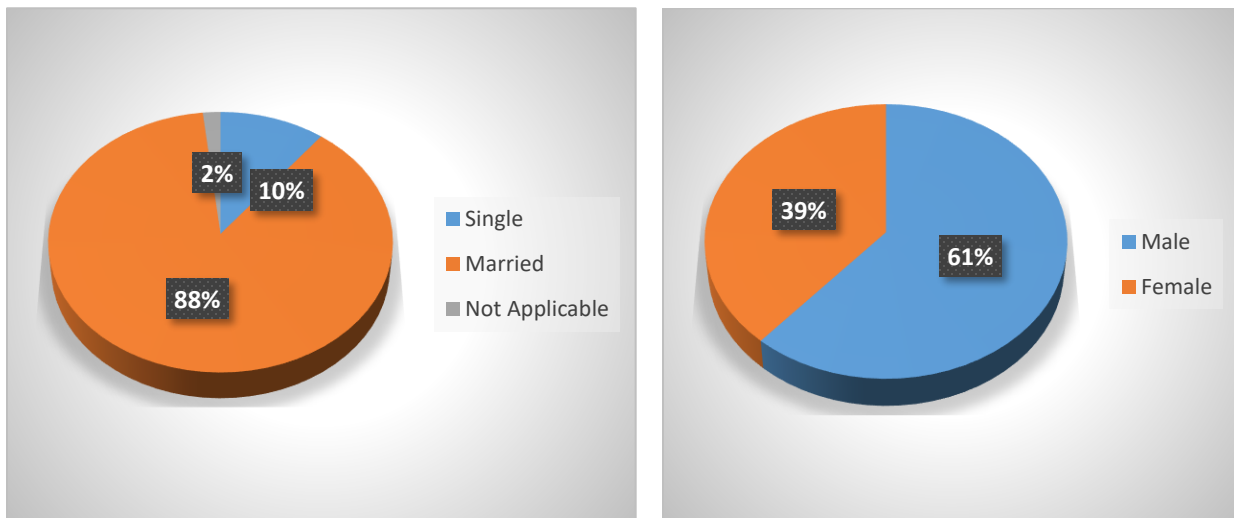
The results of the field survey show that the distribution of the location of the respondents was 30% for Kinale Location, 26% for Kamokumbini location, 25% for Mukeyu location and 19% for Magumu Location. The results confirm that there was a fair distribution of the respondents and that the field survey attempted to cover all the 4 locations in Kinale ward.

### 5.3 Socio-Economic Characteristics of the Respondents

#### 5.3.1. Gender and Marital Status of the Respondents

Figure 5.2 shows the gender and the marital status of the respondents.

**Figure 5.2: Gender and Marital Status of the Respondents**



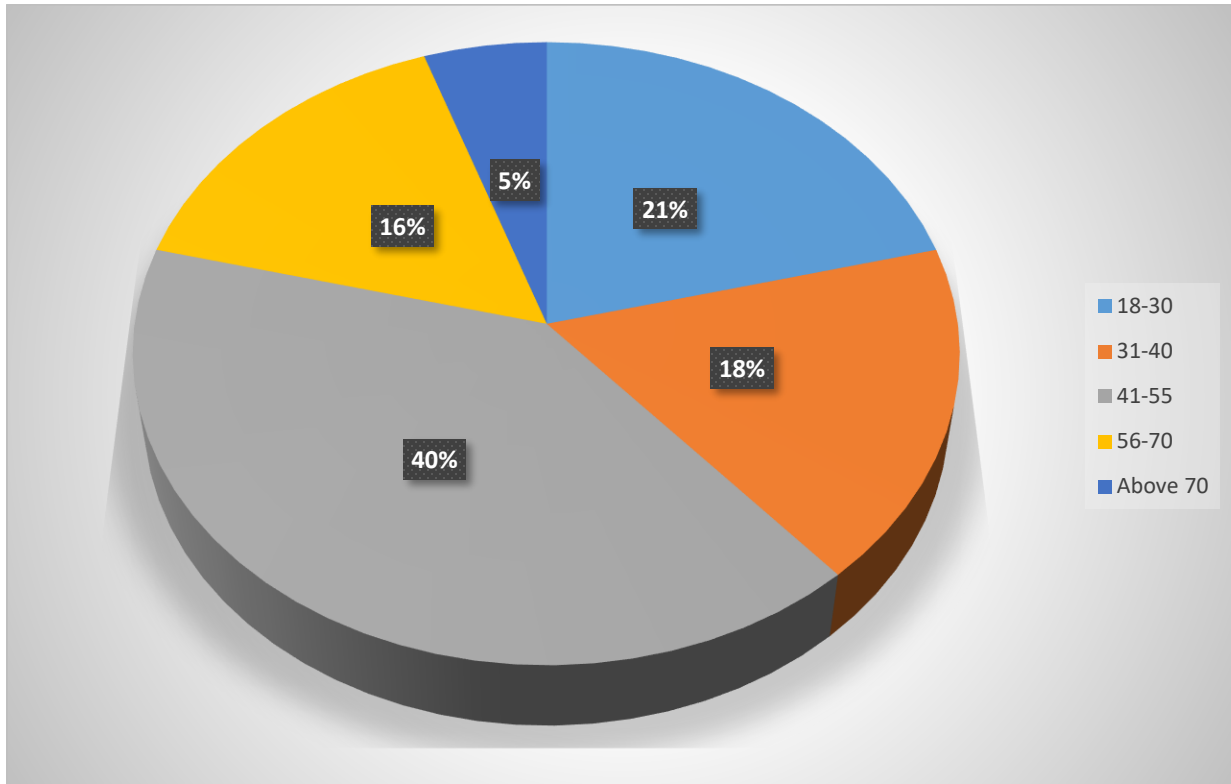
Source: Field Survey, 2022

The results of the field survey show that the majority (88%) of the respondents in Kinale ward are married while only 10% are single. This is socially advantageous because children are likely to have good parenting guidance. The field survey also shows that majority of the respondents were male (61%) while the females were the minority (39%). This was because men in Kinale ward are the household heads, and culturally, they were considered to be the most appropriate to respond to the questionnaires both at home and at the market centre. The women were quite unavailable due to the women groups' meetings that they attended during the day after harvesting their farm produce in the mornings.

### 5.3.2 Age of the Respondents

Figure 5.3 shows the age of the respondents.

**Figure 5.3: Age of the Respondents**



Source: Field Survey, 2022

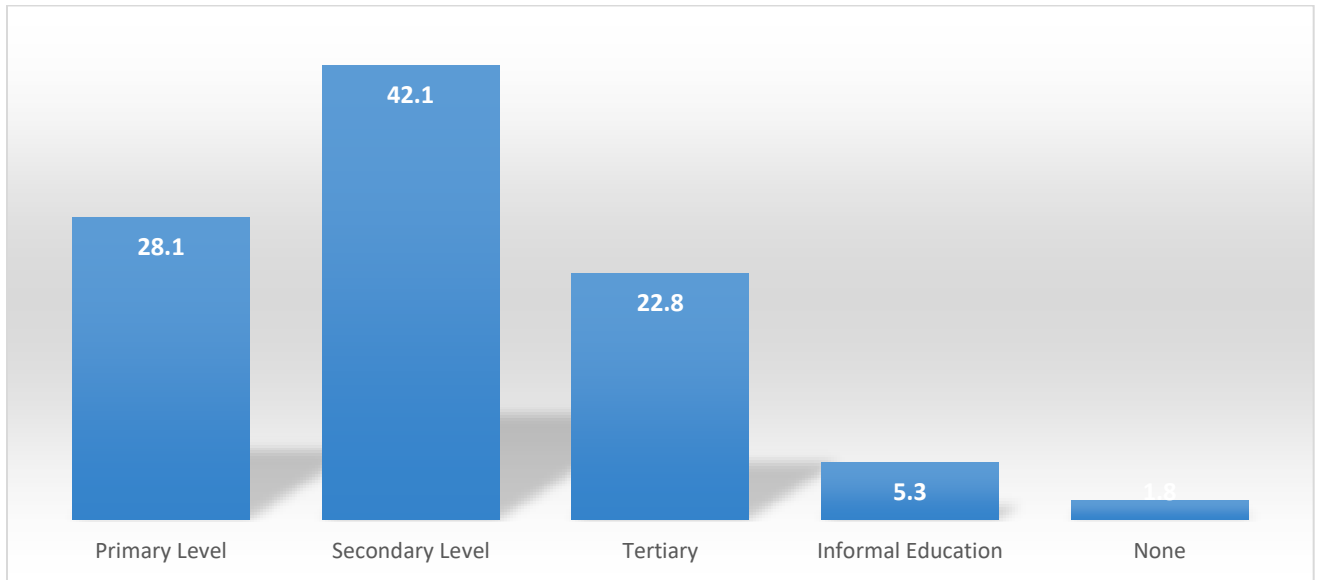
The field survey shows that about 79% of the respondents were in the age cohort of 18-55, 16% were in the age cohort of 56-70, while the minority (5%) were in the age cohort of above 70. These results show that there is a substantial number of farmers and traders who are in the active working age cohort where the source of income for their families is in either farming or in the trading of the farm produce. Only a small minority may be considered to be the elderly who are therefore dependent on the active age working group for incomes and general upkeep.

### 5.3.3 Household Highest Education Level of the Respondents

Figure 5.4 shows the highest level of education achieved by the head of the household.



**Figure 5.4: Highest Level of Education by the Household Head**



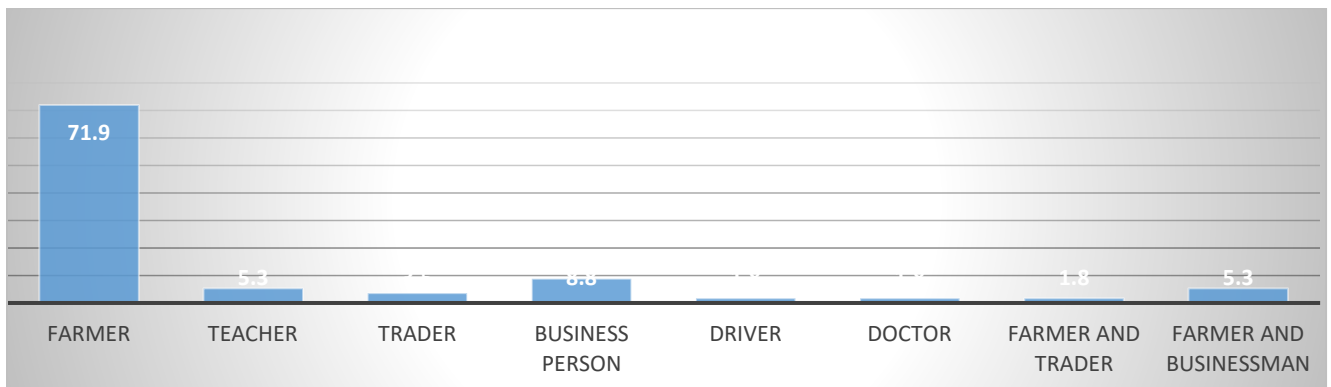
Source: Field Survey, 2022

The results of the field survey show that the majority, about 77% of the respondents, in Kinale ward have attained either none, informal education, primary or secondary level of education, while only about 23% have acquired tertiary level of education. From the evidence depicted from the field survey, secondary level of education is the highest level by about 42%, which means that this should enable a large majority of the respondents to understand new ideas whenever disseminated or trained in different fields of expertise.

### 5.3.4 Occupation of the Respondents

Figure 5.5 shows the main occupations of the respondents.

**Figure 5.5: Occupation of the Respondents**



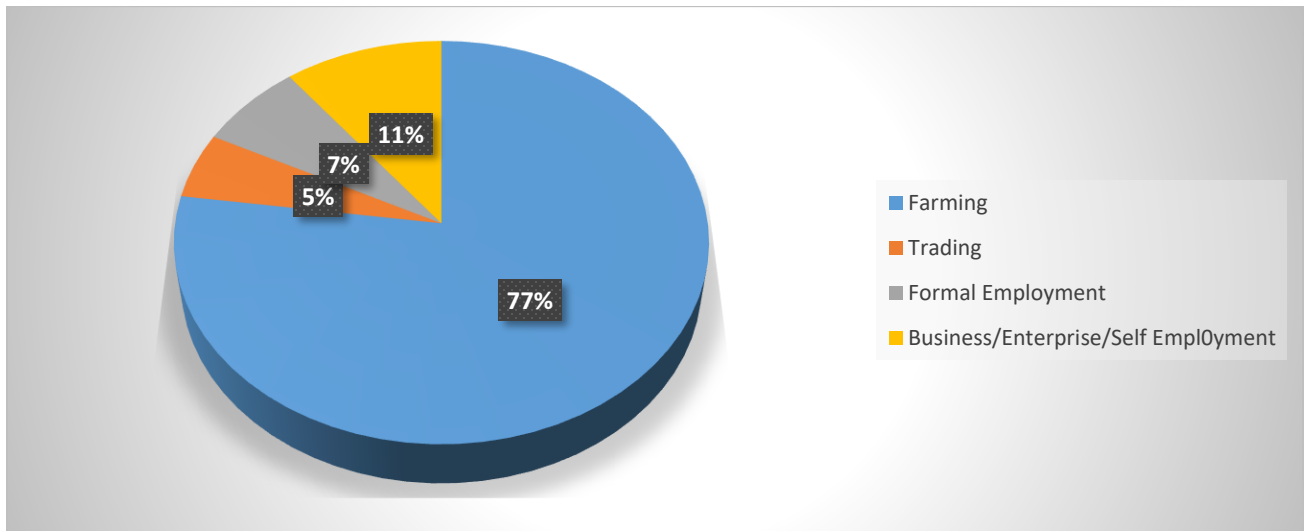
Source: Field Survey, 2022

The field survey results show that about 72% of the respondents are pure farmers while about 9% are businesspeople. About 5% combined the roles of being both farmers and teachers and about 3% were either brokers or traders who bought farm produce from the farmers and sold it at the market. The results confirm that the occupations of the residents of Kinale are not a homogeneous group of farmers. There is in fact a diversity of occupational categories from where the residents of Kinale ward eke out a living from.

### 5.3.5 Sources of Income of the Respondents

Figure 5.6 shows the various sources of income of the respondents.

**Figure 5.6: Sources of Income of the Respondents**



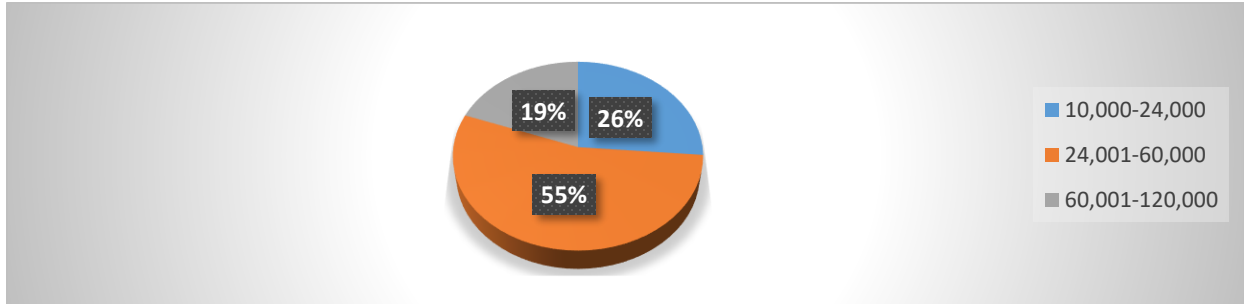
Source: Field Survey, 2022

The findings of the field survey show that about 77% of the respondents depended on farming and hence selling their farm produce as a source of income. About 11% depended on their businesses, 7% depended on their formal employment while 5% were middlemen who depended on brokering the farmers. This confirms that farming is the most important economic activity and it is the main source of livelihoods for the households in Kinale ward. It is therefore incumbent upon the County Government of Kiambu to offer extension support services in order to boost the farming sector since most of the residents of Kinale ward practiced farming and it is clear that it is their main source of income.

### 5.3.6 Average Monthly income of the Respondents

Figure 5.7 shows the average monthly income of the respondents.

**Figure 5.7: Average Monthly Income of the Respondents**



Source: Field Survey, 2022

The findings of the study show that about 55% of the respondents earned an average monthly income of between Kshs. 24,000-60,000, 26% earned less than Kshs. 24,000, while 19% earned more than Kshs. 60,000. Since farming is the main source of income for the residents in Kinale ward, a lot of improvements ought to be done to make it more profitable. In depth studies showed that the minority number of farmers who earned more than Kshs. 60,000 had large land sizes of 2-5 acres where they cultivated up to four different types of crops. Since their farm produce was high, they are able to purchase farm inputs to maintain or increase their farm produce. They also did not depend on brokers to sell their farm produce. Instead, they had their own traders who bought the farm produce directly from their farms. The farmers who earned less than Kshs. 24,000 had land sizes of less than half an acre and they were not able to buy farm inputs such as fertilizers often. They also depended on middlemen to sell their farm produce.

Middlemen are considered to be the most undoing factor and a nuisance in the market. They are the category of people that contribute to the very low income earnings for the farmers. From an interview carried out with a middleman, he revealed that he buys a bag of kales from a farmer at Kshs. 250, he then sells the same bag to a lorry driver at Kshs. 500. The middleman makes a profit of Kshs. 250 without breaking a sweat. From the responses by farmers, the middlemen in the market ensure by all means that the farmers do not sell directly to the traders.

From the traders interview, one of the respondents who buys from the farmers and sells the produce in Nairobi, gave the scenario where he buys 60 bags of kales at Kshs. 500 each, he pays Kshs. 60

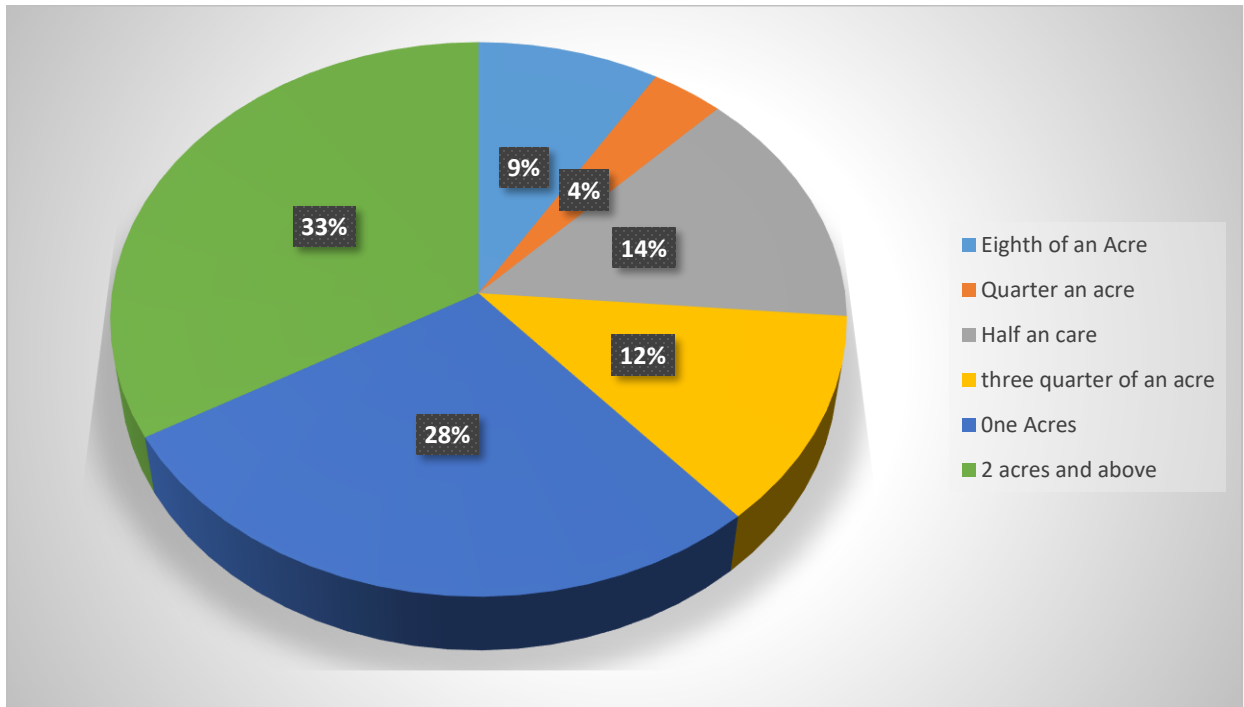
per bag for transport, Kshs. 5 to the loaders for each of the 60 bags on a lorry, Kshs. 10 per bag for bringing the bags to the retailers in Kangemi market in Nairobi and then sells one bag of kales at Kshs. 1,200. His total costs a day are Kshs. 34,500 and by selling the same bag at Kshs. 1,200 each he makes a total of Kshs. 72,000, with a profit margin of Kshs. 37,500.

