FACTORS AFFECTING PERFORMANCE AND FUNCTIONALITY OF RURAL MARKET CENTRES IN CENTRAL ALEGO WARD, SIAYA COUNTY – KENYA: A STUDY OF BORO, NDERE AND RATUORO MARKETS

By

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DECLARATION

This Planning Research Project is my original work and has not been presented for a degree in any other university

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This Planning Research Project has been submitted for examination with my approval as the University Supervisor

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DEDICATION

I dedicate this work to the people of Siaya County where I was born, bred and reside

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I would like to acknowledge my supervisor, Dr. Romanus Opiyo, for the guidance he gave me as I undertook this research. He indeed made insightful contributions to this work.

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ABSTRACT

This study sets out to examine factors that influence the performance, functionality and growth of three rural market centres in Central Alego ward of Siaya County -western Kenya, with a view to proposing measures to improve their performance and functionality. The three centres are Boro, Ndere and Ratuoro. They exist to serve the immediate economic and social needs of people who reside in their rural periphery, and are expected to provide a satisfactory level of service to the rural community. However, it has been observed that in many cases market centres do not perform the functions that they are designed for to an optimal level. The specific objectives of the study are to determine the current performance level of the market centres; to enumerate the factors that contribute to this level; to assess the functionality of the centres; and to propose measures by which their performance and functionality can be improved. The study explores concepts enunciated in the "growth pole" theory of economic development and the attendant "growth centre" policy framework, in which the market centre is regarded as a magnet that attracts goods, services and people to itself and disseminates the same to the rural surrounding through "spread" and "backwash" effects. A sample of 197 respondents comprising traders and consumers from the three market centres was selected. Questionnaires were administered to these respondents mainly through convenience sampling. Other primary data was obtained from key informants in national and county government offices, and from informal group discussions that were held with identified stakeholders such as motorcycle (*boda boda*) riders and traders' representatives. SPSS was used to analyse statistical data, while GIS was used for spatial data. Findings indicate that the level of performance of the three centres is generally low. Retail shops, which constitute 14.8% of businesses at the centres, mostly deal with low order goods such as salt, sugar, soaps, bread and milk. Low business turnover, unemployment and low incomes have contributed to poor performance by restricting cash flow and investment. Absence of commercial agriculture in the surrounding farmlands has contributed to there being no agro-industrial enterprises, which would have provided employment and created opportunities to generate income. . Furthermore, the centres are not very effective in performing their functions either because they are not well planned, as is the case with Ratuoro, or because their plans have not been revised and updated to cope with current development trends. Uncontrolled development in the immediate agricultural neighbourhoods has resulted in irregular and sometimes haphazard spatial patterns of growth that have not encouraged structured settlement in

the centres. There is need to revise old development plans and prepare new ones where applicable. Beside encouraging farmers to grow hardy crops such as cassava and sorghum for commercial purposes, the county government should embark on exploiting the two most prominent resources namely Yala Swamp and Lake Kanyaboli for cotton, rice, pulses, aquaculture and tourism through public private partnerships. A study of the relationship of rural market centres to urban areas under whose circle of influence they fall with a view to strengthening the linkages between them would be of complement to this research.

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CHAPTER ONE
INTRODUCTION

1.1 Overview

Market centres can be regarded as nodal points at which social and economic activities take place in a "concentrated" manner. Such activities are characterized by higher densities of population and buildings, and greater commercial and industrial activity within limited geographic space, as opposed to most rural areas where the same activities are characterized by low population densities, scattered settlements and wide spaces in which agriculture (including livestock farming, forestry, and fisheries) is the most common economic activity. Rural market centres can thus be regarded as urban areas that are in the process of being formed (Friedman, 1966).

A study of market centres cannot ignore rural areas as they are the "back-cloth" upon which the market centres are etched. Their relationship is captured in the "centre – periphery" concept of economic development (Friedman, 1966) which describes and explains the structural relationship between a more developed urban 'centre' (core) and a less developed rural 'periphery' in a particular country or region. Although the concept is more commonly applied to the relationship between developed and developing socio-economic systems of the world, it has also been applied to the relationship between urban and rural areas in the context of human geography and regional planning. The core-periphery model describes regions as core, semi-periphery and periphery or, more specifically, as: the industrial core, upward transition area, downward transition area, and resource frontier. These areas are inter-dependent through the exchange of resources.

Market centres are the 'core' and play an important role in the overall development of rural areas. In most cases they serve as the main nodes in a market network with facilities and amenities that perform certain specialized functions (Dardak, 2007). Some of the functions that they perform are exchange of goods and services from within and from without the region; provision of rental housing and accommodation for residents and non-residents; and selling of foodstuff, farm produce and general provisions or manufactured goods. They serve as meeting

places for social, cultural and religious purposes; as transportation nodes which connect different places through the prevailing mode of transport e.g. road, rail or water; and as facilitators for the mobility of people, goods and services for physical and socio-economic growth and development.

According to de Jong (1988), the roles that must be played by rural market centres in promoting rural development include provision of durable and non-durable goods, provision of public and private services, provision of linkages to the larger markets for rural produces, supply of factors of production, provision of agro-processing facilities and being the centre for knowledge and information dissemination.