The results of the field survey show that the prices of the farm produce are therefore determined by the middlemen and the actual farm traders. The question is '*why cant the farmers cooperate and come up with fixed prices of their farm produce?*'. The field survey showed that the farmers complained of how the vegetable market is dominated by middlemen, They operated as cut-throat cartels or what they referred to as the "*Mafias*". The growing dominance of the middlemen could be attributed to the fact that the farmers are not ready to spend a whole day in the market without selling anything and go back home with their produce. They therefore end up selling at any price presented to them by the traders or the middlemen at Soko Mjinga market centre. The two main challenges faced by the smallholder farmers is that firstly, they are not able to get the real value for their produce. When they sell a cabbage at Kshs. 5, the real value of that cabbage is not achieved considering that a lot of inputs have been contributed to produce the cabbage. Secondly, most farmers do not even make a point of trying other alternative ways in which they can avoid the middlemen and traders. One proposal would probably be to use advanced modern technology to set up online accounts and to engage digital marketing for their farm produce.

### **5.3.7 Land Tenure & Land Subdivision**

The residents of Kinale ward were allocated five acres of land per household by the government through a presidential directive. The land has been undergoing subdivision due to population increase and socio-cultural practices such as land inheritance. Figure 5.8 shows the current land sizes in Kinale ward.

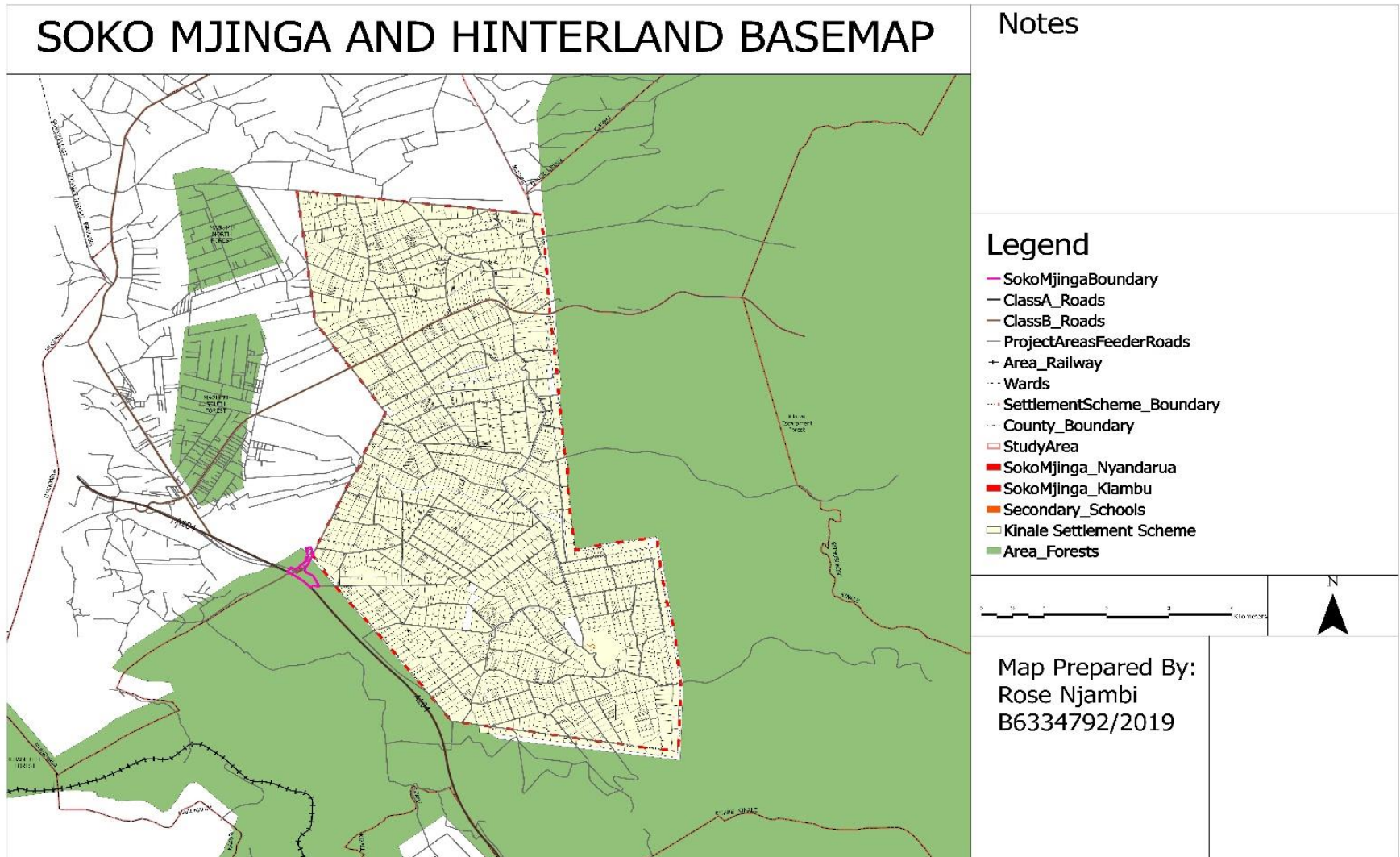
**Figure 5.8: Land sizes in Kinale Ward**



Source: Field Survey, 2022

The field survey shows that 33% of the respondents had more than two acres of land, while 28% owned one acre. The rest had less than one acre of land. More in-depth inquiries showed that the land had undergone rapid subdivision. This occurred when the initial five acres was subdivided in accordance with the individuals' preference. The County Government of Kiambu needs to raise awareness among the residents of Kinale ward that further land subdivision should be discouraged since it was causing the unprecedented diminishing of agricultural land, which is threat to future food security locally and in the larger nation at large. Map 5.1 illustrates the current levels of land subdivision in Kinale settlement scheme.

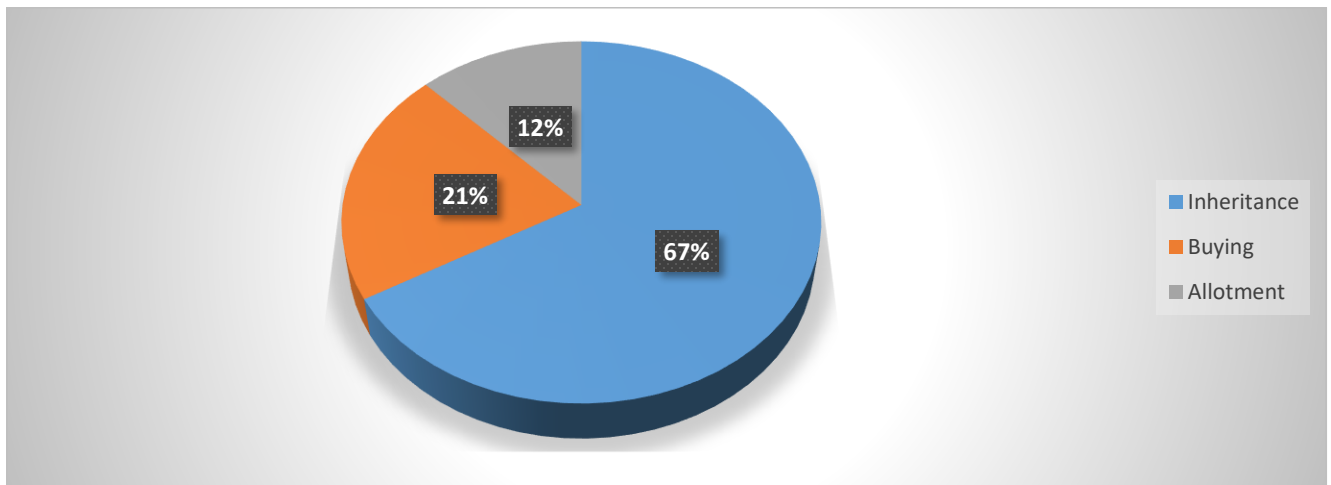
**Map 5.1: Land Subdivision in Kinale Settlement Scheme**



Source: Author's Construct, 2022 (Adopted from Google Maps)

Figure 5.9 shows the various modes of acquisition of land in Kinale ward.

**Figure 5.9: Mode of Acquisition of Land in Kinale Ward**

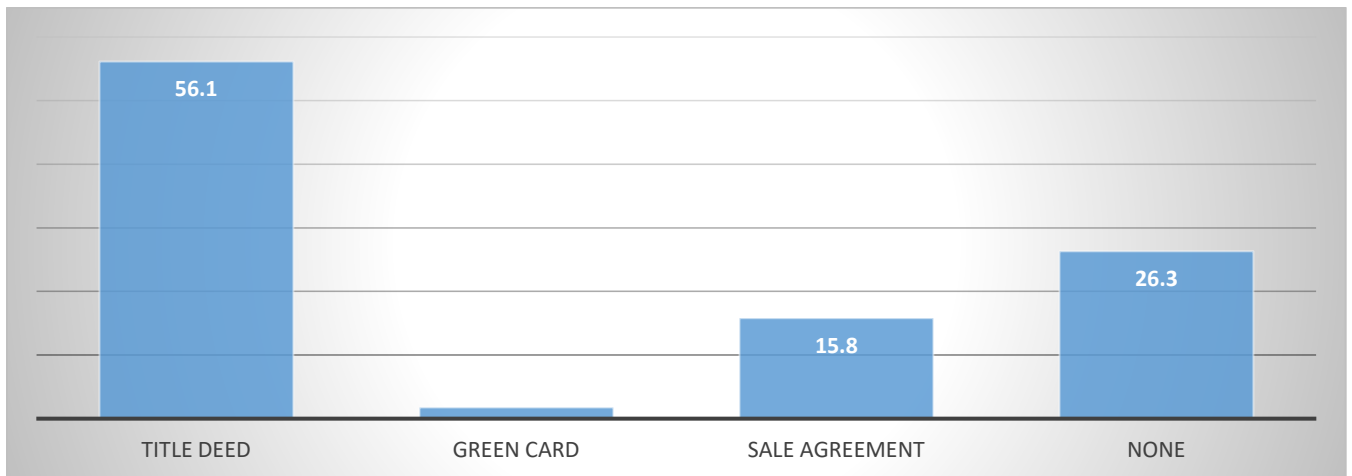


Source: Field Survey, 2022

The field findings show that about 67% of the respondents acquired land through inheritance, while 21% had bought the land that had been subdivided. Only 12% had the five acres of land as intact as when it was initially allocated to them by the government.

Figure 5.10 shows the types of ownership documents that are held by the respondents.

**Figure 5.10: The Types of Ownership Documents held by the Respondents**



Source: Field Survey, 2022

The results show that about 56% of the respondents had title deeds although they complained of double allocation, hence most title deeds were not valid. About 26% of the respondents did not have any ownership documents since some of their title deeds had been recalled by the National Land Commission while others argued that they had inherited the land and were never given any ownership documents. About 16% who had bought land had sales agreements but with no formal ownership documents in the form of title deeds. These results show that although the government had hived off the land from the forest through a Presidential Executive Order, it had still never quite issued the correct ownership documents to the residents of Kinale ward and hence they still had insecure land tenure.

#### **5.4 Rural Land Uses in Kinale Ward**

The landscape in Kinale Ward is an interwoven mix of rural and urban land uses. It comprises of a mix of agricultural, forestry, commercial (shopping centres), transportation and rural homesteads (residential) land uses.

##### **5.4.1 Classification of Land Uses and Land Use Changes in Kinale Ward**

In determining the land uses in Kinale ward GIS software (ArcGIS tool) was used to classify the different types of land uses into built-up (buildings and roads), vegetation cover (forests, shrubs), bare land (the uncultivated land) and agricultural land (the cultivated land). Different yearly periods were used to track the changes that have occurred in the land uses and land cover changes. The study intended to use a time period of 10 years. This approach was however limited by the available Landsat imageries. The specific 10 year periods had a big percentage of cloud cover, leading to poor classification of the land uses. The years analyzed therefore included 1988, 1999, 2014 and 2022.

##### **Land use and Land Cover in 1988**

Map 5.2 shows the land use and land cover changes in 1988



**Map 5.2: Land Use and Land Cover Analysis in 1988**



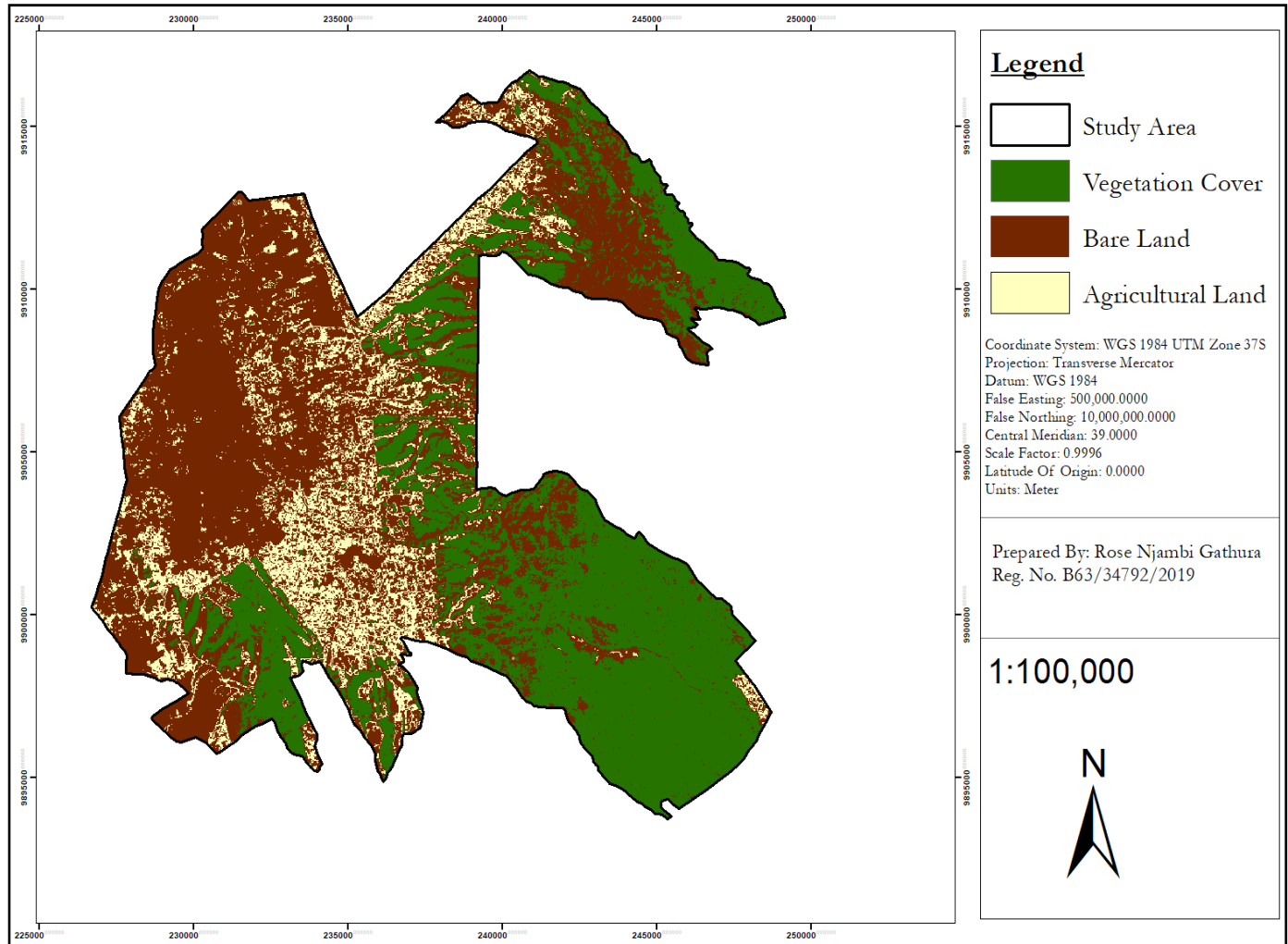
Source: Author's Construct, 2022 (Adopted from ArcGIS 2019)

The results of this analysis show that in 1988, Kinale ward had its land as about 56.53% as vegetation cover, 28.95% as bare land and 4.16% as agricultural land with an insignificant value of the built areas. This was around the time that the Kinale settlement was being hived off from the forest and allocated for human settlement. Deforestation then followed and most of the land was left bare and other portions were being gradually converted for cultivation.

### **Land Use and Land Cover Changes in 1999**

Map 5.3 shows the land use and land cover changes in 1999

**Map 5.3: Land Use and Land Cover Analysis in 1999**



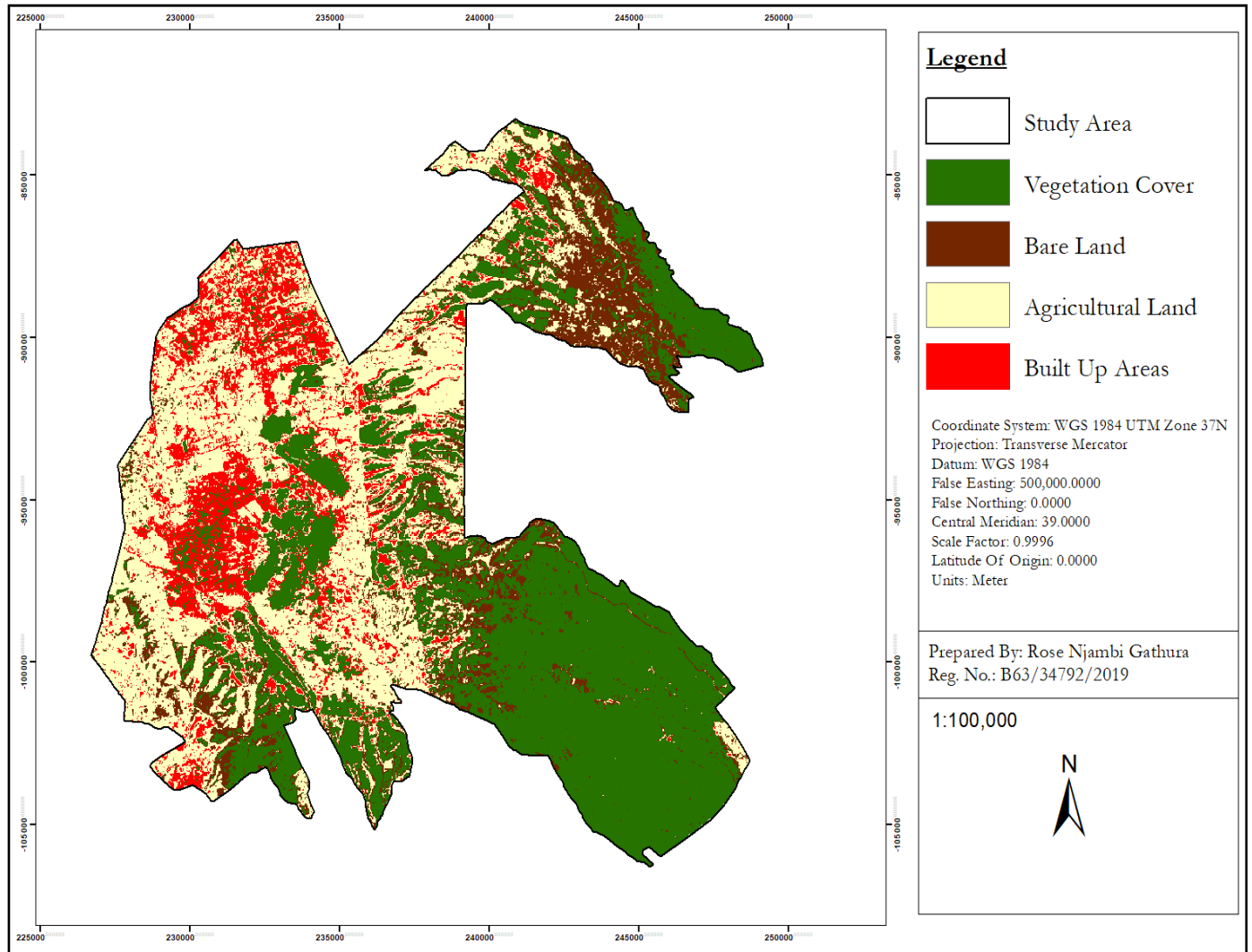
Source: Author's Construct, 2022 (Adopted from ArcGIS 2019)

The percentage of the vegetation cover in 1999 was 35.87% which was a decrease of 20.66% from 1988. The bare land had a percentage of 49.50% which was an increase from 1988 of about 20.55%. Agricultural land was 14.62% which was a small increase of 0.6% from 1988. The built up area was still insignificant. The vegetation cover decreased because of the continued deforestation of the forest as a source of timber to build their homes so more land continued to be left bare.

### **Land use and Land Cover Changes in 2014**

Map 5.4 shows the land use and land cover changes in 2014

**Map 5.4: Land Use and Land Cover Analysis in 2014**



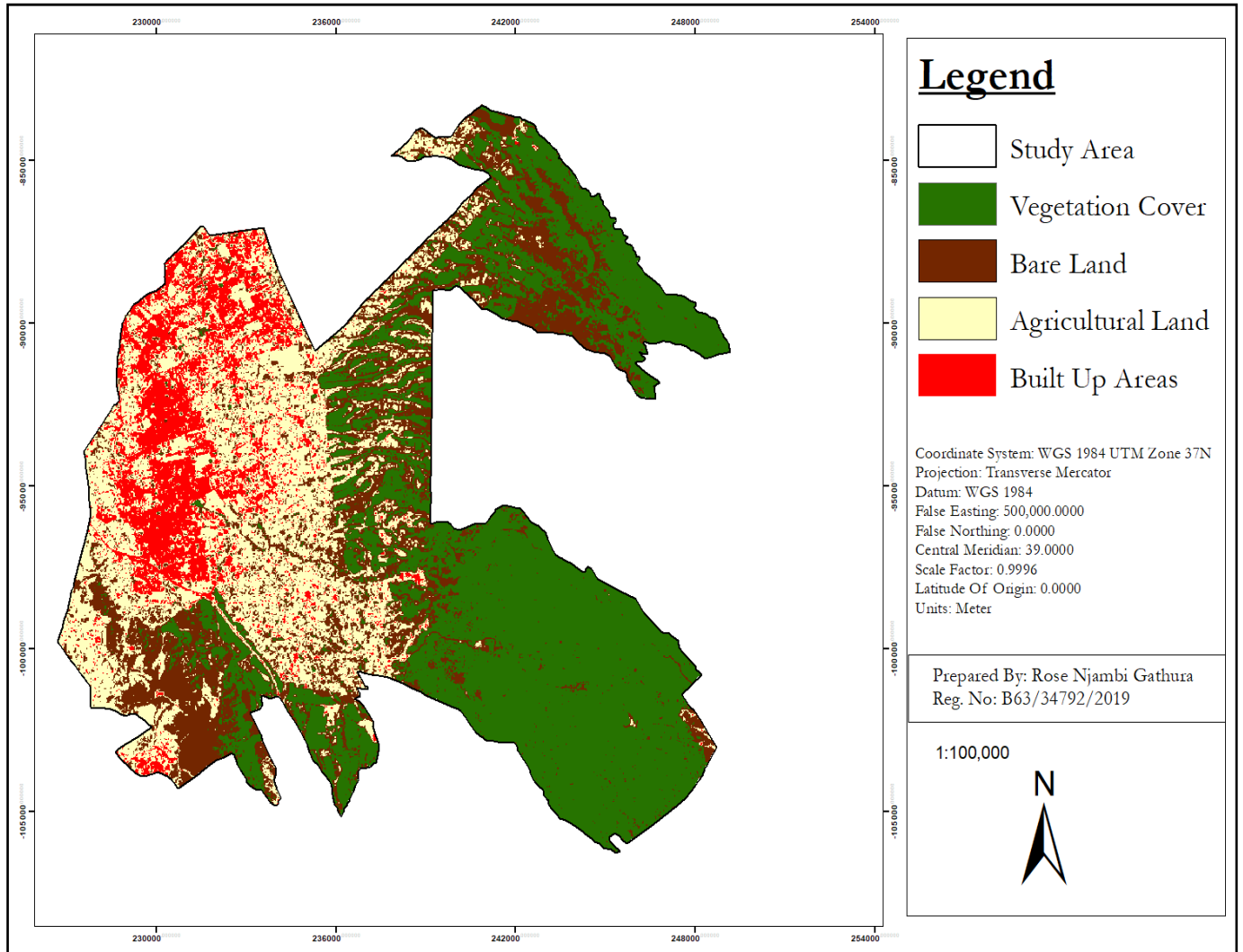
Source: Author’s Construct, 2022 (Adopted from ArcGIS 2019)

The percentage of the vegetation cover was 39.80% which was an increase by 3.93% from 1999. The bare land was 33.48% which was a decrease by 16.02% from 1999. The agricultural land was at 14.04% and it did not have a significant change from 1999. The built-up areas emerged with a percentage of 12.67%. The vegetation cover increased due to the intervention of planting trees. The residents of Kinale ward were encouraged to undertake agro-forestry, which involved planting more trees as they cultivated into the forest. The bare land deceased due to the emergence of the built up areas. The land that had previously been left bare was now occupied by schools, churches, market centres, shops and homes.

## Land use and Land Cover Changes in 2022

Map 5.5 shows the prevailing existing situation as of the time of conducting the ground field survey.

**Map 5.5: Land Use and Land Cover Analysis in 2022**



Source: Author's Construct, 2022 (Adopted from ArcGIS 2019)

The vegetation cover in 2022 is 40% which is not a significant change from 2014. Bare land is at 20.32% which is a decrease of 13.16% from 2014. Agricultural land is at 26.30% which is an increase of 12.34% from 2014. The built-up area has increased to 13.30%. The vegetation cover was not a significant change since the Kenya Forest Service had now been jealously protecting the forest and the controversial shamba system had been up abolished to help in the conservation of

the forest. The bare land had continued to decrease as some of it has been put into agricultural use and built-up area therefore leading to an increase of the same.

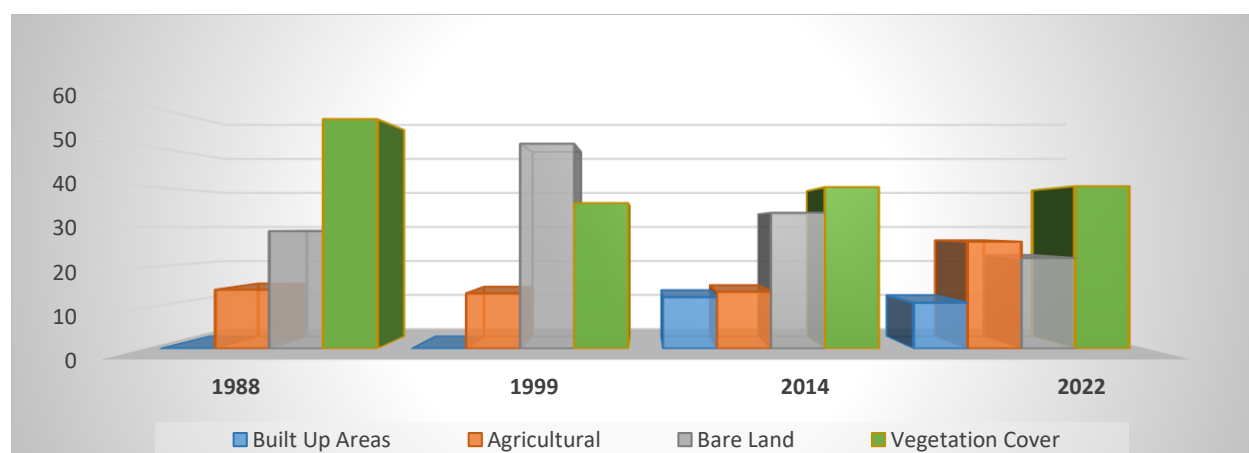
Figure 5.11 and Table 5.3 summarize the land use and land cover changes as extracted from the spatial data in Maps 5.2 – 5.5.

**Table 5.3: Land Use and Land Cover Changes from 1988-2022**

LAND USE/ YEAR	1988		1999		2014		2022	
	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%
<b>Built-Up Areas</b>	0	0	0	0	3.7175	12.67	3.3162	13.30
<b>Agricultural</b>	4.1631	14.52	4.003	14.62	4.1210	14.04	7.7355	26.36
<b>Bare Land</b>	8.3042	28.95	14.8176	49.50	9.8241	33.48	6.5482	20.32
<b>Vegetation Cover</b>	16.2128	56.53	10.5253	35.87	11.6806	39.80	11.7433	40.02
<b>Total</b>	<b>29.3432</b>	<b>100</b>	<b>29.3432</b>	<b>100</b>	<b>29.3432</b>	<b>100</b>	<b>29.3432</b>	<b>100</b>

Source: Field Survey, 2022

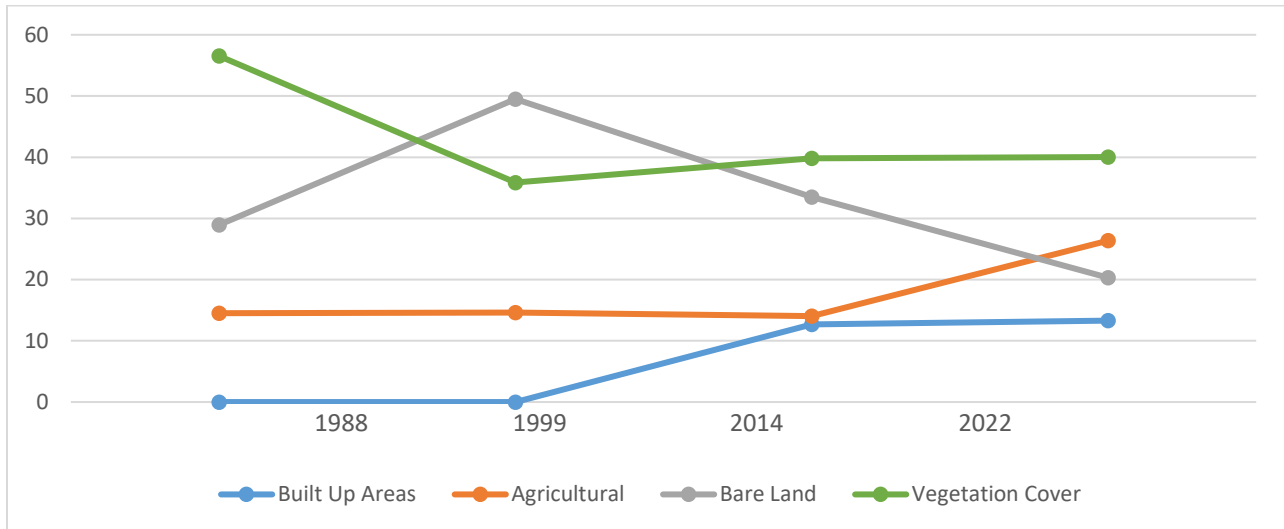
**Figure 5.11: The Changing Types of Land Uses in Different Years**



Source: Field Survey, 2022

The results of the field survey as illustrated in Figure 5.11 and Table 5.3 clearly show the significant increases in the built-up areas and in the agricultural land cover. It equally shows significant drops in land use and land cover by vegetation cover and hence forest cover.

**Figure 5.12: The Changing Land Uses in Different Years**



Source: Field Survey, 2022

The results of the field survey as illustrated in Figures 5.11-5.12 and Table 5.3 show that the vegetation cover decreased from 1988 to 1999. It then increased significantly in 2014 and stagnated to to-date. This was contributed by the initiative of reforestation where trees were planted to form a part of the forest to be made classified as planted. The bare land increased from 1988 to 1999, it then decreased from 1999 to 2014 and it continued to decrease up to to-date, due to built-up developments and increased cultivation. The agricultural land is seen to have increased from 2014 to 2022 since more land that was bare had been converted to agricultural. After subdivision of their land, the residents of Kinale ward have been cultivating the bare land and herding their cattle in the bare land in the forest. The built up areas have significantly increased to date as more land is put into change of use due to population increase and increase in built-up developments in the form of roads, schools and residential homes.

#### **5.4.2 Different Types of Land Uses Existing in Kinale Ward**

##### **Rural Residential Land Uses**

The category of rural residential land uses includes single-family residences, multiple-dwelling units and mixed-use in the form of residential-cum-commercial developments. In Kinale ward there exists single dwelling residences and they are in the form of linearly scattered human settlements. Rural residential development has a potential to affect land resources by occupying productive areas and interfering with the farm and forestry practices. The focus group discussions



revealed that the forest community allows the farmers to farm in the forest when tree plants are young as they take care of the young trees through weeding. When the trees grow to a certain height/ canopy the farmers are instructed to stop farming. See map 6 below

### **Map 5.6: Linear Types of Human Settlements in Kinale Ward**



Source: Google Earth Image, 2022

### **Commercial Land Uses**

Commercial land uses are characterized by building structures that are predominantly used for sale of products and services. The type of commercial land uses evident in Kinale Ward are linear strips of corridor development. The commercial activities have developed along or adjacent to the highway and along major access roads. There exists several shopping centers that have formed along the access roads. Soko Mjinga market centre is the main commercial center and other facilities seem to cluster around it.

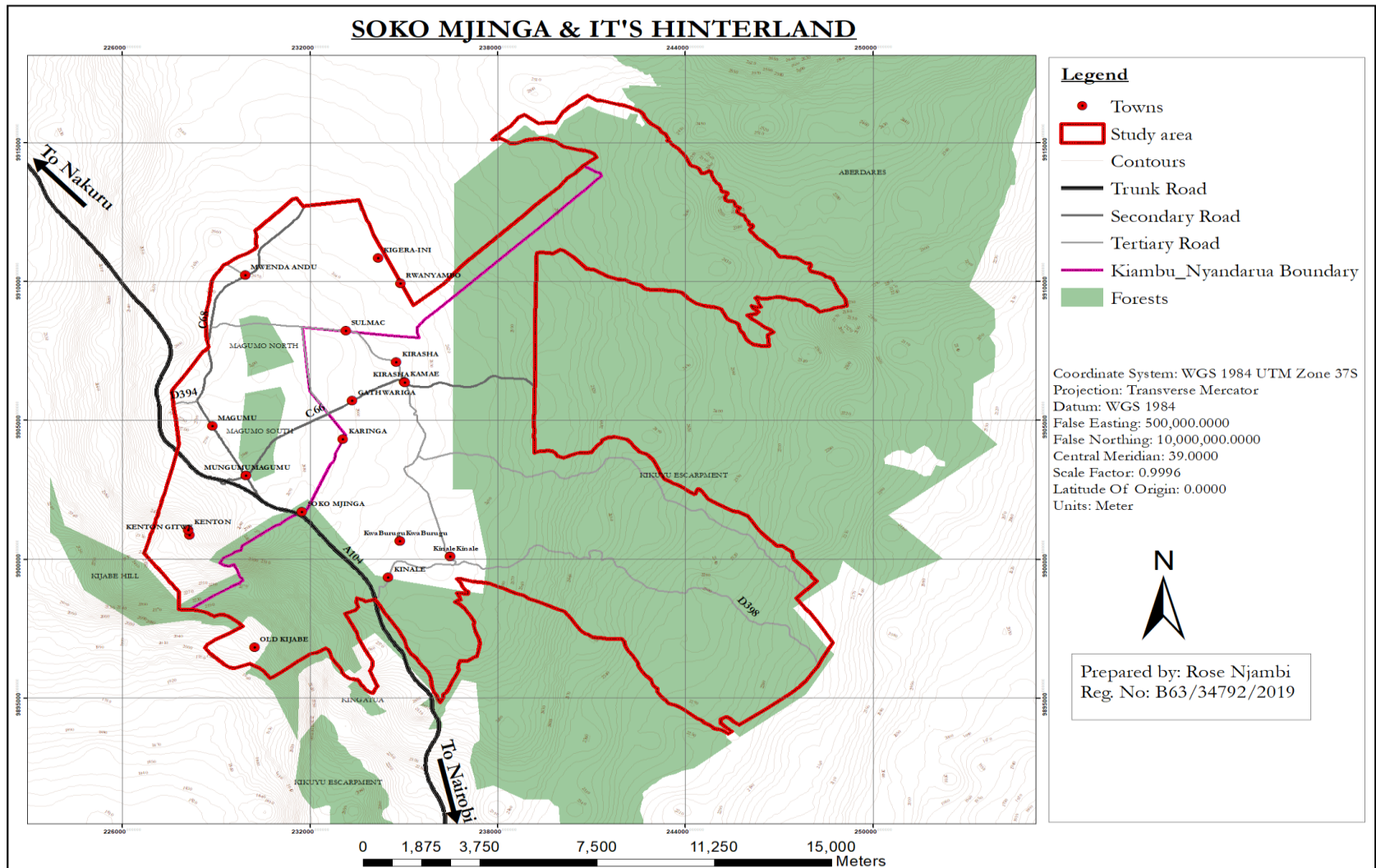
### **Transportation and Infrastructure Services & Utilities Land Use**

This type of land use is characterized by the hierarchy of transportation routes and utilities such as power lines, communication facilities and sewer treatment plants.

The Nairobi-Nakuru Highway (A104), which traverses Soko Mjinga market centre contributes largely to the urban-rural linkages between Kinale ward and the rest part of the country. The Class C road that passes through the market centre acts as a boundary that separates Kinale and Magumu wards. Food produce is transported from the market centre to different parts of the country such as Garissa, Nairobi, Mombasa, Kisumu, Kakamega. Other produce such as onions are transported to Soko Mjinga Market Centre from Narok and Kajiado County. The Class B, C, D and E roads in Kinale ward connect the farms to the market centre. See map below the major road serving the market and Kinale ward.



**Map 5.7: Roads Connecting Soko Mjinga Market Centre to the Hinterland of Kinale Ward**

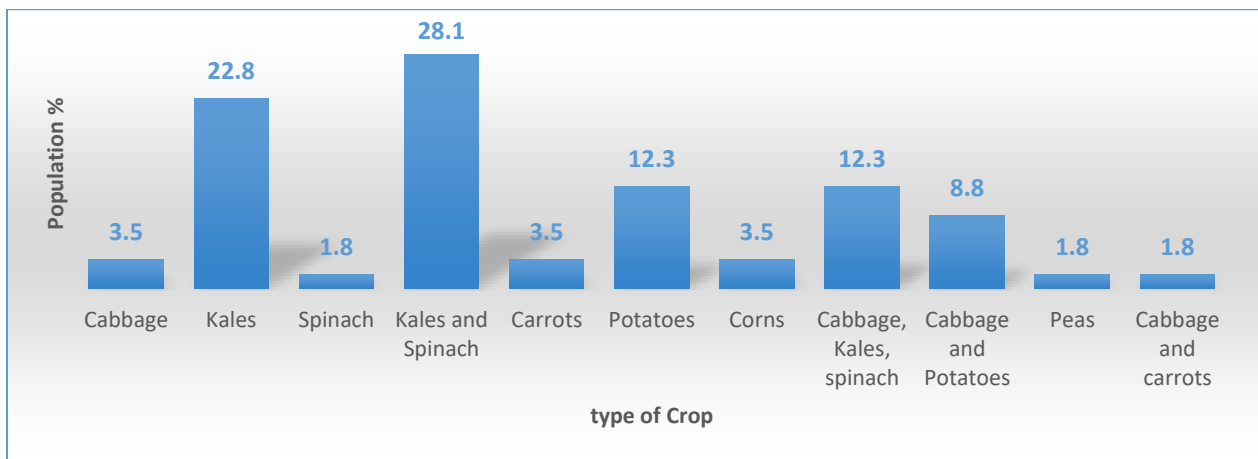


Source: Source: Author’s Construct, 2022 (Adopted from ArcGIS 2019)

## **Forestry and Agricultural Land Uses**

Kinale Forest has both natural and planted trees. From the field interviews, farmers stated that they were allowed to farm in the forest when the trees are young and also carry out dairy farming in the forest. Agricultural land use is the second largest use after forestry. The field survey revealed that the residents of Kinale ward practiced crop production more than livestock production. This was attributed to the favourable soil and weather conditions that supported horticulture. Figure 5.13 show that some of the crops planted included kales, spinach, cabbages, carrots, cow peas, potatoes, corns and broccoli.