The proper functioning of these market centres is of importance to economists, geographers and planners because the centres are the first point of interaction between urban and rural interrelationships. They are at the beginning of the food chain, where they act as an urban support base for rural development. According to the World Bank (1975) the aim of rural development is to create sustainable livelihoods by improving the economic and social living conditions of the rural poor.

On the other hand Powell (1997) observes that 'small towns' (read market centres, in this case) "are at the end of the (food) chain with little going for them". Powell's argument is that the forces of globalization and the "new economic geography" are inherently centralizing; and that larger centres have substantial and increasing economic advantages over smaller centres ("primacy"). In this scenario "urbanization" is seen as the ultimate or desired goal of development. This raises the question as to whether these centres should be encouraged to grow or be allowed to fade away in favor of their larger urban neighbors.

In Kenya, the rural population is about 67% of the total (G.o.K, 2009). This shows that the majorities of people live in rural areas and fend for themselves both from agricultural activities and the small-scale businesses that are mostly found in market centres. Most of these centres however have shown little economic growth and this has prompted the government to initiate strategies designed to raise their performance to a satisfactory level. The Growth Centre Strategy, for example, was introduced in 1969 as "an instrument of spatial policy" (Richardson, 1978). Its purpose was to create centres which could provide urban services, amenities and

facilities to the rural areas for their growth and development, and to stem the tide of rural- urban migration (Obudho, 1995;1997 in UNCHS (Habitat). Four tiers of growth centre namely principal towns, urban areas, rural and market centres were defined and designated. However, the strategy was abandoned in the subsequent planning period 1975 – 1979 because it was seen to have failed "to generate the developmental waves expected in the rural areas and reduce the primacy" of large urban areas (UNCHS, 1970). Although the strategy was applied to centres slightly higher in rank than Boro, Ndere and Ratuoro, (e.g Keroka and Kutus), the philosophy upon which it was based is applicable to these smaller centres as well.

Other strategies that have targeted rural development are the Rural-Urban Balance Strategy of 1986 and the District Focus for Rural Development Strategy of 1984.

The devolved government system introduced in the year 2013 following the promulgation of the Constitution of Kenya 2010 can be seen as an attempt to open up the rural economy. However, since the system is relatively new, most of the County Governments have concentrated on putting up the structures upon which to roll out their development agenda and much of the development changes have only occurred in the towns which act as county headquarters. Rural market centres have continued to lag behind and this is manifested in the rapid rise in the incidence of rural poverty (Kirori, 2015**).** It is thus important to examine the dynamics of growth of rural centres and devise ways of improving the livelihoods of the many people living in the rural areas.

1.2 Statement of the Problem

Rural market centres are expected to be centres of growth and development not only of themselves but also of the surrounding rural environment. As growth centres they display a higher level of people, goods and services. They manifest new investment in buildings; robust demand for and supply of all manner goods and services; and provide a greater concentration of physical and social infrastructure than that found in rural areas. This translates into adequate revenue and profits generated from investment activities for both the public and private sectors. In addition, the centres guide directions of physical growth based around transport corridors in a manner that enables efficient linkages between centres in the regional developmental network. In post- independent Kenya, they were envisioned to act as service centres that would provide minor urban functions for the rural population living within their catchment areas

However, in some cases they have been perceived to be underperforming in terms of the nature and level of goods and services that they provide. The level of business activity is low and is mainly in the form of small scale retail shops that trade in basic household provisions. Demand and supply for high order goods is virtually non-existent. They have ceased to be the centres of growth and development that they were meant to be. In central Alego, they are characterized by old and dilapidated buildings, poorly maintained roads, and lack of water and sanitation facilities. Evidence on the ground implies that there was a time when the centres were vibrant and attracted investors who put up buildings for commerce and residence. Little or no re-investment has taken place lately and the infrastructure has fallen into decay and "disrepute as instruments of spatial policy" (Richardson, 1978). The ability of the centres to function well has been hindered by little investment in infrastructure that is necessary to spur growth in the centres and development in the rural surrounding.

1.3 Research Objectives

The objectives of this study are:

1. To determine the current performance level of the identified market centres
2. To assess the functionality of the centres
3. To profile the factors that influence performance and functionality of the market centres
4. To propose measures by which performance and functionality of the market centres can be improved

1.4 Research Questions

The study endeavors to answer the following questions:

1. What is the current level of performance of Boro, Ndere & Ratuoro centres?
2. How functional are the centres?
3. What factors influence performance and functionality of the centres?
4. What can be done to improve their performance and functionality?

1.5 Justification of the Study

Most studies on this subject have concentrated on retail or wholesale markets in large urban centres such as Gikomba, Karatina, and Kibuye and have largely ignored small rural market centres which are struggling to perform. Moreover, in central alego, no studies of such centres with focus on the physical planning perspective have been undertaken. According to the National

Spatial Plan (NSP) 2015, in Kenya "the emphasis has hitherto been on economic planning with little or no regard for spatial/physical planning. This major disconnect has led to uncoordinated and unguided development resulting not only in duplication of efforts but also in resource wastage and unbalanced development." Hence this study aims to focus on the geo-spatial element of growth and development in the context of rural-urban balance. Traditionally, rural market centres were planned to be centres that could stem rural-urban migration by catalyzing economic activities in rural areas and creating employment opportunities. This is what was envisaged in the "Strategy for Urban and Rural Development" in Kenya Handbook (1978). Moreover, rural market centres serve a large proportion of the population (67%). Yet their potential for revenue generation has not been taken seriously by county governments which have continued to promote development in larger urban centres.