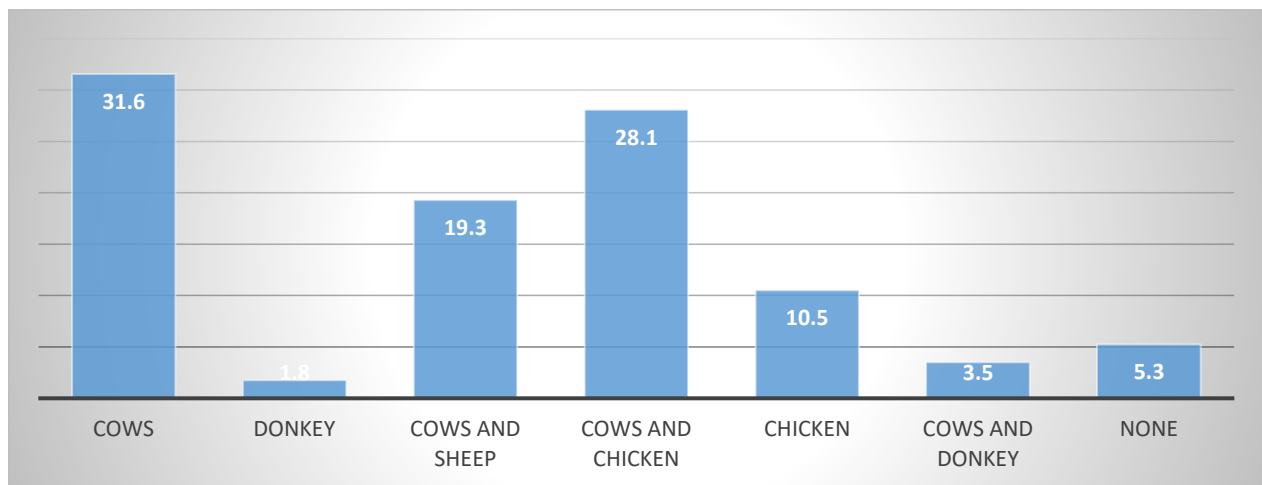
**Figure 5.13: Types of Crops Planted in Kinale Ward**



Source: Field Survey, 2022

The results of the field survey show that kales and spinach were the most preferred at 28.1%, with kales alone being the most preferred 22.8%. This was due to their low maintenance during production, packaging, and selling. Cabbages and Spinach are easily damaged by weather conditions. Figure 5.14 shows some the livestock kept in Kinale which included cows, donkeys, sheep and chicken.

**Figure 5.14: Types of Livestock Kept in Kinale Ward**



Source: Field Survey, 2022

The results of the survey show that 31.6% of the population preferred to keep cows. 28.1% of the population kept both cows and chicken, 19% kept both cows and sheep. These categories preferred raising cows since they were allowed to herd them in the forest. However, only a paltry number of the population (5.3%) did not keep any livestock.

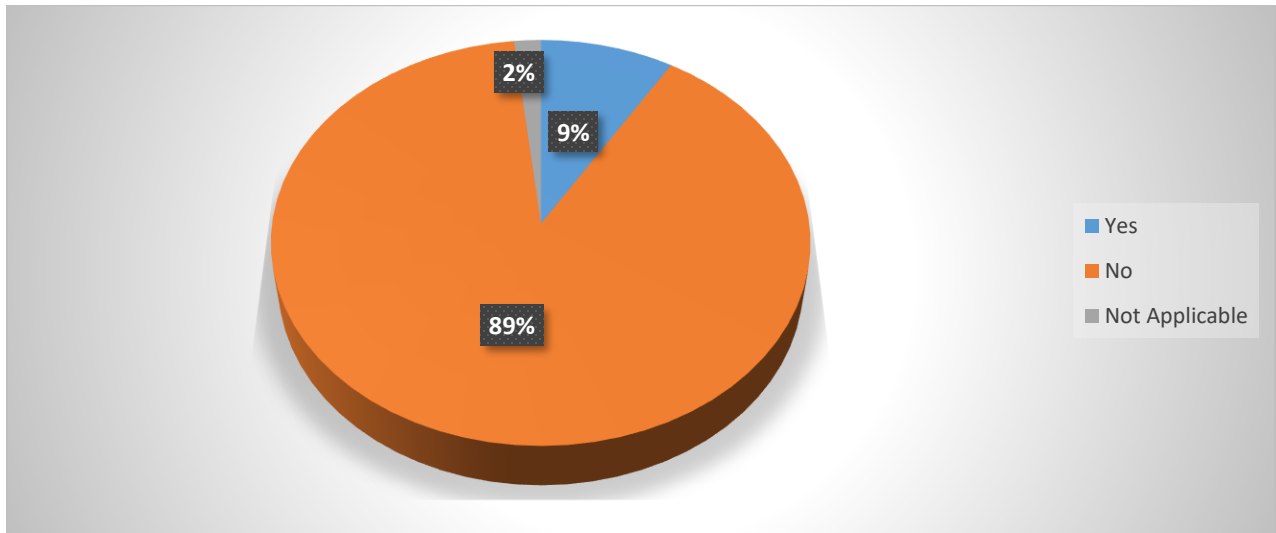
## **5.5 The Impacts of Covid-19 on Agricultural Land Use**

This study's first objective was to assess the impacts that the Covid-19 pandemic had on the rural land uses in Kinale ward. The field survey examined the change in the choice of crops planted, the livestock kept and the quality and the quantity of the produce from the farms.

### **5.5.1 Changes in the Crops Planted and the Livestock Kept**

The field survey examined the changes in the crops planted. Figure 5.15 shows the impacts of Covid-19 on the types of crops grown in Kinale Ward.

**Figure 5.15: The Impacts of Covid-19 on the Types of Crop Grown in Kinale Ward**

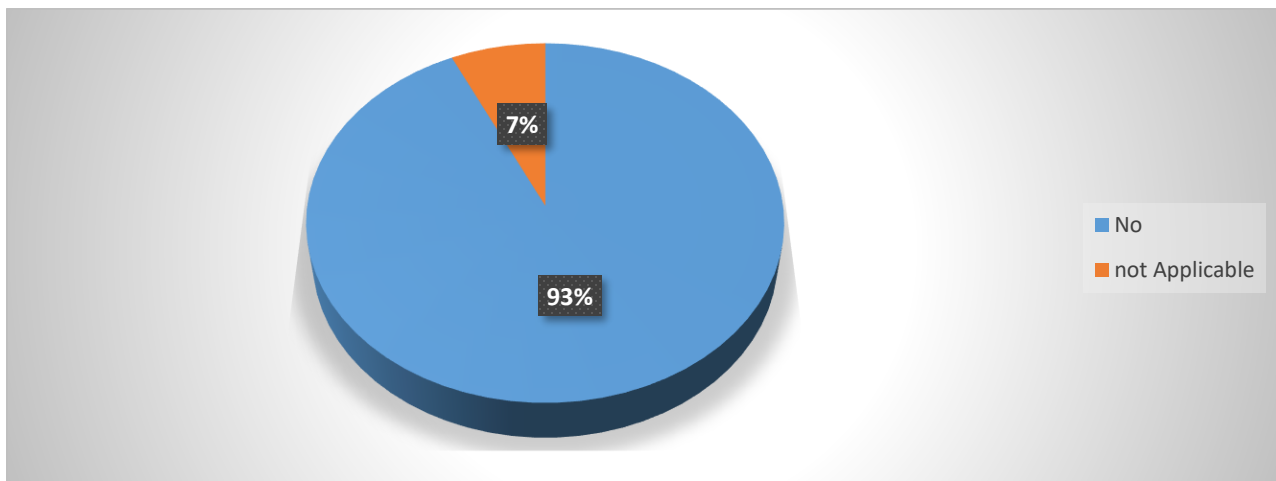


Source: Field Survey, 2022

The results of the field survey show that with regards to the agricultural land use, 89% of the population did not change the type of the crop they planted before Covid. However, 9% changed the choice of the crop planted. The results however indicate that Covid-19 did not have a significant impact on the choice of crops planted.

The field survey further examined the changes in the livestock kept. Figure 5.16 shows the impacts of Covid-19 on the types of livestock kept in Kinale Ward.

**Figure 5.16: The Impacts of Covid-19 on the Types of Livestock Kept in Kinale Ward**



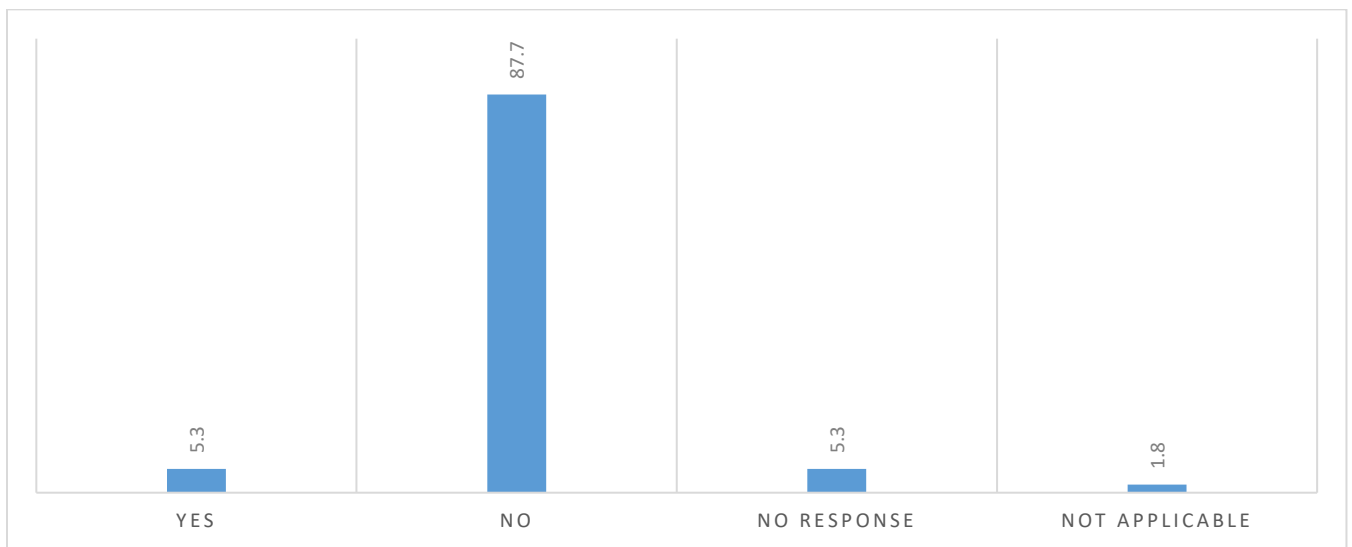
Source: Field Survey, 2022

The results of the field survey show that 93% of the people did not change the type of livestock kept due to the Covid-19 pandemic. The field survey therefore shows that there were no significant effects of Covid-19 on the types of livestock kept.

### 5.5.2 Change in the Quality and in the Quantity of the Farm Produce

Quality of the farm produce is a combination of appearance, texture and flavor as well as nutritional and safety aspects that determine their value to the consumer.

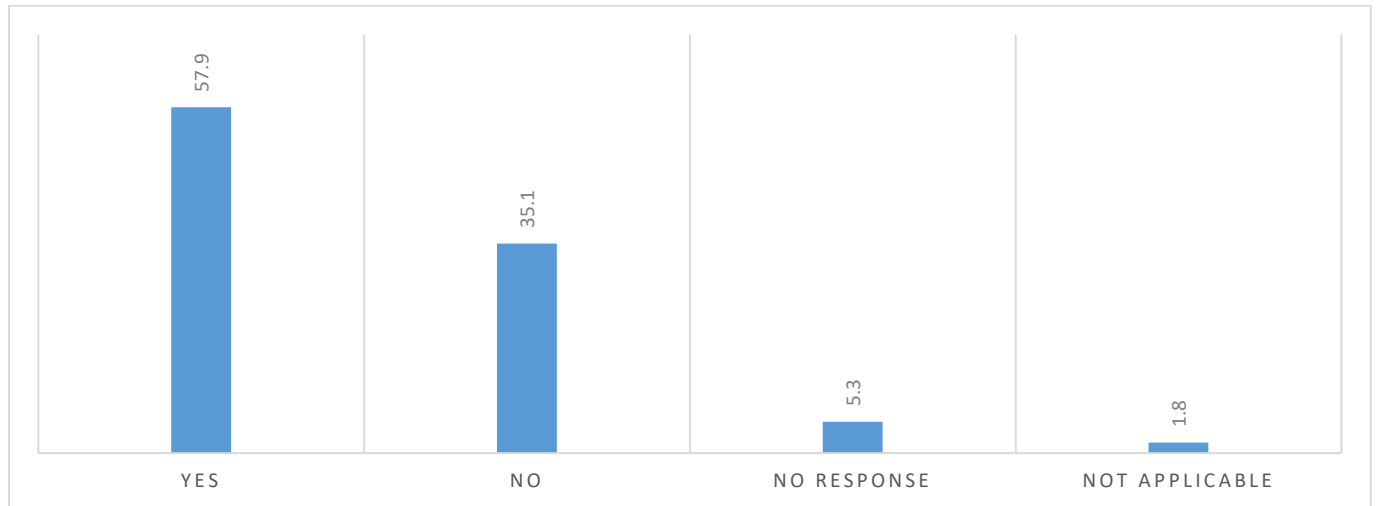
**Figure 5.17: The Effects of Covid-19 on the Quality of the Farm Produce**



Source: Field Survey, 2022

The results of the field survey show that 87.7% of the population did not change the quality of the farm produce. They affirmed that their farm produce was already well known for its freshness and that's why it continued to attract a wide range of consumers drawn from urban and rural market centres countrywide. Figure 5.18 shows the effects of Covid-19 on the quantity of the farm produce.

**Figure 5.18: The Covid-19 Effects on the Quantity of the Farm Produce**



Source: Field Survey, 2022

The results of the field survey show that 57.9% of the population affirmed that the quantity of their produce changed during Covid-19, while 35.1% did not experience any change. The farmers selling potatoes reduced the quantity of production due to reduced number of buyers. The potatoes which were sold in Kilos would last up to three days before they got a customer. This would lead to reduced amounts of Kilos of the potatoes, therefore the farmer would end up in losses. Another scenario of reduced quantity of farm produce sold was seen during Covid-19 when the Ministry of Agriculture set a limit that only 50kg of potatoes should be sold. This was to prevent brokers from taking advantage of the farmers since the quantity of the produce was high but there was no market for it.

### **5.6. The Impacts of Covid-19 on Soko Mjinga Market Centre**

This study's second objective was to assess the impacts that the Covid-19 pandemic had on the market centre. The field survey examined the number of times that the people of Kinale ward visited the market before, during and after the Covid-19 pandemic. The study further sought to examine the changes that had occurred in the market centre due to the Covid-19 pandemic.

### 5.6.1 Purpose of Visiting the Market

Figure 5.19 shows the purpose for visiting Soko Mjinga Market Centre

**Figure 5.19: Purpose for Visiting Soko Mjinga Market Centre**



Source: Field Survey, 2022

The results of the survey show that 32% of the population went to Soko Mjinga to trade and do shopping, 28% went for shopping only, 26% conducted their business in the market and 14% went for trading alone. The market was useful to all in different kinds of ways and trading seemed to have topped the main reason for visiting the market centre. Trading in this case involves selling of farm produce to consumers and other traders who bought produce from Soko Mjinga market centre to sell them in different locations or markets such as Wakulima market in Nairobi.



**Plate 5.1: Brisk Businesses and Farmers Selling Produce at Soko Mjinga Market Centre**



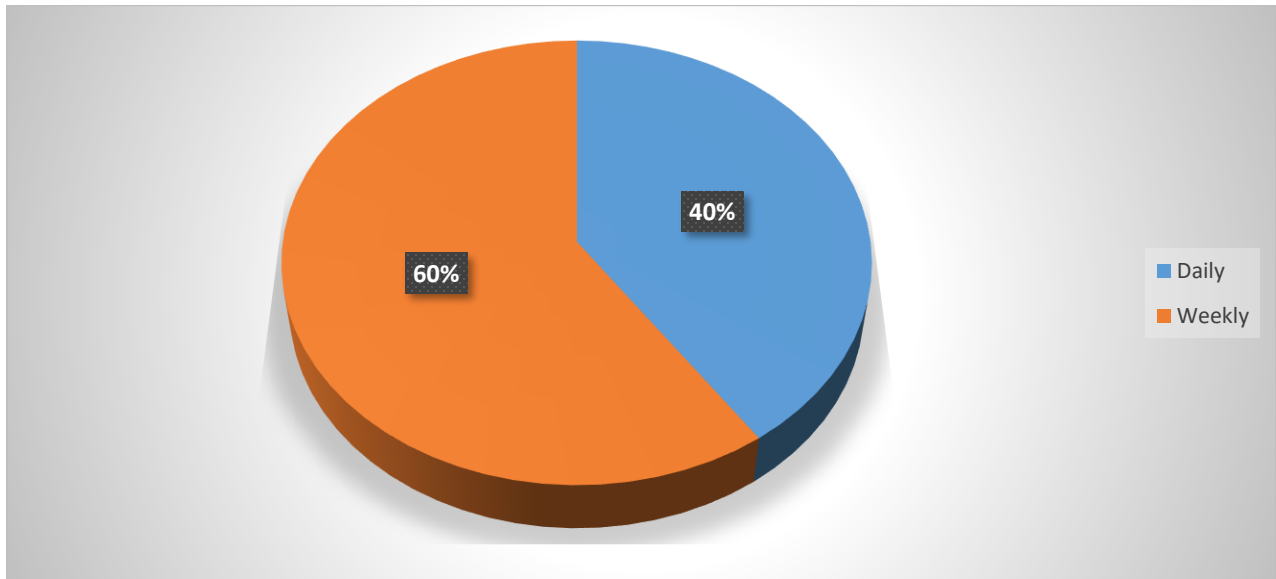
Source: Field Survey, 2022

### **5.6.2 Frequency of Visiting the Market Centre Before the Covid-19 Pandemic Outbreak**

The field survey sought to examine the frequency of visiting the market centre before the outbreak of the Covid-19 pandemic. Figure 5.20 shows the frequency of visiting the market before the outbreak of the Covid-19 pandemic.



**Figure 5.20: Frequency of Visiting Soko Mjinga Market Centre Before Covid-19**



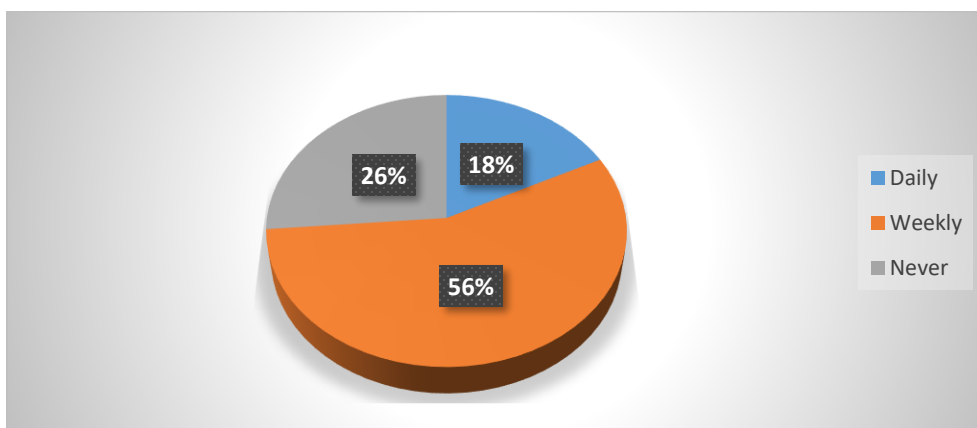
Source: Field Survey, 2022

The results of the field survey show that before the outbreak of the Covid-19 pandemic, people of Kinale visited the market either daily or weekly. They never failed to visit the market at any time of the week, either daily or weekly. The field survey results show that 60% of the population visited the market weekly while 40% visited the market daily.

### **5.6.3 Frequency of Visiting the Market During Covid-19 Pandemic**

Figure 5.21 shows the frequency of visiting the market during the Covid-19 pandemic.

**Figure 5.21: Frequency of Visiting the Market During Covid-19 Pandemic**



Source: Field Survey, 2022

During Covid 19, the number of times that the residents of Kinale ward visited the market reduced and some even failed to visit the market. Those who visited the market on a weekly basis reduced from 60% to 56%. Those who visited on daily basis reduced from 40% to 18%. About 26% of the population did not visit the market at all. Since the main reason of visiting the market was seen to be for trading and shopping, it is therefore clear that Covid-19 interrupted their daily activities. The field survey showed that some of the reasons why they failed to go to the market was due to the fear of contracting the virus. This is because the market itself had been closed down for two weeks after some traders contracted the virus.