Secondly, this study is set to add to the knowledge base related to market centres in Central Alego, Siaya County. While certain aspects have been observed about the centres under study, this research is envisaged to give empirical evidence of some of those observations and give scientific explanations about the situation in those centres.

Lastly, this study is designed to give a basis upon which various recommendations can be made in order to improve performance and growth in the centres under study. Some of the recommendations may also be helpful to other centres where situations similar to those in the study area obtain.

1.6 Organization of the Dissertation

The project dissertation has been organized into seven chapters as follows:

Chapter 1: Introduction

This chapter deals with general concepts of performance, functionality and growth of market centres; problem statement, study purpose, research questions and justification of the study.

Chapter 2: Literature Review

This chapter contains a discussion of theoretical concepts relating to the topic of study and the policy, institutional and legal frameworks and planning paradigms related to market centre growth and development in Kenya. A conceptual framework is presented at the end of this section.

Chapter 3: Methodology of the Study

This chapter outlines the study design, the data needs and the methods of data collection, sampling, data analysis and presentation. It then examines multi-dimensional characteristics of the study area including the physical and socio- economic environment.

Chapter 4: Study Findings

This section outlines the findings of the research, in relation to the study objectives. Findings include an analysis of the performance of each of the centre under study, the factors that influence this performance and the structural growth or expansion of the centres.

Chapter 5: Planning Implications

The emerging issues from chapters one to four have been analyzed and translated in the context of urban and regional planning. This has formed a basis for planning recommendations made thereafter.

Chapter 6: Conclusions and Recommendations

This section makes recommendations in response to the growth and development problems that the study has identified.

1.7 Operational Definition Of Terms

1. **Rural market centre**: A central place which exists to serve the immediate economic and social needs of people who reside in rural areas. It is a physical centre of increased activity that provides "minor urban services" to the rural community (Richardson, 1980). Such services are supported by transportation, commerce and public amenities.
2. **Performance:** The *Cambridge English Dictionary* defines performance as "the act of carrying out a task or function; and, the manner in which the action or process is executed". This entails not only the act itself as a verb, but also its quality or how well or ably it is done. For example, a retail shop that sells general provisions may have a limited or a wide variety of goods and this is a reflection of its performance.
3. **Functionality:** *According to the Oxford Dictionary*, functionality means the quality of being suited to serve a purpose well. This can be regarded in terms of the object being not only useful, practical and right for its purpose, but also being efficient in the execution of

its role. The Cambridge Dictionary describes functionality as the “range of operations” that is performed by a system or an organization.

CHAPTER TWO
LITERATURE REVIEW

2.1 Overview

In this chapter, diverse literature related to the subject of rural market centres and their functional and growth concepts has been reviewed and discussed. The main objective of doing this is to establish a theoretical framework for the topic under study and gain an understanding of various principles and concepts that support the study. This review explores the Central Place Theory, which explains how rural market centres function in relation to the overall pattern of rural settlement, as well as the concepts of 'Growth Pole' and 'Growth Centre' whose proponents argued that 'growth centres' attract and spread economic activities by their propulsive and polarizing functions. The concentration of activities at the centres is supposed to transform them into focal points of economic investment, social interaction and institutional development.

Literature on the concept, functions, performance and growth of rural market centres is also analyzed for better understanding of the study topic. One of the more interesting aspects of such a study is the phenomenon of market centres which are declining and/or have stopped performing the functions which they are supposed to perform.

There is no strict boundary between factors of performance and those of functionality of market centres. Many of the factors are inter-twined and not easily distinguishable as a performance or a functionality issue. For example the condition of a road is critical to providing access to the market and thereby improving its performance. At the same time, its maintenance is a budgetary issue which is determined by the county government and this classifies it as a governance or functionality issue. Many other instances of this nature will occur in the course of this discourse and shall be highlighted as they occur.

2.2 Performance of Rural Market Centres

2.2.1 Central Place Theory

Mutizwa-Mangiza (1991) defines a rural market centre as the central place which serves the immediate economic and social needs of people who reside in rural areas. Wekwete (1998) further notes that these centres provide goods and services to their resident population as well as

to those who live in the surrounding areas. These two definitions are at the core of this study, as they establish the main principles contained in Christaller's Central Place Theory. In this theory, market centres act as the "central place" that provides the population of the surrounding area with goods (market function) and services (service function). They are also the main mechanism for the assembly of local produce for the bulking-up (assembly function) and onward movement of the produce to other areas (transport function).

In this study, performance is closely associated with the market or assembly function, while functionality relates to the transport or distribution function. In addition, a network of market centres in a region forms a series or "hierarchy" of "catchment areas" or "spheres of influence". The limit of a catchment area would be the result of the "range" or "threshold" for economically providing services or goods. The theoretical shape of catchment areas is circular, but it is normally represented as a series of nesting hexagons in which all areas are accounted for (see Figure 10). In reality, however, the location of centres and the shape of their related catchment areas is distorted by transport routes and other geographical features.

In such a system, the lowest order centres (e.g. a village) would look to the next level (e.g. a small town) for more specialized goods and services, ultimately culminating at the top of the hierarchy in the highest level of services, such as universities and specialty shops provided in a regional or national capital. At the lowest level of this hierarchy are rural market and service centres, which in many cases are periodic and will operate on only one day of the week.

2.2.2 Levels of service centres

The Kenya Physical Planning Handbook (2007) provides a hierarchy of centres in the country, among which are market centres and rural centres. The former are considered to be centres which have a resident population of less than 2000 and a catchment population of 15,000 people. The latter on the other hand have a resident population of between 2,000 and 10,000 people and a catchment population of 40,000 people. These centres tend to serve a population that is dispersed over a large geographical space (Sagi, 2014) characterized by low population densities and wide spaces in which agriculture is the most common economic activity. In the rural economy, the market centre plays a crucial role in fostering human interactions in the course of exchanging

local products, ideas and innovations. It serves as the nodal point for the collection and distribution of a large range of goods and services of both local and external origin (Good, 1972).

2.2.3 Characteristics of Rural Market Centres

According to (Sagi, 2014), rural market centres depict the following features

- They are scattered
- They are thin
- They are either developing or underdeveloped
- They have a small number of sellers
- They are spatially overlapping or they occur in small segments
- They have low exposure and low response to marketing
- They have limited products and brands
- The business operators experience lower degree of competition
- They have weak infrastructure
- Advertisement and sales promotion are not required and are not feasible
- There is low consumerism
- They have small shops and a limited display of products
- There is lower influence of social media
- There is little awareness of consumer rights

2.2.4 Population and Demography

According to Gajar (2015), population and demographic characteristics are an important determinant of an area's economic development. Population size and density, population dispersion or spatial distribution and age structure are particularly critical to the performance of rural market centres. Demographic characteristics of the population include age, sex, family status, education level, income level and occupation or employment status. These are important in understanding the behaviour of traders and consumers of the products at the market centres.

It has been observed that more people will tend to move to a centre because of the socio-economic opportunities it offers. If a centre offers more employment or a larger market for goods and services, then it will attract a bigger population than another centre. As such, population growth (especially that which arises from in-migration) is a key factor to the physical, economic and social growth of an area. One of the development challenges of underdeveloped regions is of "an urban economy which does not provide sufficient employment opportunities to absorb

individuals entering the job market" – Western Province Regional Physical Development Plan 1970.

Population helps to balance the environment through in- and out-migration; According to Harris and Todaro (1956) balance of population with means and resources comes when all needs and demands of the people are fulfilled, resulting in ecological sustainability.

2.2.5 Commercial Activities

The performance of a market centre may be determined by the nature and types of economic/commercial activities that take place therein (King, 2011). These activities can be measured using a number of indicators that include the total number of commercial units, the variety of goods and services on offer, the number of vacant units, the number of traders, the value of fixed properties, footfall on market and non-market days, car parking availability and usage, business confidence, visitor satisfaction and shoppers origin. King adds that a well performing and functional market centre is expected to have very few vacant buildings, a rich variety of retailers who can attract and retain customers and a wide catchment area of shoppers**.** The factors enumerated by King are commerce oriented. Other issues relating to commerce are the market value of commodities produced by an economy over time and revenue accruing to government (Dixit, 1980).

Mamta, Sanjay, & Ahuja (2014) point out that a growing rural centre is one that will offer a higher number of employment opportunities with better wages. They observed that those who work in rural centres in China, Mexico, and South Africa reported more positive changes in their wages than did their counterparts in urban areas. They considered this to be an indication of increased performance of the rural centres. However this happens only when the centres are buffeted by establishment of manufacturing plants.

Consumption rates in those centres also went up due to increased money supply which drove the demand for more goods and services. A higher rate of consumption of goods and services is considered as another indicator of performance in rural centres. The argument is that a high rate of consumption increases the opportunities for diverse businesses in the centre because there is adequate market demand for goods and services. This may also result in higher amount of revenue being collected from businesses by the administrative authority of the region

2.2.6 Farming Systems

"An agricultural economy geared primarily to the production of subsistence food crops with reluctance on the part of farmers to plant industrial cash crops". Western Province Regional Physical Development Plan 1970 on problems of economic development in under-developed regions.

The system of farming in the surrounding countryside plays an important role in the growth of the market centre that serves that area. The presence of large-scale commercial cash crop that is export oriented, for example, tends to bypass local centres, thereby creating friction/tension between the developer and the community. However, it can create a spike in the local economy by providing jobs and a market for consumer farm produce such as sweet potatoes, sugar cane and green vegetables. This is in contrast to a situation where the dominant activity is small-scale subsistence farming. This tends to serve the same local population, most of who probably produce the same farm products as the ones that would be brought to the market centre. Thus there is no infusion of external cash; the circulation of money remains low

2) ***Storage and Processing Facilities***

The presence of these facilities makes the difference between preservation and spoilage of fresh farm produce. They act to reduce losses to middlemen and farmers. They also create additional employment especially when processing is done locally. Such facilities include cold rooms for fish, slaughterhouses and in the case of commercial production cotton ginneries, and rice and sugar mills.