As a coping strategy, some of the farmers started selling their farm produce from home. They would have a plan with their particular traders. For example, a trader who buys from a farmer at the market and transports the produce to Mombasa would contact the farmer direct and make an arrangement on picking the farm produce from home. This however worked for those farmers who had high farm produce. According to them, this was an advantage since they did not have to pay the Kshs. 50 that they paid before to take their farm produce to the market. They saw it as a good mechanism to stay away from crowds to avoid getting infected with the Covid-19 virus. For the farmers with low farm produce of, for example, 3 bags, they had to rely on middlemen who came for the farm produce at home and would buy it at a very low price of up to 100 Kenyan Shillings.

**Plate 5.2: Bags of Kales Sold from the Farms**



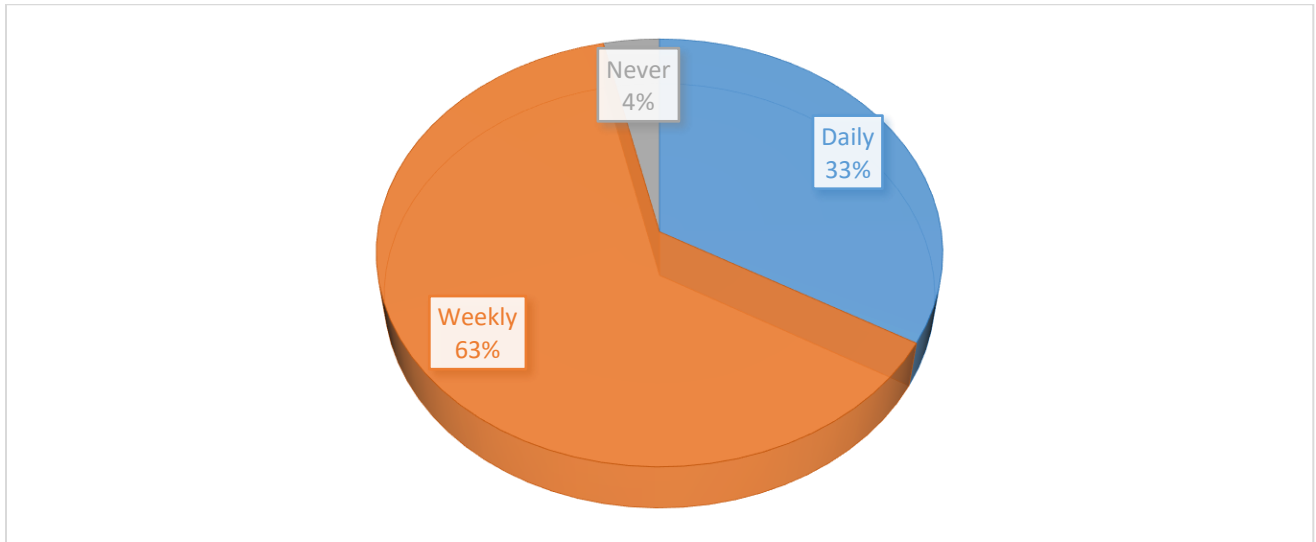
Bags of Kales waiting to be collected from the farms      Bags of Kales being transported from the farms

Source: Field Survey, 2022

### 5.6.4 Frequency of Visiting the Market After the Covid-19 Pandemic

Figure 5.22 shows the frequency of visiting the market after the Covid-19 pandemic.

**Figure 5.22: Frequency of Visiting the Market After the Covid-19 Pandemic**



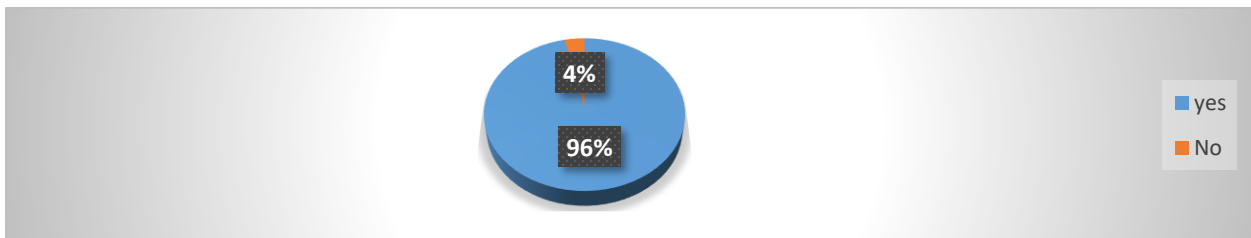
Source: Field Survey, 2022

The results of the field survey show that after the Covid-19 pandemic, 63% of the population visited the market on a weekly basis, 33% on a daily basis while 4% did not visit the market. After the Covid-19 measures were eased and the curfews lifted, business went back to normal. The residents of Kinale resumed their normal trading routines. The farmers who had negotiated with the traders to pick their farm produce during the Covid-19 pandemic continued to sell locally from their farms.

### 5.6.5 Changes that Have occurred in the Market During and after Covid-19 Pandemic

Figure 5.23 shows the changes that have occurred during and after the Covid-19 pandemic.

**Figure 5.23: Changes that occurred in the Market During and after Covid-19**



Source: Field Survey, 2022

The field survey results show that 96% of the population admitted there were quite a number of changes that had occurred in the market during the Covid-19 pandemic while 4% did not see any changes. Some of the changes that they pointed out were as follows: -

- **The Closure of the Market** - this was the main change pointed out. After several traders tested positive to the virus, the County Government of Nyandarua and Kiambu in conjunction with the Ministry of Health gave a directive to close the market for two weeks. During this time the farmers, traders and consumers were not allowed to access the market. A troop of police officers were deployed to guard the market and to make sure that the directive was obeyed.
- **Changes in Demand and Supply** - the demand and supply of the farm produce changed. This occurred when there was normal production of the farm produce but without any buyers. The travel restrictions, border closures and the curfews caused a decrease in the number of buyers who sourced their products from the market.
- **Disruptions in the Food Supply Chain** - the farmers and traders pointed out that the number of vehicles that came for the farm produce had reduced greatly during the period of the Covid-19 pandemic. The interview with the market representative showed that about 20 lorries ferried food from Soko Mjinga to Mombasa before-Covid. However, during the Covid-19 pandemic period the number reduced by half.
- **Lifting of Revenue Collection** - from the key informants interviews, the Chief revealed that, before the Covid-19 pandemic, the County Governments of Nyandarua and Kiambu collected revenue from the traders. During this period the traders paid Kshs. 20 each per bag of the farm produce sold. However, during the Covid-19 pandemic period the government stopped collecting the revenue. This was a way of helping the farmers to meet their daily income levels since most businesses were adversely affected by the pandemic.
- **Interaction between Buyers and Sellers** - Soko Mjinga market has a tradition of chaotic market activities whereby the traders and farmers mob motorists, each of them vending their wares. This changed during the Covid-19 pandemic since the social distancing measures were required to be enforced by all and sundry.
- **A Low Price for Agricultural Produce** – the prices of the farm produce in Soko Mjinga is determined and controlled by the middlemen and the traders. During Covid-19 pandemic the quantity of the produce was high but there were no buyers. Farmers pointed out that a

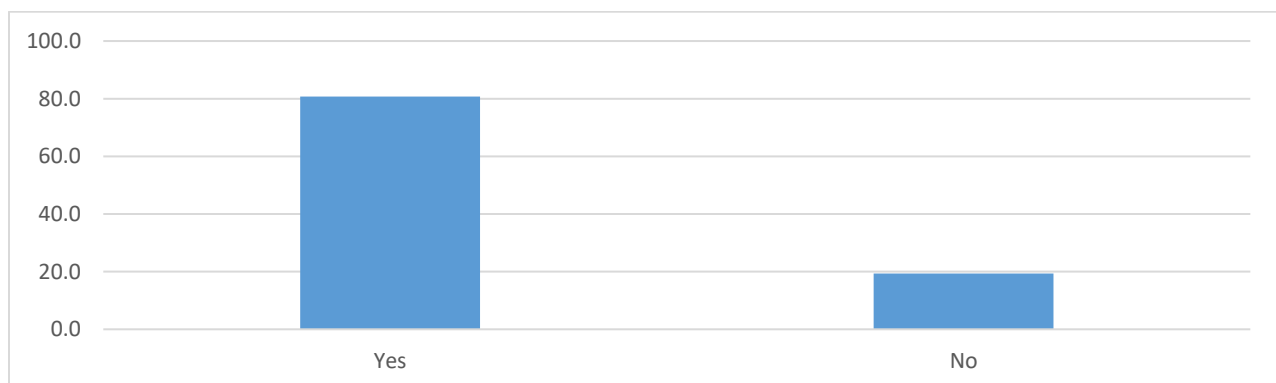
bag of kales that would go for Kshs. 1,500 before the Covid-19 pandemic but it had reduced to Kshs. 200 and that the best price it would fetch was Kshs. 500.

- **Middlemen/Brokers** – there was an increase in the number of brokers in the market. They took advantage of the pandemic and bought farm produce from the farmers who were not able to access the market at throw-away prices. After the Covid-19 measures were lifted and business returned back to their normal routines the number of brokers and middlemen decreased since farmers were now able to access the market centre.
- **Food Waste** - During the Covid-19 pandemic there was increased food waste due to low turnout of customers. Since the market lacks godowns and cold-room warehouses to store the food, the farmers whose produce was not bought would go bad and end up feeding it to their livestock or using it as compost manure. Food waste after the Covid-19 pandemic had reduced as the market activities had gone back to normal.
- **Improved Sanitation** - During the Covid-19 pandemic measures to prepare and respond such as washing of hands regularly and wearing of masks led to water points structures being erected to ensure people in market centre sanitized or washed their hands as per the mandatory requirements. After the Covid-19 pandemic measures were lifted the water points were still in use and people made it now a norm to observe hygiene. Wearing of masks however had however reduced. Most of the traders and farmers rarely put on their face masks after the lifting of the measures.

### 5.6.6. Accessibility to the Market

Figure 5.24 shows the levels of accessibility to the market during the Covid-19 pandemic.

**Figure 5.24: Accessibility to the Market During the Covid-19 Pandemic**



Source: Field Survey, 2022

The field survey results show that the accessibility to the market was adversely affected by the pandemic. The results show that 80% of the population agreed while only 18% did not agree. This is because of several reasons such as closure of the market, the declaration of curfew hours and the tight Covid-19 precaution measures which the people felt were too strict to follow. They therefore opted to selling their farm produce from the farm.

#### **5.6.7 Urgent Need for the Planning and Design of the Market Centre**

According to the key informant interview, Soko Mjinga is among the 300 unplanned markets that need to be planned to enhance their economic performance and urban-rural linkage processes. Small markets in rural areas have been given little attention and yet they play an important role in the urban and rural linkage. Food produce from the farm are sold from the small market centers and transported to super markets and other major market places in the urban areas. Market centers in rural as area that act as the local centers should have facilities such as a health centre and primary schools that are within the centre. Soko Mjinga lacks a primary school and secondary school as required in the Physical Planning Handbook (2007).

It is important for physical planners and local authorities to understand the micro-geographies of marketplaces. The physical space of Soko Mjinga is heavily congested and densely populated, therefore maintaining or keeping social distance was almost impossible. Trucks are dominant in Soko Mjinga market therefore the markets should be designed to provide ample parking and to facilitate an interrupted flow goods and services. Loading bays of the trucks will be essential according to the produce they are carrying. This will ease circulation, parking and maneuvering of vehicles.

Soko Mjinga market is unique in where it is located. It is accessible by small-scale farmers although the roads were said to be poor, traders and consumers access it through the major highway, that is the Nairobi – Nakuru highway which has plans underway to expand it. The market is served by several major roads class B, C, D and E in the area connecting the farms and the market center.

Soko Mjinga lacks storage capacity, go downs, food banks. It should therefore be designed to provide high capacity storage. Advanced storage structures such as go-downs and cold rooms should be considered in the market center so as to minimize the loss of food throughout the food

value chain. Food banks should be considered in market center so as through farmer associations which make contractual arrangements, farmers can create new markets through selling their unsold produces to food banks and make connection between farmers and vulnerable people during a pandemic. Revisit and revise the structure for clarity.

According to the physical and land use planning hand book of Kenya, a local center should have facilities such as health center nearby. However, Soko Mjinga market center which acts as a local center lacked essential facilities such a health center, a shelter, garbage collection point, water points, loading and off-loading points. The people in market were seen to dump their waste from the market into the forest area. The traders and farmers in Soko Mjinga also do not have sheds. Therefore, they are exposed to harsh weather conditions. They area is wet throughout the year and this does not stop the farmers from running their daily trading in the markets. They get rained on as they sell and they are also subjected to inclement cold weather or hot weather during either cold or sunny days.

**Plate 5.3: Traders and Farmers Selling their Produce**



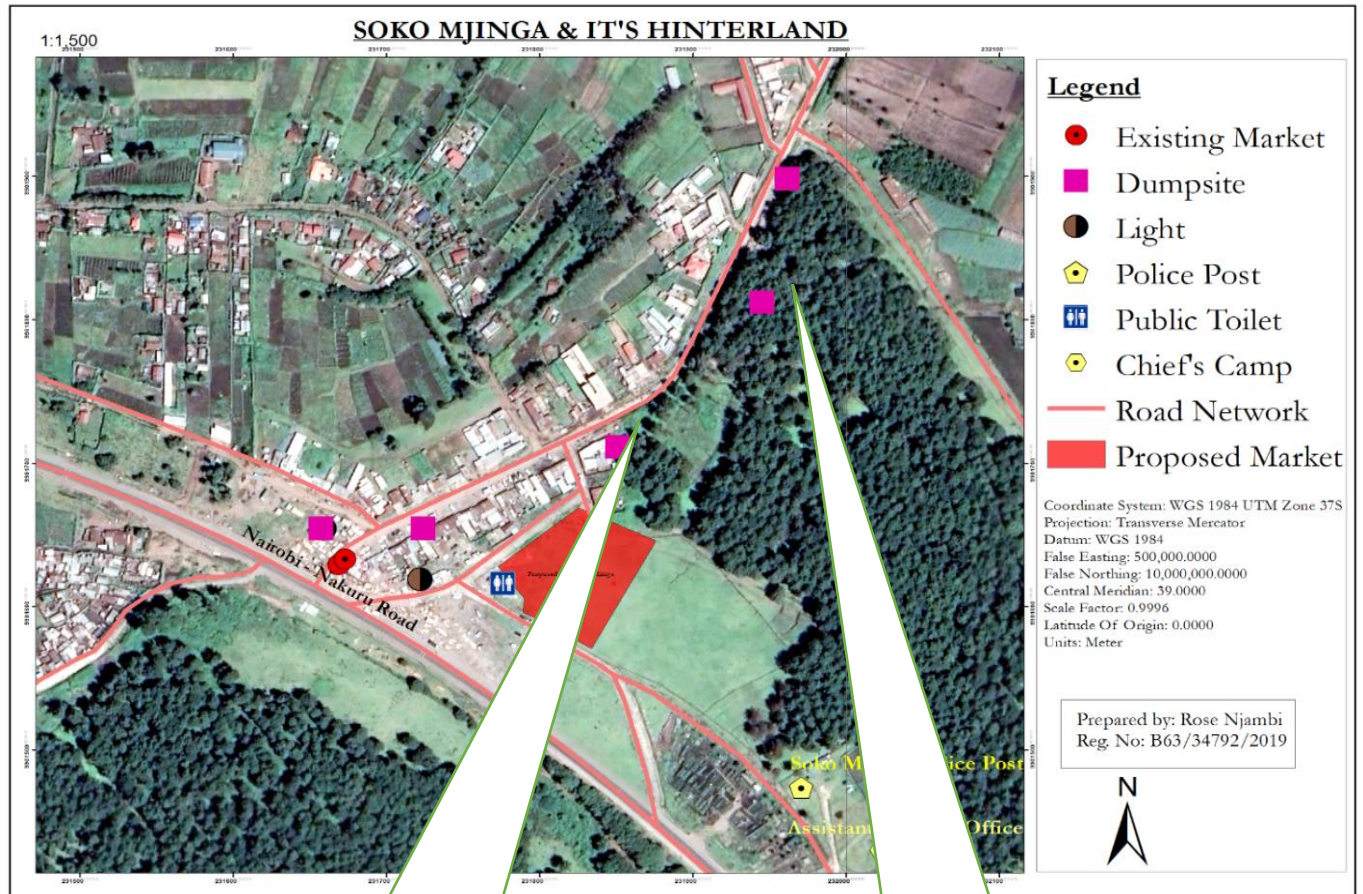
Source: Field Survey, 2022

According to the observation checklist and the traders' questionnaires, 70% of the population in the market dump their waste, 20% burn the waste while 10% bury the waste. The waste was observed to be dumped in different positions as shown in Map 5.8. Hygiene is an important aspect in a market center, therefore the County Government of Kiambu should come up with ways to

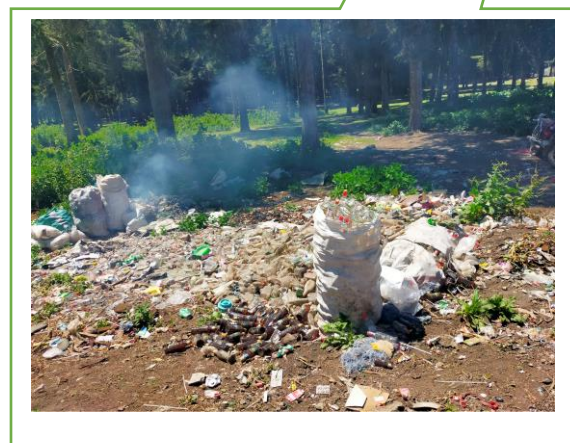


collect waste in the market to ensure good sanitation. This will in turn help to eliminate many waterborne and airborne diseases (not just Covid-19).

**Map 5.8: Solid Waste Dumping Sites**



Source: Field Survey, 2022



Dumping site in the forest

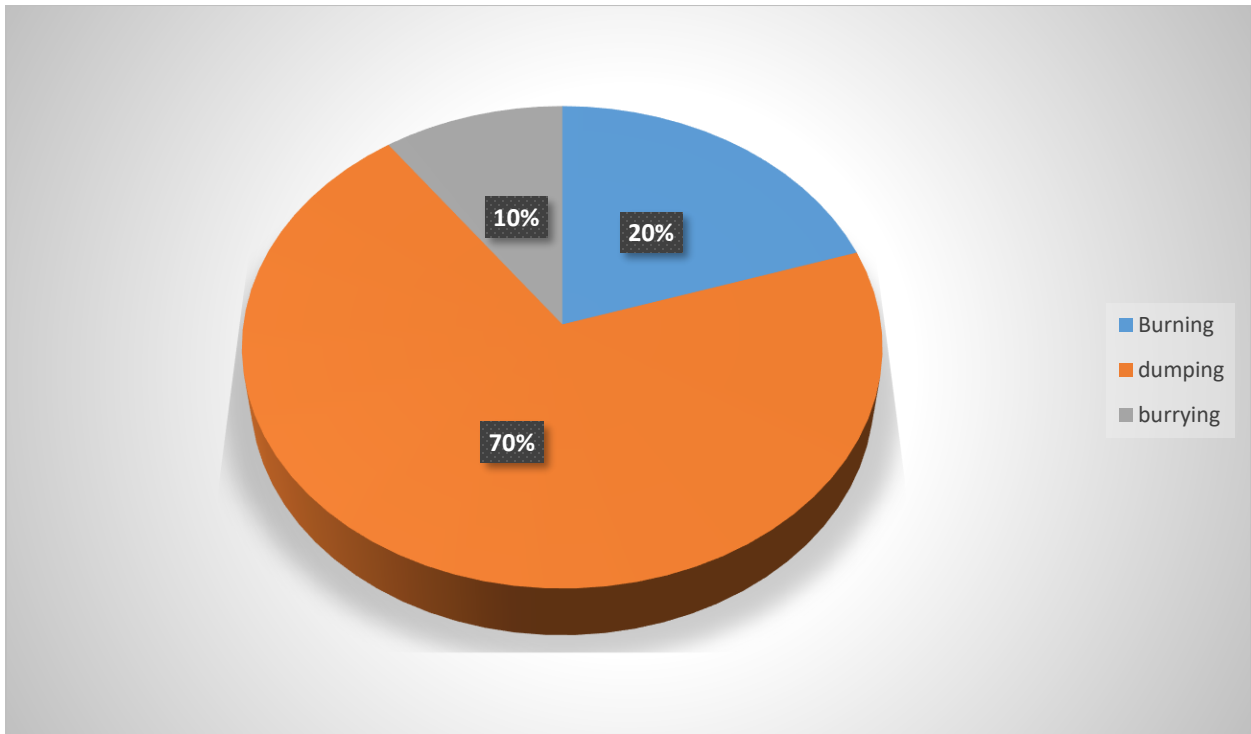


**Plate 5.4: Solid Waste Dump Sites in the Forest**

Source: Field Survey, 2022



**Figure 5.25: The Waste Disposal Methods in the Market Centre**

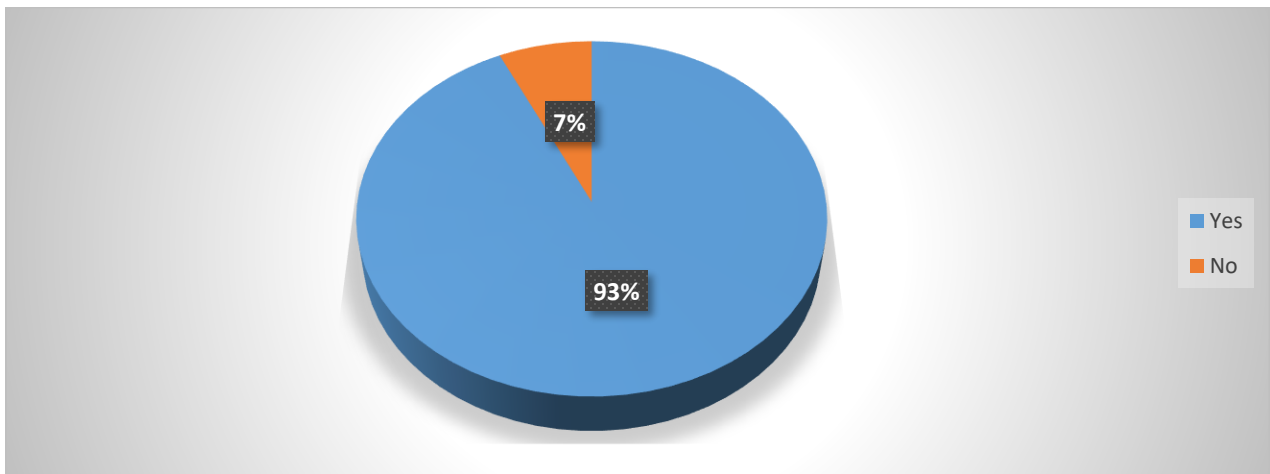


Source: Field Survey, 2022

### **5.7 The Impacts of Covid-19 on the Smallholder Communities in Kinale Ward**

The small holder farmers of Kinale Ward were greatly affected by the Covid-19 pandemic. Figure 5.26 shows the effects of Covid-19 on the rural smallholder communities' income levels.