b) Links with regional Trade Network of Middlemen

Linkages with other collection centres and assembly points in the regional network of centres create access to non-local markets. This could be limited to low-level transactions when demand and supply factors are not in equilibrium; or it could escalate to high-level transactions where farmers are able to respond to demand from urban-based consumers (and traders). In the latter case, the periodic market may grow into a wholesale market of sorts.

c) Relations between Producers and Traders

The linkages have positive as well as negative effects. The negative side of which might be the use of monopolistic practices (as in the potato packaging wars of the fifteen counties in Kenya,

including Nyandarua and Meru, that grow potatoes and where farmers complained bitterly about being exploited by middlemen who purchased the product in 90-kg gunny bags from them and sold the same to consumers in 50-kg gunny bags). The positive side is the enhancement of transport, extension advice and informal credit, which would not otherwise be available to small farmers.

2.2.7 Agro- Industries

Agglomerating functions that arise from activities generated by polarization effects of agro-industrial development. Investments in has been noted that most rural areas rely on agricultural economies. However, as obseved by Mamta, Sanjay, & Ahuja (2014) in India, the injection of manufacturingg industries in rural centres is bound to increase its general growth, usually assessed by a change in GDP. For instance the per capita GDP in rural India increased at an annual rate of 6.2% between the year 2000 and 2014 because of locating upto about 75% of new factories in rural centres. Such industries create a multiplier effect in most other sectors of the economy, causing a vibrant local economy.

2.2.8 Circular Cumulative Causation Theory

The circular cumulative causation theory was developed by Swedish economist Gunnar Myrdal in 1956. It is basically an economic theory of development that addresses disparities between more developed and less developed regions of the world. The idea behind it is that in an economic system, a change in one variable inexorably leads to successive changes in other variables that are related to it. Such a change tends to be positive in a developed economy that is endowed with resources, and negative in an under-developed economy that lacks resources. For the latter, the cycle of poverty is perpetuated.

Central to this theory is the concept of "backwash" and "spread" effects. This can be visualized in terms of the "ebb" and "flow" of the ocean waters at a beach. When the waters flow in from the sea, they bring resources that they will have gathered from the deep. So it is with a well-endowed region which benefits from resources that comes from what Friedman described as "resource frontiers". The resources are then processed within this developed system into higher order consumption goods before they are "spread" into the surrounding areas. The process of converting raw materials into consumption goods creates multiple activities and opportunities. When the waters ebb, they take away the little that they found on the beach back into the sea. So

it is with an impoverished region; the little that it has is taken away and it remains the poorer for it. This has also been referred to as the "vicious cycle" of poverty of under-developed regions.

The theory views the introduction of an industrial plant in a region as fostering more jobs, in-migration of labor, increased money supply, increased investment, more wealth, increased government revenue, improved infrastructure and the development of more service industries. This leads to a gradual increase in demand for goods and services, more vibrancy in buying and selling activity and multiple transactions taking place in the economy.

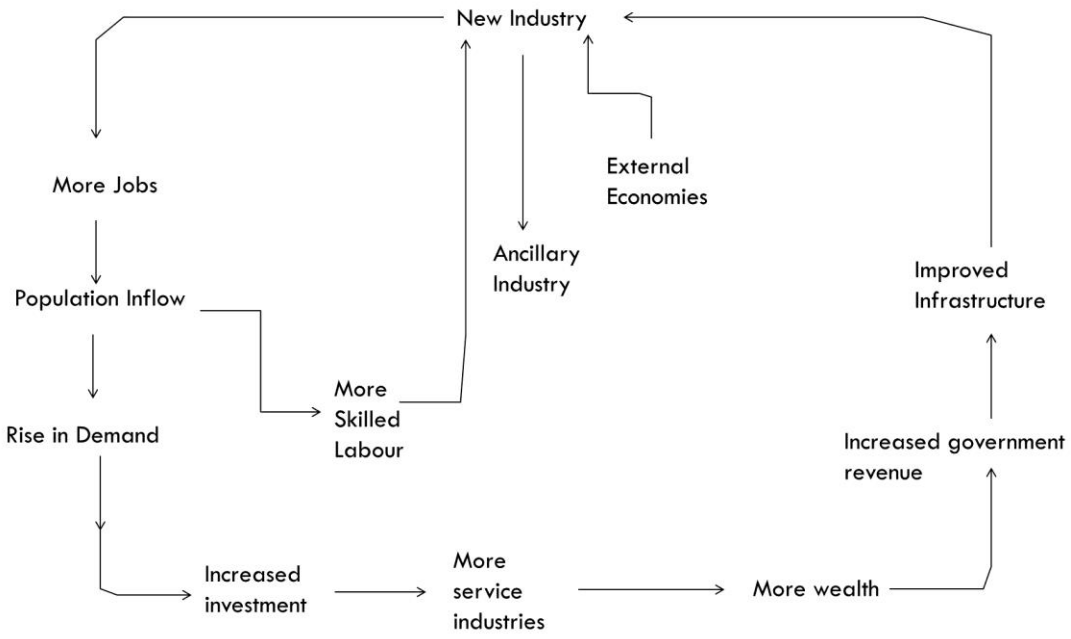


Figure 1: Circular Cumulative Causation Model

2.2.9 The Growth Pole Model

Growth pole theory is credited to the French economist Francois Perroux who believed that the basic fact of spatial as well as industrial development is that 'growth does not appear everywhere and all at once; it appears in points or development poles, with variable intensities; it spreads along diverse channels and with varying terminal effects to the whole of the economy'.

Another Frenchman, J.R. Boudeville, defines a regional growth pole as a 'set of expanding industries located in an urban area and inducing further development of economic activity throughout its zone of influence'. The theory is applied to not only understanding regional

structure, but also predicting changes in that structure and prescribing solutions to certain regional problems.

Perroux's original work focused on the development of growth poles 'in abstract economic space'. It considered economic space as a 'field of forces consisting of centres or poles from which centrifugal forces emanate and to which centripetal forces are attracted' (UN-HABITAT, 1993). Boudeville extended the original theory to include geographical space. Thus the term "growth centre" was introduced to account for the spatial dimension of the growth pole concept.

The growth poles and growth centres theory is supported by the concepts of "leading industries", "polarization" and "spread effects". Leading or propulsive industries are large firms which dominate other economic units in an area. Their location may be due to availability of a natural resource, transport and communication network, labor or services. The propulsive growth of a leading industry attracts other economic units to it, creating economies of agglomeration which are often self-perpetuating. In time, the dynamic propulsive qualities of the growth pole radiate outwards into the surrounding space. It 'trickles down' and 'spreads' into the surrounding geographical space.

The growth pole model has been applied in several countries throughout the world, especially during the 1960s when growth pole strategies were applied to regional development in both developed and developing countries, such as Canada, Colombia, France, Ghana, Great Britain, India, Kenya, Malaysia, Nigeria, Peru, Poland, Spain, Tanzania, the United States of America, Venezuela, and Yugoslavia. These policies were however largely abandoned in the 1980's owing to growing dissatisfaction with their perceived inability to yield the expected results of inducing new economic growth in underperforming regions (Gail, 1971).

2.2.10 Rural Growth and Service Centres

'Growth centre' refers to an urban or rural trading centre which when boosted by public and private sector investment, can spur further development both within and around it (Wekwete, 1998). It "provides goods and services to its own population as well as to its surrounding population creating balanced socio-economic development of an area". A growth centre is also defined as an area of land that is located in a village, town or city that has clearly defined boundaries that have been approved by the planning authority. It displays a pattern of higher

density, mixed use development clearly different from densities found in the adjoining rural countryside; incorporates public spaces that promote social interaction; encourages in-fill development and redevelopment of historically developed land; is supported by existing or planned infrastructure; and is planned in accordance with existing laws and regulations.

The *growth centre concept* has been applied as a strategy for micro level planning in many rural and urban areas all over the world. The approach witnessed in most cases has been the development of various socio-economic facilities in identified rural growth centres for the purpose of creating an enabling environment for investments in rural areas and making them self-sufficient and more productive. In practice, however, application of growth centre strategies has not resulted in "balanced socio-economic development" which led Richardson (1978) to declare that, in Kenya at least, the strategy "failed as an instrument of spatial policy". The strategy also failed to convert growth and service centres into alternative attraction areas to large urban centres and cities for labour, opportunity and services (Obudho, 1988).

2.3 Functionality of Rural Market Centres

The functionality of a market centre is influenced by its performance and vice versa. In looking at how functionally efficient a market centre is, it is important to consider what type of market it is in terms of its administrative and policy framework. At a planning level are the internal and external relationships between different land uses in the planned areas of the market centre, and in the surrounding rural area. At a policy level, it is important to map out the legal and administrative framework that affects operations at the centre.

2.3.1 Spatial Structure

Tracey-White (1995) presents a physical or geo-spatial dimension of the critical issues to be examined in the functionality of a market centre as "the relationship of the market (center) facilities to the pattern of rural settlements, the location and nature of agricultural production areas, the linkages provided or created by the regional road network, the agglomerating functions of (the) market centre, and the relationship of rural market centres to urban areas under whose circle of influence they fall."

Other scholars have referred to the features that influence the orientation of a centre as structural elements, which can be natural features (e.g. a river, lake or mountain), or man-made features

(e.g. a road, building or manufacturing plant). Structural elements can be separated into two categories; a) elements that influence the rural landscape as a whole, or external elements, and b) elements that touch on the internal arrangement of space within the centre, or the built environment.

2.3.2 Rural-Urban Settlement Pattern

Gajar (2015) argues that the features around the site of a market are key determinants of the land use pattern that it would eventually take. He points out that the location of a market centre "determines the settlement pattern around it". This is in line with location theory, which is concerned with the geographic location of economic activity; and the central place theory which how settlements and places are located in relation to one another and why settlements function as they do. In the context of rural market centres, their external structure is greatly influenced by the natural environment and physical infrastructure. Features such as lakes, rivers, hills tend to give shape to the pattern of rural settlement in a region. Directions of growth are then defined by the transport system, and the availability and supply of water and electricity.