**Figure 5.26: Covid-19 Effects on Income levels of the Rural Smallholder Households**



Source: Field Survey, 2022

The field survey results show that Covid-19 largely had adversely negative socio-economic impacts on the personal and household income levels of the rural communities. About 93% of the population affirmed that their income levels were greatly affected by the Covid-19 pandemic. Their main source of income was the selling of farm produce. However, with the outbreak of the pandemic, there were reduced numbers of buyers. The Covid-19 measures such as curfews prevented the normal hours of access to the market. Being a 24-hours market the traders found it impossible to access it at any time within the stipulated curfew hours.

The inability of farmers to sell their farm produce and to buy food from the market had knock-on effects on their mobility, which had been disrupted. Additionally, it was clear that 93% of the smallholder households' off-farm income as well as farm income generation had been negatively impacted, severely affecting their ability to support themselves. The main cause of decreased farm-based income was reported to be the low sale prices for agricultural produce. For off-farm income it was mainly due to the lack of opportunities to work and the lack of transport to access work.

Table 5.4 shows the prices of the farm produce before, during and after the Covid-19 pandemic.

**Table 5.4: The Price of Farm Produce Before, During and After Covid-19**

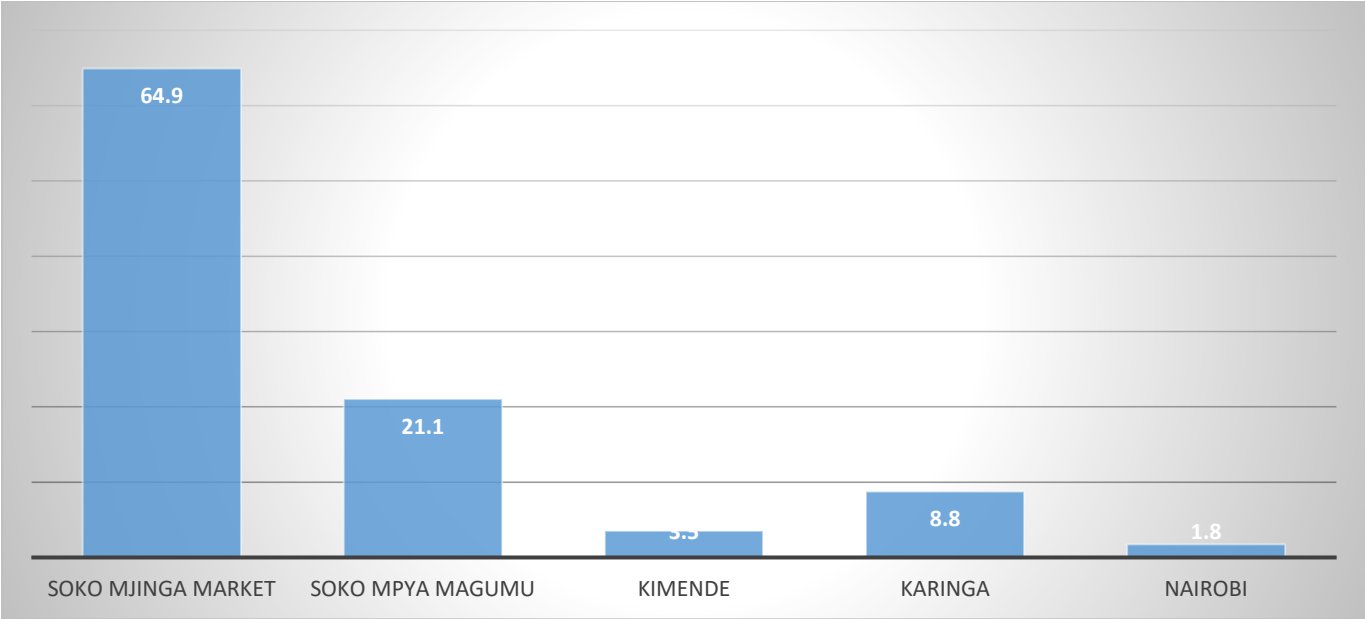
<b>Produce</b>	<b>Quantity (Kgs)</b>	<b>Price before Covid-19 (Kshs)</b>	<b>Price during Covid-19 (Kshs)</b>	<b>Price after Covid-19 (Kshs)</b>
<b>Potatoes</b>	90	2500-3000	800-1000	3000-4000
<b>Carrots</b>	90	2800-3000	800-1000	3000-4000
<b>Kales</b>	90	1200-1500	50-200	1000-1200
<b>Spinach</b>	90	1200-1500	50-200	1000-1500

Source: Field Survey, 2022

The results show that the farmers who had previously traded in the sale of different crops were largely affected by the drastic fall in the prices of all farm produce during the Covid-19 pandemic. This was attributed to the fact that there was a high production of produce but with a reduced number of buyers. Middlemen also took advantage of the precarious situation and brought down the prices down even more.

For cabbages the farmers sold per piece depending on the size of the cabbage. The price of a good-sized cabbage came down from Kshs. 15 to Kshs. 5. Some farmers would sell a bunch of three for Kshs. 10 to avoid going back home with the farm produce which at the end of the day would either rot and be fed to cattle. On a good day before the Covid-19 pandemic, a farmer would sell up to 20 bags of potatoes. This number went down to only one bag or even none. Such drops in prices contributed to the negative effects on their income thereby affecting their livelihoods. Other negative impacts of the Covid-19 pandemic to the community was attributed to the risen prices to buy food. Due to their sources of income having been negatively impacted by the pandemic meant that their purchasing power to buy food was equally affected.

**Figure 5.27: The Place of Purchasing Foodstuff and Household Stuff**



Source: Field Survey, 2022

The field survey results show that 64.9% of the community relied on Soko Mjinga for purchase of food stuff, farm equipment, other household items and also it was their trading point. Therefore, the closure of the market and limited access of the market due to the curfew hours led to adverse effects on their livelihoods. The reduced transportation linkages were seen to be a greater obstacle to making sales or purchases. Farmers pointed out that there were challenges associated with expensive and unavailability of farm inputs. Due to the travel restrictions the access to agricultural inputs was close to impossible.

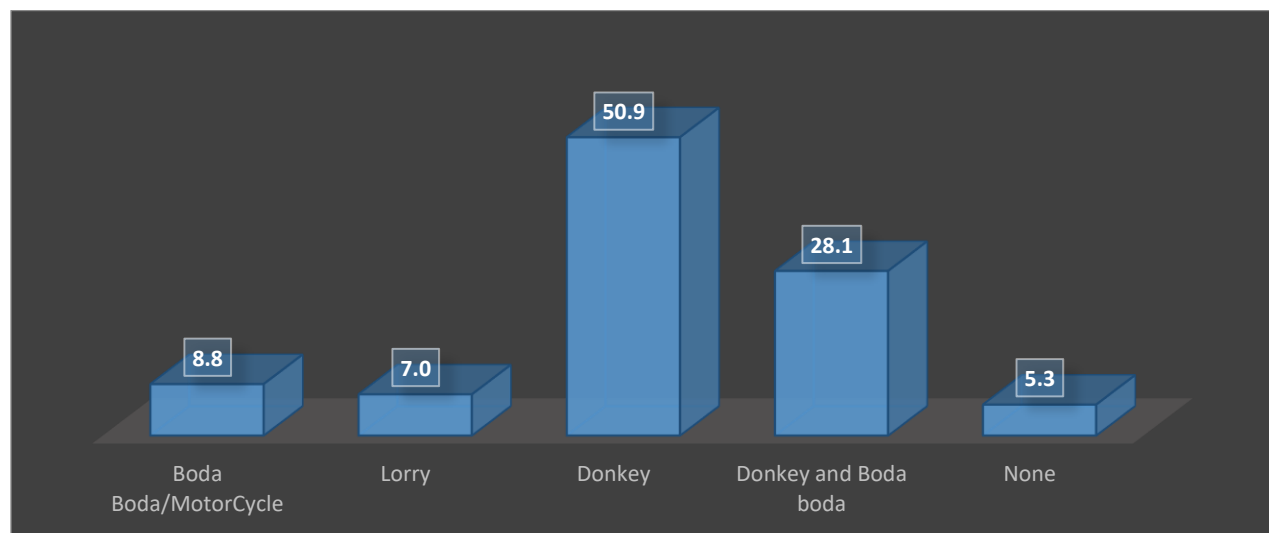
The Kinale community equally acknowledged that a number of psychological problems began to set in. The mandatory requirements of the pandemic to maintain social distance and to stay indoors led to loneliness when people were left alone in their households or when they were separated from their friends and relatives. As a result, it led to increased anxiety, sadness and other undefined mental and psychological upheavals. There was more panic, worry and undue concerns due to the impacts on their incomes that led to bankruptcy and liquidity problems. The community testified that they were not interested in being tested for Covid-19 due to the fears of being quarantined or the stigma that was associated with the likelihood of infecting the rest of the community.

## 5.8 The Implications of Covid-19 on Urban-Rural Linkages

### 5.8.1 Transportation

Figure 5.28 shows the mode of transport of farm produce to the market.

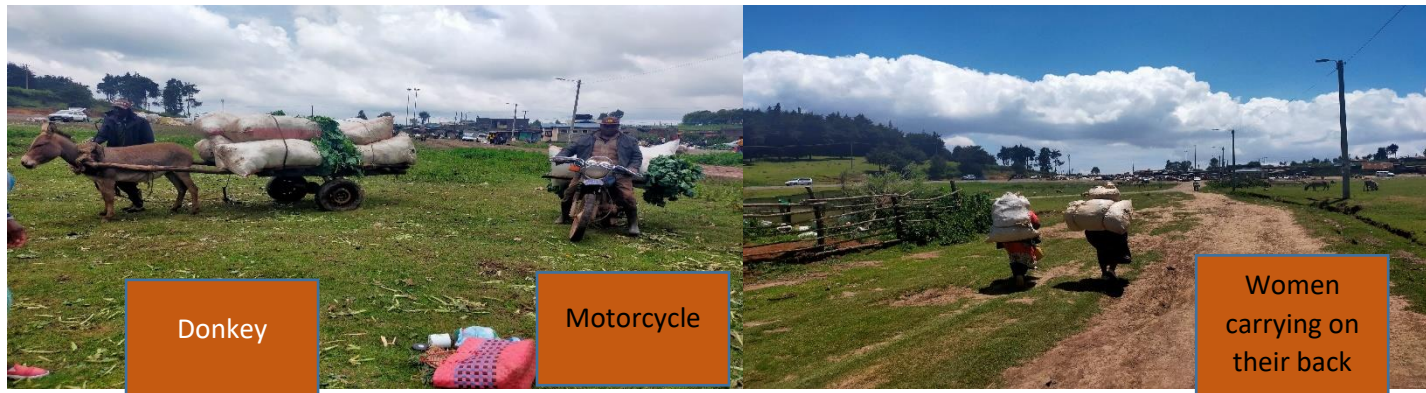
**Figure 5.28: The Mode of Transport of Farm Produce to the Market**



Source: Field Survey, 2022

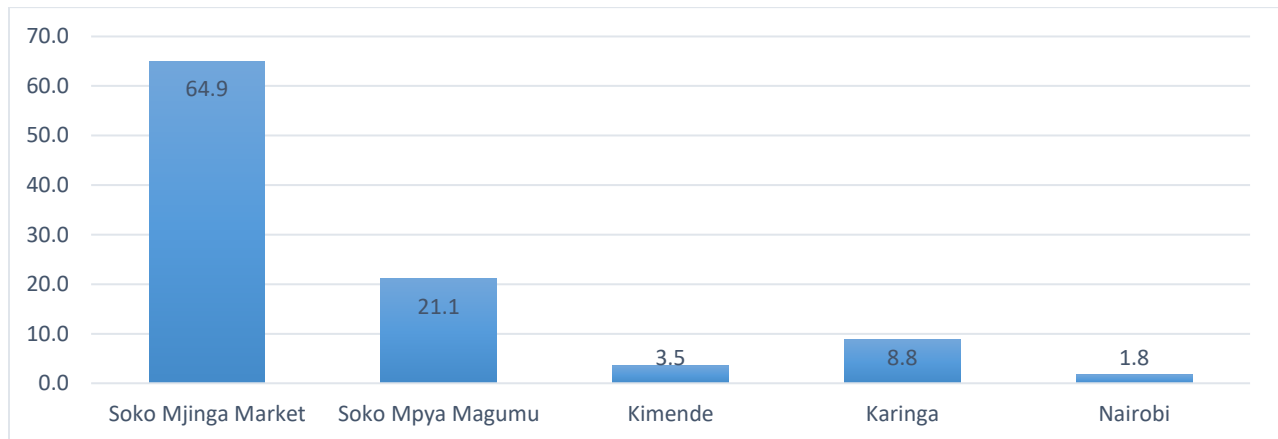
The results of the survey show that farmers from Kinale transported their farm produce to the market centre using different modes of transport such as donkeys, Motorcycles, Lorries while others carried using their backs. A significant proportion (50%) of the population used a donkey to transport the farm produce to the market while 28% used both donkeys and motorcycles. About 9% used motorcycles only, 7% used lorries and 4% carried the farm produce on their back. Donkeys were the most preferred mode of transport since it was cheap to hire one while other farmers kept them as one of their domestic animals.

**Plate 5.5: Donkeys, Motorcycles and Women as Modes of Transport**



Source: Field Survey, 2022

**Figure 5.29: Place of Purchasing Commodities**



Source: Field Survey, 2022

The field survey shows that trading was the main purpose of visiting the market while frequency was dependent on the reason for visiting the market. There are other small centers that are used as markets aside from the main market of Soko Mjinga. However, the field survey results show that most people relied on Soko Mjinga for purchase of food items, household stuff, farm equipment, clothing etc. Most businesses are carried out in Soko Mjinga and this helps the farmers purchase goods and get services from the market centre after they have sold their farm produce. The market center therefore has vital linkages with the rural community in Kinale settlement through transportation of people, household goods and farm produce. The stronger linkage is from the farms in the settlement to the market centre. The weaker linkage is from the market centre to the settlement scheme. This could be attributed to the fact that the quantity of goods that get to the market do not necessarily translate an equal quantity of goods or services that get back into the

settlement. The field survey results show that the mode of transportation of farm produce from the farms to the market was not affected by the Covid-19 pandemic. However, farmers admitted to selling from the farm rather than transporting it to the market. This contributed to a weaker linkage from the market to the farms and the linkage from the farms to the markets was highly disrupted.

**Plate 5.6: A Lorry Being Loaded with Bags of Kales**



Source: Field Survey, 2022

The farm produce taken to the market is sold to traders who then transport it to different destinations in the country using either *matatus* and lorries. From the interview carried out with the drivers, the different destinations included Kisumu, Kakamega, Nairobi, Garissa, Mombasa and Nakuru. The lorries coming from the different parts of the country transport some goods to Soko Mjinga market. For example, traders from Gatundu transport arrow roots and sweet potatoes while those from Narok transport onions to Soko Mjinga. Both categories of traders revealed that on their return journey they ferry back vegetables from Soko Mjinga.

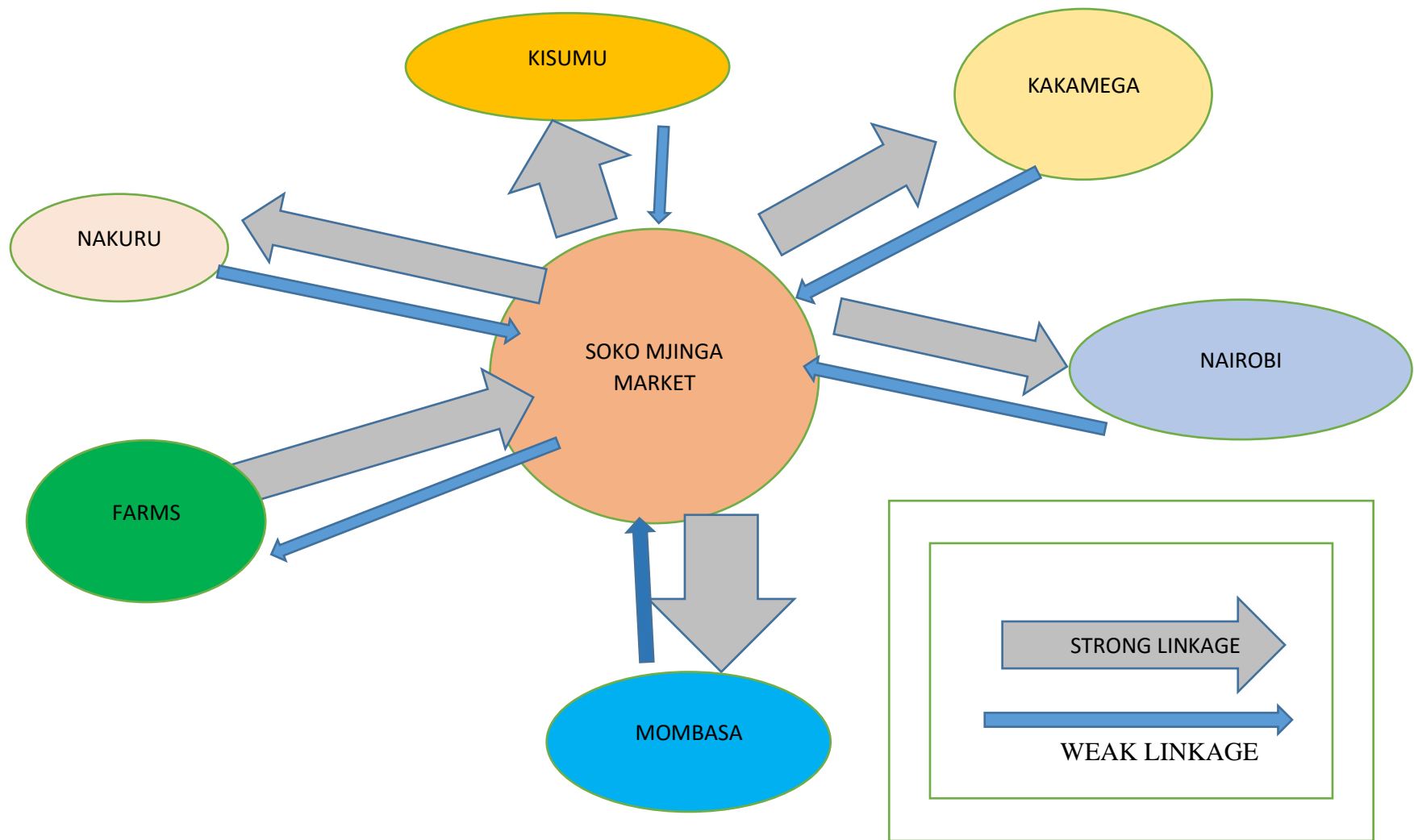
However, Covid-19 offensively disrupted the linkages between the market and other parts of the country. From the interview with the market representative, the number of lorries that travelled to Mombasa before Covid-19 in a day were about 20 lorries. The number of lorries reduced down to about 2-5 during the Covid-19 pandemic. Some of the reasons pointed out included the declaration



of curfews and the closure of national and county borders. Since food distribution was an essential service, the government issued out rules to be observed by the drivers. This included the provision of permits or letters from the chief and/or the National Transport Service Authority (NTSA) and a Covid-19 certificate that proved that the driver had tested negative for the virus. This letter was to be provided to the police officers who guarded the road blocks at the borders. The queueing lorries would be long therefore leading to delays on the road and the whole process proved to be very cumbersome. The drivers ended up spending most of their time travelling on the road rather than undertaking in the sales of the farm produce at the market centres in their prospective destinations. This in turn caused food wastage and huge losses since the vegetables would either wane, wilt or lose their freshness along the way before reaching their final destinations.