On the other hand, the facilities at the market centre develop in response to the pattern of rural settlement around it (Tracey-White, 1995). This implies that there is a symbiotic relationship between rural and urban settlement. Researchers have identified four distinct types of human settlement patterns. These are linear structure, rectangular or square structure, circular structure, and star-like or radial structure. These are discussed in detail below.

a) Linear structure

In this pattern, shops are arranged along a lane or a series of lines in the direction of a linear feature such as a road (see the figure below)

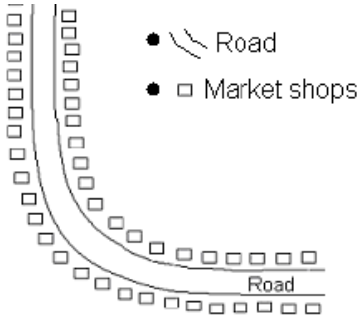


Figure 2: Linear Market Structure
Source: (Gajar, 2015), pg. 115

b) Rectangular / Square Morphology:

If a village centre has a street network made up of a series roads running parallel and others perpendicular to each other, the shops will tend to conform to those streets. The most like pattern that will therefore emerge will be either rectangular or square as shown below.

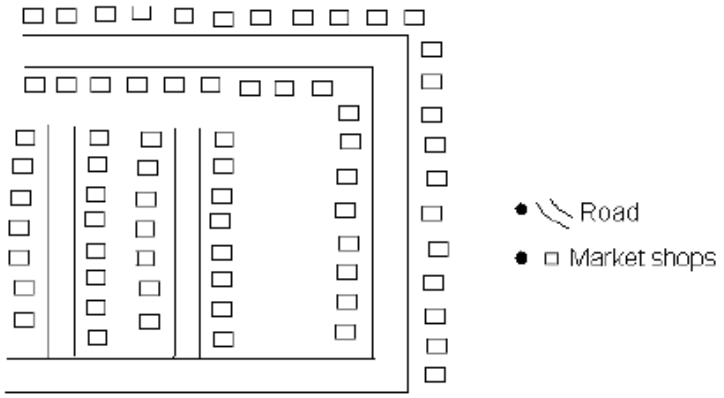


Figure 3: Rectangular Market Structure
Source: (Gajar, 2015), pg. 115

c) Circular or Oval Structure

A market centres that is located around a feature which acts a focal point around which business takes place, then the pattern that will emerge will tend to be circular, even if it's in not a perfect circle. Examples of features around which such pattern is likely to develop include a religious facility or a big tree (Ibid). This is illustrated in the figure below.

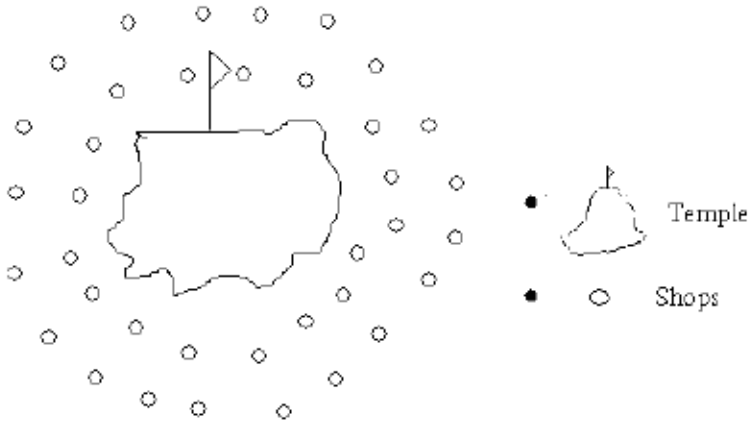


Figure 4: Circular market structure
Source: (Gajar, 2015), pg. 116

d) Star Like/Radial Market Structure

This pattern is common in cases where centres emerge at road junction. Each corridor making up the intersection will influence the location of activities in its own direction, thereby resulting to a scenario where the activities will be radiating from the centre (See the figure below).

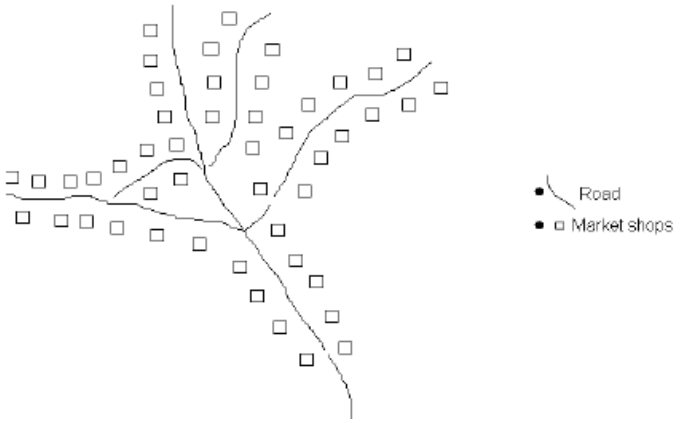


Figure 5: Radial/star like market structure
Source: (Gajar, 2015), pg. 117

2.3.3 Urban Structure and Design

In looking at the physical arrangement of space within the centres, we look at the buildings which correspond with zones and ultimately with the activity or function. Planning zones in the centres are commercial, residential, public purpose, open space. Transportation acts as a cross-cutting issue, a kind of spinal cord that runs through all the zones and facilitates flow of people and goods in and around the centre. In most planned rural market centres, the commercial area is dominated by the market square – an open area where market stalls are traditionally set out for trading, commonly on market day. In urban design, it is described as "a space that forms a focal point in the public space network and provides a forum for social and economic exchange" (www.healthyplaces.org.au).