According to the traders, the transportation costs increased during the Covid-19 pandemic. For example, before the Covid-19 pandemic one trip to the Western region, such as Kisumu and Kakamega, costed Kshs. 30,000 per trip. During the pandemic this amount rapidly shot up and increased by 50% where they paid Kshs. 60,000 per trip. The prices were inevitably high due to the reduced number of trips that the truck drivers made and also due to the unusually low demand for transportation. In addition, the distortion of transportation led to disruption of the flow of food and people to various parts of the country. Since the lockdowns and closure of borders led to disruptions of the transportation of people, foodstuff and related commodities the drivers ended up being alone on long road journeys. This caused fear, loneliness, anxiety, stress and some had false perceptions of insecurity.

**Map 5.9: The Urban-Rural Linkages between Soko Mjinga Market Centre and other Urban Centres**



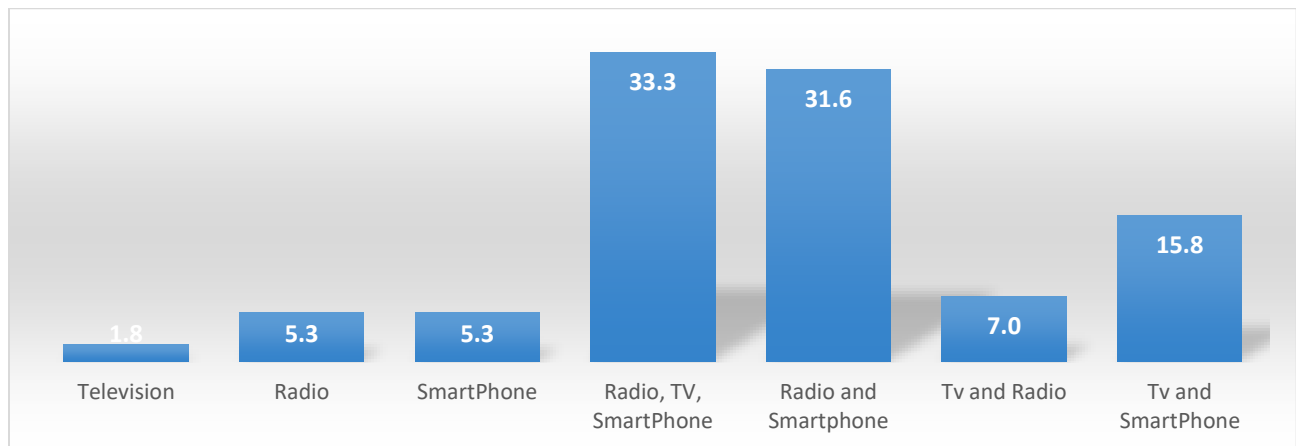
Source: Author, 2022



### 5.8.2 Information Flow

Figure 5.30 shows the sources of information in Kinale ward.

**Figure 5.30: Sources of Information in Kinale Ward**



Source: Field Survey, 2022

The field survey results show that the rural communities received information about business, health, education, farming and also entertainment mainly through radio, smartphones and television (33.3%). A significant number of residents (31.6%) also received information through both the radio and smartphones. The personal respondents' information revealed that every household owned a smart phone and a radio. The community in Kinale therefore had good avenues for receiving information related to Covid-19. Radio stations had programmes that gave an individual a chance to relay or pass a message to the government either through a call or messages. Therefore, the community would air their grievances through the radio and TV stations.

### 5.8.3 Market Facilities

According to the Physical Planning Handbook 2007, a market centre should be planned to support a primary school, a secondary school and a health centre. The market centre should equally be equipped with a public water supply, a post office, telephones, a police station, a local bus service, and other social, commercial and local administration services. Soko Mjinga, which is a farmers' market centre that mainly sells wholesale produce, does not however elicit these envisaged characteristics. From the observation checklist, Soko Mjinga has a public toilet, a police post and a local bus service. However, Soko Mjinga market centre lacks a health centre. Therefore, the

people of Kinale sought medical help in the nearby Kijabe hospital and Lari Hospital. During the Covid-19 pandemic period it was a daunting challenge to access a hospital due to the travel restrictions put in place.

The market centre typically experiences challenges to do with congestion within the market centre with different vehicles delivering and collecting produce. As a result, the efficiency of the unplanned market centre is significantly impacted by the spontaneity in the loading and off-loading of the farm produce onto the delivery vehicles. Due to the larger quantities handled by each trader and the high volume of sales, the market centre typically has much higher turnovers compared to the existing designated space.

Soko Mjinga as a market centre is also uniquely different from others in the country which tend to be located in small towns or near bus stops. This is because it is served by a highway as opposed to a minor road. The highway has a lot of influence on the activities of the market centre including the manner in which the traders conduct their businesses. The dynamics experienced here are different from those in other market centres that are not served by a highway and are located in the inner interiors. In Soko Mjinga farmers also do not have structured days or time to sell their produce. They do not have designated selling points or spaces within the market centre.

**Plate 5.7: A Police Post and a Public Toilet in Soko Mjinga Market Centre**



Source: Field Survey, 2022

### **5.9 Covid-19 Opportunities in the Market Centre and to the Rural Smallholder Community**

During the Covid-19 pandemic the farmers in Soko Mjinga market centre fast-tracked the use of their phones in order to liaise with their traders. This continued even after the Covid-19 measures were eased and eventually lifted. The traders have now embraced the use of e-money, which facilitates buyers to pay using the MPesa platform. During the pandemic era, the payments using the Mpesa platform reduced the physical contact with hard cash, which had been considered to be transmission channel for contracting the virus. The community also embraced digital tools and a learning channel was equally introduced in TV stations. The latter brought about opportunities where even the old generation were taught how to use smart phones so that they could communicate online. Church services were held online and schools were also conducted online.

## **CHAPTER 6:**

### **CONCLUSION AND RECOMMENDATIONS**

#### **6.1 Revisiting the Research Problem: Synthesis of the Findings**

This study set out to explore the impacts of the Covid-19 pandemic on small market centres and the rural smallholder communities in their hinterland and their implications on urban-rural linkages. The research setting of Soko Mjinga Market Centre and the land uses in its rural hinterland targeted small holder farmers in the four locations of Kinale Ward. The research findings show that the main type of rural land use in Kinale ward is agricultural land use while forestry is the second largest form of use. The results of the research have revealed that there was no significant change in the type of agricultural land uses due to Covid-19. However, the quantity of the farm produces was greatly affected during the Covid-19 pandemic period. The study has also shown that the agricultural land in Kinale area is diminishing through rampant land sub division, which poses a threat to food security in the settlement scheme and to the country at large.

The research findings have shown that Covid-19 had adversely negative impacts on the traders, on the farmers and on the drivers during the period that accessibility to the market was hampered by curfew declarations, the lockdown restrictions and the closure of the market itself. The results have revealed that Covid-19 impacted negatively on the smallholder farmers in different ways. It led to decreased farm-based income due to low sale prices for agricultural produce and for off-farm employment it was mainly due to disruptions of transport and the lack of opportunities to earn an income in the market centres.

Due to the pandemic's travel restrictions, it was difficult for the farmers to access the farm inputs. The farm inputs at the same time became unduly expensive. The study findings show that Covid-19 had negative implications on urban-rural linkages, which was observed through disruptions on the transportation systems and hence to the flows of information, food, money and people both locally and to urban food market centres in various parts of the country. The next section is an analysis of the implications towards planning interventions. The chapter concludes by formulating the key research recommendations, conclusion and outlining the study's areas for further research.

## **6.2 An Analysis of the Implications towards Planning Interventions**

The purpose of this section is to analyze the implications of the findings towards proposing theoretical, policy, legislative and governance interventions for strengthening the urban-rural linkages, for mitigating the negative impacts and for building resilience against future pandemics.

### **6.2.1 Theoretical Implications**

The core-periphery and central place theories are fundamental theoretical underpinnings for the growth of market centres in general. It is imperative for these two theories to underpin and to form the foundation for the design and organization of Soko Mjinga market centre and its hinterland in Kinale ward. Based on central place theory, an integrated plan for the market centre is required to be developed and it requires to be adequately equipped with social amenities and infrastructure services such as a hospital, schools, a good transportation system, solid waste collection facilities, water and sewerage facilities as well as a good storm water drainage system. In a post-Covid era this will greatly improve the residents' quality of life by providing access to healthcare services and to basic hygiene and sanitation facilities. The interaction between the market centre and its hinterland will facilitate a spread effect towards the periphery. The growth of more tertiary centres will lead to more investments in Kinale ward, which will in turn lead to development of additional infrastructure services.

### **6.2.2 Strengthening of Policies and Strategies**

This study has shown that a large population of the smallholder farmers in Kinale settlement scheme depend on agriculture as their main source of livelihood. The results of the study have shown that one of the main concerns of the farmers is the upward increase in the costs of the agricultural inputs. Inability to employ adequate inputs implies a reduction in agricultural outputs. A deterioration in agricultural productivity has negative implications in terms of declining incomes and reduced employment opportunities and worsening situations of food insecurity. This study proposes the strengthening of agricultural sector policies and strategies that are geared on enhancing its performance and its productivity. This will include policies and strategies that address the availability and reduced prices of inputs, modern technologies of farming and marketing of farm produce. The policies and strategies will in the long run help achieve food

security, lead to enhanced incomes and also help to alleviate poverty in Kinale ward and in all other parts of the country where rural smallholders eke out a living from the agriculture sector. This study has equally revealed that there is limited diversification in the types of farm produce and that there are limited efforts in value addition, which have both contributed to low quantities of the fresh vegetable being exported to global food markets. This study proposes policies and strategies that will be geared towards the structured organization in the erection of markets with designated spaces for cold rooms' storage, for packaging, for value-addition production and use of modern technology for the marketing of the farm produce to global food markets. The policies and strategies need to be strengthened to enhance agro-processing industries, to increase the value of agricultural exports and to promote incentives to investors interested in developing agro-processing industries in Kinale ward. The formulated policies will be geared towards raising awareness, educating and training the rural smallholder farmers and traders on value addition and the benefits of agro-processing industries.

This study has revealed that there is rampant land subdivision which is leading to diminishing agricultural land; it is threatening to food security; and it a potential threat to growing poverty among the rural smallholder farmers. The government requires to strengthen policies on land subdivision and land management strategies, to provide guidelines and legislation on minimum plot sizes for agricultural land and to enforce plan approvals during change in land uses. The county government, in conjunction with the private sector, should equally strengthen the policies that propose the implementation of good access roads to the farms. This will facilitate the smooth transportation of farm produce to the market centres and to other urban food markets across the country.

This study equally proposes for the formulation of policies and comprehensive socio-economic development strategies for local businesses and for the agricultural sector that aim to develop short-term, medium-term and long-term plans on how to revitalize and rebalance the rural economy following the Covid-19 pandemic.

### **6.2.3 Governance Implications for Strengthening Urban-Rural Linkages**

This study has shown the devastating impacts that the restrictions emanating from the Covid-19 pandemic had on the transportation system, which adversely affected the flow of farm inputs and farm produce, of rural smallholders, traders and drivers, of money and of health services. The study has shown that the national government unilaterally applied blanket restrictions that may not have been locally context-specific to rural smallholders. For instance, the norm of enforcing travel restrictions to rural smallholders led to inaccessibility to testing facilities, medical services and limitations on food access and availability. It was unclear whether or not local knowledge from the rural smallholder farmers was employed as the basis for the enforcement of the restrictions.

This study proposes new revised collaborative governance frameworks for strengthening urban-rural linkages by ensuring that local knowledge and participation of the locals are incorporated in future in the formulation of restriction measures. The study proposes new frameworks to be created for new emergency approaches to integrate participatory information flows, data collection and participatory monitoring to close significant data gaps for resilience in future pandemics. Equally important is the information flows regarding post-COVID-19's effects on health, the economy, and society, which must be collaboratively shared between the general public and the county/national governments for strengthening resilience in future pandemics.

### **6.2.4 Public Policy Implications on Forests, Land Tenure, Subdivisions and Changes**

The results of this study have shown that a Presidential Executive Order led to the hiving off of Kinale forest to pave way to Soko Mjinga market centre and to the rural settlement scheme in its hinterland. This study proposes the formulation of a strict policy on public land to safeguard environmentally-fragile ecosystems such as forests that serve useful roles as water towers. Notwithstanding land tenure should now be issued to the current occupants of the allocated land so that they can effectively develop it and to legitimize other service providers to provide the requisite infrastructure services and social amenities to serve the residents of Soko Mjinga market centre and the rural smallholder communities in Kinale ward. A formulated plan and design for Soko Mjinga market centre will therefore guide the plot owners to transform their semi-permanent structures into modern structures such cold room's storage warehouses, logistics centres, value-addition production centres, agro-processing industries among other urgently-needed facilities.

Clear development control policy guidelines and enforcement of by-laws on the minimum plot sizes will be useful to forestall rampant land subdivision.

This study has equally shown the need for land administrators to keep track of the changes in land use and land cover. This study proposes to formulate a policy that ensures that the county government monitors changes in land use and land cover after every two years so as to impose penalties that control farmers and the general public from rampant degradation of natural resources. This will ensure agricultural land is reserved and better strategies created to ensure agricultural practices are profitable to the smallholder farmers. Monitoring of land use change will also help conserve our natural ecosystems such the forest and the rivers.

#### **6.2.5 Implications for Urgent Planning and Design of an All-Inclusive Market Centre**

This study has shown that Soko Mjinga Market Centre is renowned for its trade in vegetables. However urgent need is now required for it to be better planned and designed as a designated market centre with all the facilities and infrastructure. Proper planning and designing of an all-inclusive market with all typologies and categories of food commodities needs to be considered. Proper market operations are dependent on the market layout; therefore, a good layout of the market will help maximize on the interactions between the market users leading to optimum price formulation. It will ensure adequate arrangements for displays and sale of food produce to maintain produce quality. It will also enhance efficient handling of the farm produce. Planning and guaranteed land tenure are key to attracting sustainable investments in the market centre.

#### **6.2.6 Community Brief for Dissemination of Knowledge**

The results of this study have shown that the residents of Kinale settlement scheme require capacity building and awareness creation on the rampant land sub-division that was witnessed during the field survey and depicted more clearly in the trend analysis maps showing the spatial land use changes. The smallholder farmers in Kinale settlement scheme require dissemination of knowledge on the importance of preserving agricultural land and that its diminishing state through rampant land sub division is a process that poses a threat to food security not only locally but in the country at large. This study aims to produce a community brief containing all the findings and



recommendations to be presented to the stakeholders through a community *baraza*. The study further aims to generate journal articles to disseminate knowledge on its findings.

### **6.2.7 Implications on Practice and on Practitioners**

This study has exposed critical gaps on the practice of practitioners, policy makers and professionals in private and public sectors. This study proposes that land managers, physical planners and environmental managers should be re-trained on the impacts of the pandemic on the small markets centres which are a vital component in the urban-rural linkages continuum so as to help in decision making in the future. Environmental experts together with the Kenya Forest Service should ensure all forest land is gazetted and protected from encroachments. The National Land Commission should ensure there is security of land tenure through issuance of title deeds. Physical Planners together with Land administrators should ensure agricultural land is protected and enhanced laws are created that prohibit rampant subdivision of agricultural land.

### **6.3 Recommendations**

This research has developed key recommendations to address the challenges of the impacts of Covid-19 and its implications on urban-rural linkages. The previous section has particularly emerged with proposals on theoretical, policy, legislative and governance interventions for strengthening the urban-rural linkages, for mitigating the negative impacts and for building resilience against future pandemics. One of the key recommendations arising from this research is the urgent need to formulate an integrated development plan for a more sustainable all-inclusive Soko Mjinga market centre. This research recommends the formulation of an integrated development plan that designates an all-inclusive market centre that allows the sale of all typologies of food commodities and further allows for the provision of facilities such as godowns, cold rooms that forestall food wastage and enhances better storage that will maintain the quality of the farm produce. A related key recommendation of this research is the rebranding of the proposed new market with a new name that refrains from the name “Mjinga” which connotes to ‘fool’ ‘stupid’ ‘uneducated’ and ‘illiterate’. This will encourage traders to behave in better etiquette mannerisms particularly on their relationships with their customers and how they sell their food commodities. The rebranding will help the market centre to acquire a specific identity that does not necessarily connote to the notion of ‘fools’.

The second key recommendation of this research is to propose for the formulation of a smallholder farmers' cooperative society that will help to sensitive the farmers, help them determine stable and reliable prices of their produce and also to help them in accessing loans and in building their financial savings. This will help eliminate the power of the middlemen who control the prices in the market centre. Another way to eliminate the brokers is through the farmers daring and getting out of their own ways to find markets for their produce without having to rely on the brokers to find markets for them. The smallholder farmers' cooperative society will equally be an avenue to enlighten the traders on the different ways of doing online marketing using smartphones, radios and televisions. The field survey has shown that a large majority of farmers and traders owned a smartphone, a radio and a television. Therefore, it would be easy to come up with online marketing strategies for the Soko Mjinga traders to enable them earn more from their farm produce which is their main source of income.

The third key recommendation of this study is to formulate proposals on ways in which the farmers could diversify their farm produce not only for sale but also to widen the scope of the dietary provisions for the entire categories of age-sex cohorts of the rural smallholder farmers and traders in Kinale ward. The research has shown that the rural smallholder farmers and traders Kinale ward only planted vegetables, which means they are deficient in other varieties of products that could either enrich their diet and/or diversify their rural economy and livelihoods.

The fourth and last key recommendation of this research is to formulate stringent legislation and governance frameworks for stricter development control guidelines to be enforced on minimum plot sizes. This will stem the problem of rampant land subdivision to uneconomical sizes, which poses a threat to food security both locally and in the country at large. Also, parents need to be sensitized on and encouraged to bequeath their children with other forms of wealth such as company shares instead of land. This will not only curtail land subdivisions but it will also boost food production.

## **6.4 Conclusion**

This research has shown the importance of market centres in connecting rural smallholder farmers and urban areas by offering a medium for the sale of food and other related commodities. Market centres require useful design factors such as space and form to enable them to perform their roles and to ensure effective flows of people, food and related commodities, services and information. National and local urban economic growth and development are heavily dependent on how well and efficiently market centres connect rural and urban areas. Therefore, it is important to provide land and adequate budgetary provisions for the planning and designing of small market centers in rural areas so that all necessary infrastructure is in place to serve smallholder farmers and to create a setting for trade and hence opportunities for jobs, employment, income and livelihood support.

This research has shown how the Covid-19 pandemic had adversely negative impacts on the small market centre and on the rural smallholder community in its hinterland. The analysis of the implications and the policy, legislative and governance interventions and recommendations that have been proposed in this research can be validated and generalized to other small market centres facing similar challenges in Kenya, in East Africa and in Africa in general. This is very important in the context of strengthening the urban-rural linkages, for mitigating the negative impacts and for building resilience against future pandemics.

## **6.5 Areas for Further Research**

There are certain logical gaps that have been exposed in this study that have opened up areas for further research, which include the following: -

1. More research should be carried out into the design and implementation of Covid-19 socio-economic recovery efforts which gives a huge opportunity for building a better future. This can only be done without ignoring the lessons learnt so far so as to avoid risks of repeating past mistakes and recreating of systems that have already failed.
2. More research should be carried on the policies that safeguard food supply chains throughout a crisis, whereby sectoral policies can be formulated to counteract the negative effects of lockdowns, trade contractions and supply chain disruptions.
3. More research is needed on pandemics-proof market centres to improve resilience and to reduce the adversely negative socio-economic and institutional impacts

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**APPENDICES**

**APPENDIX 1: HOUSEHOLD QUESTIONNAIRES**

Serial No. \_\_\_\_\_



UNIVERSITY OF NAIROBI  
FACULTY OF BUILT ENVIRONMENT & DESIGN  
DEPARTMENT OF URBAN AND REGIONAL PLANNING

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PROJECT: Urban-Rural Linkages: Covid-19 Impacts on Soko Mjinga Market Centre and  
Smallholder Communities in Kinale ward, Kenya

Household/ Consumer Questionnaire

*Declaration: This questionnaire is an instrument used in in partial fulfilment for the award of the  
Masters of Arts degree in Urban and Regional Planning. Any information provided is  
confidential and it will be used for academic purposes only*

Name of the  
Interviewer.....

Date of the  
Interview.....

**SECTION 1: RESPONDENT'S DETAILS**

1.1 Respondent's name: (Optional)  
.....

1.2 Age in Years:  
.....

1.3 Gender of Respondent: ( ) Female ( ) Male .  
.....

1.4. Location, sub-county:  
.....



1.5 Village name.....

1.6 Highest level of education attained. (Tick where applicable)

- a) Primary school
- b) Secondary school
- c) Tertiary School
- d) Informal education
- e) None

1.7. what is your occupation?

.....

1.8. Marital Status?

1.9 Location of employment or Enterprise

At the Market Center / at the farm

Other Places (Specify).....

**SECTION 2: HOUSEHOLD CHARACTERISTICS**

2.1 How many members are in your household.....

2.2 Kindly indicate the average monthly income of your household

- a) Below 10,000
- b) 10,000-24,000
- c) 24,001-60,000
- d) 60,001-120,000
- e) Above 120,000

2.3 where does your household buy the following items

No.	ITEMS	Shopping place / Market
1.	Fruits and Vegetables	
2.	Cereals	
3.	Other foods (flour, sugar, salt, milk etc)	

4.	Clothing	
5.	Electronics	
6.	Farm Equipment	

**SECTION 3: SOKO MJINGA MARKET CENTRE INFORMATION**

3.1 How often would you visit the Market Centre before Covid 19?

Daily ( )                  Weekly ( )                  Never ( )

3.2 How often would you visit the Market Centre after Covid 19?

Daily ( )                  Weekly ( )                  Never ( )

3.3 what is the most Common purpose for which you go to the market

Work/Business ( )      Shopping ( )                  Leisure ( )

3.4 Has Covid 19 affected your access to the Market? Yes ( ) No ( ) ( support your answer)

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3.5 Indicate the items and services available in the market center before the Covid 19 Pandemic

No.	Items/ Services	Available	Not Available
1.	Food items		
2.	Household items eg utensils		
3.	Electronics		
4.	Clothing		
5.	Farm equipment		
6.	Clinic		
7.	Dispensary		
8.	School		
9.	Administrative Office		
10.	Piped water		
11.	Sewer System		

12.	Electricity Supply		
13.	Parking		
14.			

3.6 what job opportunities are available within the centre?

1. None
2. Casual employment in the business premises
3. Domestic jobs
4. Permanent jobs
5. Others

3.7 a) Are there any developments made in the market center in the last 3 years?

Yes ( ) No ( )

b) If Yes specify

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C) Was the development done during or after the Covid 19 Pandemic?

Yes ( ) No ( )

3.8. what were some of the challenges affecting the market Center before Covid-19?

Social Challenges.....

Economic challenges.....

Physical challenges

Buildings, .....

Transportations, .....

Infrastructure services.....

Environmental challenges.....

Governance challenges

Institutional challenges .....

- Legal challenges .....
- Policy challenges .....
- Financial challenges .....

3.9 How can these challenges be solved?

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3.10 how has Covid 19 affected the market center?

Social Challenges.....

Economic challenges.....

Physical challenges

Buildings, .....

Transportations, .....

Infrastructure services.....

Environmental challenges.....

Governance challenges

Institutional challenges .....

Legal challenges .....

Policy challenges .....

Financial challenges .....

**SECTION 4: INFRASTRUCTURE FACILITIES**

4.1. a) what is your main source of water?.....

4.2 a) How are the condition of the road to the market center?

Bad ( ) Good ( ) very Good ( ) very bad ( )

4.3. what is your source of power?

Solar ( ) Biogas ( ) electricity ( ) Others ( ) Specify.....

4.4. where do you dispose your household waste?

.....

**SECTION 5 ECONOMIC ACTIVITIES AND LIVELIHOOD**

5.1 what is your main source of income

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5.2 Has Covid 19 affected your source of income? Yes ( ) No ( ) if yes explain

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**SECTION 6. AGRICULTURAL LAND USES**

6.1 What crops have you planted in your farm?

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6.2 Has the type of crop planted changed due to Covid 19? Yes ( ) No ( ) if yes explain

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6.3 what domestic animals do you keep?

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6.3 Has the choice of the domestic animal to keep changed due to covid 19? Yes ( ) No ( ) if yes explain

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6.4 where do you sell your farm produce?

The market ( ) from the farm ( ) support your answer

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6.5 How has Covid 19 impacted on the quantity of the farm produce

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6.6. What opportunities and challenges have arisen in the choice of agricultural land uses due to Covid 19?

**Opportunities**

Social Opportunities.....

Economic Opportunities .....

Physical Opportunities

Buildings, .....

Transportations, .....

Infrastructure services.....

Environnemental Opportunities .....

Governance Opportunities

Institutional Opportunities .....

Legal Opportunities.....

Policy Opportunities.....

Financial Opportunities.....

**Challenges**

Social Challenges.....

Economic challenges.....

Physical challenges

Buildings, .....

Transportations, .....

Infrastructure services.....

Environmental challenges.....

Governance challenges

Institutional challenges .....

Legal challenges .....

Policy challenges .....

Financial challenges .....

**SECTION 7: LAND TENURE**

7.1 what is the size of your land?

.....

7.2 What land ownership documents do you possess?

.....

7.3 Mode of land acquisition

.....

7.4. cost during acquisition

.....

7.5 Has the cost of land changed due to Covid 19 Pandemic? Support your answer

.....

**SECTION 8: COVID 19**

8.1. How has Covid 19 affected your day to day life activities

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8.2 In your own opinion what are some of the opportunities arising due to Covid 19?

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8.9. in your own opinion what are some of the challenges faced due to Covid 19 Pandemic?

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**APPENDIX 2: TRADERS QUESTIONNAIRE**



Serial No. \_\_\_\_\_

**UNIVERSITY OF NAIROBI  
FACULTY OF BUILT ENVIRONMENT & DESIGN  
DEPARTMENT OF URBAN AND REGIONAL PLANNING**

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**PROJECT: Urban-Rural Linkages: Covid-19 Impacts on Soko Mjinga Market Centre and Smallholder Communities in Kinale ward, Kenya**

*Declaration: This questionnaire is an instrument used in in partial fulfilment for the award of the Masters of Arts degree in Urban and Regional Planning. Any information provided is confidential and it will be used for academic purposes only*

**Traders Questionnaire**

Name of the Interviewer.....

Date of the Interview.....

**SECTION 1: RESPONDENTS DETAILS**

1.1 Respondent's name: (Optional)  
.....

1.2 Age in Years:  
.....

1.3 Gender of Respondent: ( ) Female ( ) Male  
.....

1.4. Location, sub-county:  
.....

1.5 Relationship to business  
Business Owner ( ) Employee ( ) Other (Specify) .....

1.6 Location of employment or Enterprise

At the Market Center.....

Other Places (Specify).....

**SECTION 2: BUSINESS INFORMATION**

2.1 When was the business established.....

2.2 a) what were you selling before Covid 19 Pandemic

Products	Quantity	Source	Mode of transport	price	income	

b) what were you trading during Covid 19 Pandemic?

Products	Quantity	Source	Mode of transport	price	income	

c) what are you trading now?

Products	Quantity	Source	Mode of transport	price	income	

2.3. where do your customers come from?

.....

2.4 a) what was your average daily income before Covid 19 Pandemic?

.....

b) what was your average daily income during Covid 19 pandemic?

.....

c) what is your average daily income now?

.....

**SECTION 3: BUSINESS PREMISES**

3.1. Type of the structure

Permanent ( ) semi-Permanent ( ) Kiosk ( ) Kibanda ( )

3.2 Business premises ownership

Owner ( ) Rented ( )

If rented how much is the rent per month.....

**SECTION 4: INFRASTRUCTURE**

4.1 what is your main source of water?

.....

4.2 What kind of sanitation facilities are available?

.....

4.3 Does the center have a sewer network? Yes ( ) No ( )

4.4 How do you dispose your waste?

- a) Burning
- b) Burying
- c) Open dumping
- d) Collection by the county government
- e) Collection by private company
- f) Others (Specify).....

**SECTION 5: BUSINESS AND COVID 19**

5.1 What are some of the benefits that the market has to the residence and the neighborhood?

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5.2 what are some of the challenges affecting the business in the market center?

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5.3 how can the challenges stated above be solved?

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5.4 how has Covid 19 affected your business

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5.5 what opportunities and challenges that have arisen due to Covid 19 Pandemic?

**Opportunities**

Social Opportunities.....

Economic Opportunities .....

Physical Opportunities

Buildings, .....

Transportations, .....

Infrastructure services.....

Environmental Opportunities .....

Governance Opportunities

Institutional Opportunities .....

Legal Opportunities.....

Policy Opportunities.....

Financial Opportunities.....

**Challenges**

Social Challenges.....

Economic challenges.....

Physical challenges

    Buildings, .....

    Transportations, .....

    Infrastructure services.....

Environmental challenges.....

Governance challenges

    Institutional challenges .....

    Legal challenges .....

    Policy challenges .....

    Financial challenges .....

**APPENDIX 3: KEY INFORMANT 1 (MARKET REPRESENTATIVE)**

Serial No. \_\_\_\_\_



UNIVERSITY OF NAIROBI

FACULTY OF BUILT ENVIRONMENT & DESIGN

DEPARTMENT OF URBAN AND REGIONAL PLANNING

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PROJECT: Urban-Rural Linkages: Covid-19 Impacts on Soko Mjinga Market Centre and Smallholder Communities in Kinale ward, Kenya

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Interview schedule for Key Informants (KII)

Market Representative

1. How does Soko Mjinga operate in terms of selling points, trading days and any other aspects of its functionality?
2. What are the key challenges faced by traders in the market

**Challenges**

Social Challenges.....

Economic challenges.....

Physical challenges

Buildings, .....

Transportations, .....  
Infrastructure services.....  
Environmental challenges.....  
Governance challenges  
Institutional challenges .....  
Legal challenges .....  
Policy challenges .....  
Financial challenges .....

3. How can these challenges be solved?

4. What challenges does the market face?

**Challenges**

Social Challenges.....  
Economic challenges.....  
Physical challenges  
Buildings, .....  
Transportations, .....  
Infrastructure services.....  
Environmental challenges.....  
Governance challenges  
Institutional challenges .....  
Legal challenges .....  
Policy challenges .....  
Financial challenges .....

5. How can these challenges be solved?

6. What are the benefits of the market to the rural community and the neighborhood?

7. How has Covid 19 affected the daily activities of the markets? \_

Positive/ Negative

8. Any other comment?



**APPENDIX 4: KEY INFORMANT 2 (AGRICULTURAL EXTENSION OFFICER  
KINALE WARD)**

Serial No. \_\_\_\_\_



UNIVERSITY OF NAIROBI

FACULTY OF BUILT ENVIRONMENT & DESIGN

DEPARTMENT OF URBAN AND REGIONAL PLANNING

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PROJECT: Urban-Rural Linkages: Covid-19 Impacts on Soko Mjinga Market Centre and  
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Interview schedule for Key Informants (KII)

Agricultural Extension Officer

1. What is the organizational structure of the department?
  - a. Comment on the existing capacity? (Human, financial, equipment)
2. What are the main agricultural activities in the area?
3. In which areas do the mentioned activities take place? (Indicate in the map)
4. What are the annual production trends for the last five years in the planning area?
5. Do you have the statistical data on the number of farmers in the various production sectors identified above?
6. What production and management challenges does the agricultural sector face?
7. What measures have/can been put in place to solve the mentioned challenges?
8. Did COVID-19 impact the agricultural sector? If so, kindly elaborate.
9. What were the measures taken to enhance efficiency during the COVID-19 period?
10. What are the projections of agricultural production?

11. What are the challenges facing the agricultural sector?
12. How can physical planning influence the growth of agriculture in the region?

**Cooperatives**

1. How many active cooperative societies are within the planning area?

Registered cooperatives	Number	Name and Activities
Active		
Dormant		

2. What challenges do the cooperatives face?
3. What can be done to solve the challenges/Issues?
4. Did COVID-19 affect the cooperatives.  
If so, kindly elaborate.

**APPENDIX 5: KEY INFORMANT 3 (PHYSICAL PLANNER)**

Serial No. \_\_\_\_\_



UNIVERSITY OF NAIROBI

FACULTY OF BUILT ENVIRONMENT & DESIGN

DEPARTMENT OF URBAN AND REGIONAL PLANNING

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PROJECT: Urban-Rural Linkages: Covid-19 Impacts on Soko Mjinga Market Centre and Smallholder Communities in Kinale ward, Kenya

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Interview schedule for Key Informants (KII)

Physical Planner

1. What is the organizational structure of the department?
  - a) Comment on the existing capacity? (Human, financial, equipment)
2. Is there an existing plan for Lari sub-county?
3. What aspects of the existing Plan have been implemented?
4. How are market centres factored in during the planning?
5. How successful has the implementation of the plan been?
6. What factors have hindered effective implementation of the Plan as per the implementation schedule?
7. What are the challenges the department is currently facing?
8. How does the Planning department go about planning for the agricultural areas?

9. Are there sectoral plans for the sector?
10. What is the influence of the market centres on the development of adjacent land?
11. How is development of the market centres regulated?
12. What is the influence of Nairobi – Nakuru road on the market centre?
13. Have there been issues with regard to implementation of development control guidelines?
14. What proposals could be made by the department to enhance the economic capacity of market centres in rural areas and sustainable growth of the resultant towns?

**APPENDIX 6: DRIVERS' SURVEY**

Serial No. \_\_\_\_\_



UNIVERSITY OF NAIROBI  
 FACULTY OF BUILT ENVIRONMENT & DESIGN  
 DEPARTMENT OF URBAN AND REGIONAL PLANNING

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PROJECT: Urban-Rural Linkages: Covid-19 Impacts on Soko Mjinga Market Centre and Smallholder Communities in Kinale ward, Kenya

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Driver

**BEFORE COVID 19 PANDEMIC**

1. Fill in the table accordingly.

Farm produce transported	Quantity (kgs)	Size of the vehicle	Prices (Kshs)	Destination

2. Where do you get the farm produce from? The Market ( ) from the Farms ( )? Give details.

3. What are the challenges faced during the loading and transportation of the farm produce?

**Challenges**

Social Challenges.....

Economic challenges.....

Physical challenges

Buildings, .....

Transportations, .....

Infrastructure services.....

Environmental challenges.....

Governance challenges

Institutional challenges .....

Legal challenges .....

Policy challenges .....

Financial challenges .....

4. what are some of the opportunities that arise from the transportation of the farm produce?

**Opportunities**

Social Opportunities.....

Economic Opportunities .....

Physical Opportunities

Buildings, .....

Transportations, .....

Infrastructure services.....

Environmental Opportunities .....

Governance Opportunities

Institutional Opportunities .....

Legal Opportunities.....

Policy Opportunities.....

Financial Opportunities.....

**DURING COVID 19 PANDEMIC**

5. Fill in the table accordingly.

Farm produce transported	Quantity	Size of the vehicle	prices	Destination

5. What are the challenges faced during the loading and transportation of the farm produce during the Covid 19?

**Challenges**

Social Challenges.....

Economic challenges.....

Physical challenges

Buildings, .....

Transportations, .....

Infrastructure services.....

Environmental challenges.....

Governance challenges

Institutional challenges .....

Legal challenges .....

Policy challenges .....

Financial challenges .....

7. What are the possible solutions to challenges stated above?

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8. What opportunities have arisen in the transportation of the farm produce during the pandemic?

**Opportunities**

Social Opportunities.....

Economic Opportunities .....

Physical Opportunities

Buildings, .....

Transportations, .....

Infrastructure services.....

Environmental Opportunities .....

Governance Opportunities

Institutional Opportunities .....

Legal Opportunities.....

Policy Opportunities.....

Financial Opportunities.....

8. In your own opinion, how has Covid 19 pandemic affected you, both positively and negatively?



## **APPENDIX 7: FOCUS GROUP DISCUSSION GUIDE**

Serial No. \_\_\_\_\_



UNIVERSITY OF NAIROBI  
FACULTY OF BUILT ENVIRONMENT & DESIGN  
DEPARTMENT OF URBAN AND REGIONAL PLANNING

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PROJECT: Urban-Rural Linkages: Covid-19 Impacts on Soko Mjinga Market Centre and Smallholder Communities in Kinale ward, Kenya

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### **GENERAL INFORMATION**

1. What is the scale of agriculture practiced? On what size of farm?
2. What are the kinds of agricultural practised?
3. How much space is given per agricultural practice?
4. What is the reason for the given allocation?
5. Do you work on the farm year-round, seasonally, or occasionally? Describe the agricultural practices undertaken, the time designation and productivity.

### **FOOD CROPS**

1. Which food crops are grown in the sub-location?
2. When are they grown? And why that particular time?
3. Rank food crops in order of importance and preference by the community
4. What is the production level of the current food crops in the village – average yields per acre
5. What are the optimal production levels?
6. How are food crops marketed in the sub-location?

7. What is the unit selling price of current food crops in the sub-location?
8. What are the challenges facing food production in the sub-location?
9. How has climate change affected the food production in the sub-location?
10. How did COVID-19 impact the food production in the sub-location?
11. What can be done to improve food production within the sub-location?

### **TRADE AND COMMERCE**

12. What products are brought into the sub-location from other places?
13. Where do they come from? County?
14. What additional products are demanded and can be brought in from other places? Which ones and from where?
15. What products from the sub-location are sold elsewhere? Where are they sold?
16. What other products from the sub-location can be sold elsewhere?
17. What needs to be done to enhance trade in the sub-location?

### **MARKET**

18. In which market do you trade?
19. What is the main challenge of market?
20. Is the market accessible?
21. What are the challenges faced when participating in the market as a trader? As a consumer?
22. How did COVID-19 affect use of the market? Access to market centres?
23. Does the location of the market affect access? If so, how?
24. How is the transport route towards the markets? Does it affect how often you visit the market?

25. Other than for trade and purchase of goods, are there other services you seek in the market centres? If so, which ones?

26. What would you propose to enhance the experience at the market? The market centres?

## APPENDIX 8: OBSERVATION CHECKLIST

Serial No. \_\_\_\_\_



UNIVERSITY OF NAIROBI  
FACULTY OF BUILT ENVIRONMENT & DESIGN  
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Market Identification	Name and exact location on Base-map	
Responsible agencies	Agency/ agencies (e.g., local government, private body, co-operative) responsible for market management	
Frequency of operation	Whether the market opens daily, twice a week, once a week, etc. (record days mentioned)	
Catchment area of market	Names of villages served and their total population	
	Names of villages or areas sending produce to the markets	
Level of trade on peak day	Number of permanent retail stallholders (selling fresh produce)	
	Number of farmers visiting the market to sell produce	

	Number of wholesalers, collector or assemblers purchasing at the market	
Physical facilities	Total area of market (square metres or hectares)	
	Total number of fixed stalls by function (fish, meat, fruit, vegetables, charcoal, firewood, medicinal plants, etc.)	
	List of key facilities (roads and parking, water supply, toilets, refuse disposal, maize mills, extension office, etc.)	