The concept of a formal market square takes into account the buildings surrounding the square, the dimensions of the space, the need for shade, the design of the infrastructure, water reticulation, sanitation, the "green area", lighting, traffic and mobility, accessibility issues (especially for people with disabilities), maintenance and sustainability, and many other architectural and engineering factors.

Lee & Gordon (2007) point out that urban spatial structure influences the formation of new businesses and industrial establishments. Areas with more clustered spatial form grow faster, because they encourage intensive physical and economic activity "within limited geographic space".

Furthermore, it is argued that the spatial structure that encourages efficient automobile flow is more likely to attract many businesses and industries, and thus a higher number of employment opportunities. Centres that are structured around a good and well organized transport network will grow faster than those with poor networks.

2.3.4 Roads and Transport

"A low standard of urban infrastructural development which discourages the development of industrial enterprise" – Western Province Regional Physical Development Plan 1970.

The mode and means of transport play a role in determining accessibility of the market centre to its hinterland population and to other markets centres with which it is connected. In Kenya, there are several classifications of roads which are determined by their width, their length and by the significance of the centres that they connect. International roads (Class A) connect Kenya to neighboring countries of Uganda, Tanzania, Ethiopia and Somalia. Principal roads (Class B) connect major regional capital towns, while Main roads (Class C) are inter-county roads. Market centres tend to be served by Class C and D roads that transit through or by them. Class E are access roads that spindle into the rural countryside. The main means of transport are buses (trans-county), matatus (inter-county) and *boda bodas* (motorable tracks). According to Satterthwaite and Tacoli (2003), the existence of inexpensive means of transport, such as *boda boda*, can have a positive influence on the performance of the market centre by bringing together people and goods at an affordable cost. Conversely, cheap bus transport availability can have a negative influence by allowing market centres to be bypassed (Satterthwaite and Tacoli, 2003).

In many studies of rural market centres, it has been observed that many of the market centres are located along major roads. Roads are therefore one of the most important determinants of performance of rural market centres. The state or condition of all categories of roads is critical in determining how accessible the market centre is, and this in turn determines how effectively goods and services are distributed in and out of the market centre.

a) **Distance from a main transport terminal**

Since transport termini have the tendency to attract business activities, they are common nuclei of rural market centres. Initially, commercial activities tend to take place within the precincts of the terminal. But as demand for space increases, the activities tend to spread outwards around the terminal. J. H. von Thunen (1836), who has been referred to as the father of location theory, captured this argument in his treatise on value attached to land development around a central place. He observed that the pattern of land use around a centre occurs in a ring of concentric circles with the most valuable and intense activity being located closest to the centre. The intensity of use and therefore value would lessen with distance from the centre.

b) **Accessibility to the Rural Areas**

The accessibility factor tends to determine the location of a centre. This factor has been seen to result in rural centres being located along main transport corridors or at road junctions. In an instance where a centre is not equitably accessible, there are chances that a leap-frog kind of pattern would develop. Accessibility is closely tied to the mode of transport e.g. air, rail or road, in terms of its availability and quality, as well as the means of transport e.g. bus, lorry, van or bicycle.

c) **Linkages provided or created by the regional road network**

Most agricultural marketing systems are designed to allow a large number of small producers to sell as directly as possible to equally numerous small purchasers. This pattern is typical of many African countries, where most of the produce comes straight from the farm to the assembly market (and often directly to an urban market) and there is little bulking-up. This kind of marketing system influences the transport facilities and has two key characteristics:

- Passengers and goods travel together, usually in a bus, modified lorry or a pick-up with seats and a roof added to the back; and
- Most goods are moved in small lots, which means that a typical load is very mixed.

2.3.5 Market Administration

There are three main types of physical markets – periodic, wholesale, and retail. This classification is determined by the local council under which markets falls. Bromley (1987) in Nirmalya (2015) defines periodic markets as authorized gatherings of buyers and sellers of

commodities meeting at an appointed place at intervals. These markets are held on selected days of the week at some fixed locations to provide trading services to the rural people. They are authorized to operate by the local government in place, which provides public services and collects revenue from traders. Revenue accruing to local government is one of the indicators of a growing economy. (Dixit, 1980).

Wholesale markets are places where goods are sold in bulk to traders who proceed to retail markets where the goods are sold in smaller quantities to final consumers (Surbhi, 2018). In Kenya, wholesale and retail markets usually occur in large urban areas which have a wider 'reach'. Examples of such markets are Wakulima market (wholesale) and Retail market (retail) in Nairobi, and Kibuye market (wholesale) and Jubilee market (retail) in Kisumu.

2.3.6 Planning and Policy Intervention

Apart from their role in market administration, county governments are the overall administrative and planning authority in rural areas. They derive this role from the Constitution of Kenya (CoK) and its enabling laws. Article 6 of the constitution recognizes two levels of government namely national and county governments which are distinct and inter-dependent. The purpose of the devolved system of government is partly to promote social and economic development and the provision of proximate services throughout Kenya; to ensure equitable sharing of national and local resources; and to facilitate the decentralization of state organs, their functions and services, from the capital city of Kenya. Among the devolved functions (Fourth Schedule, CoK) are agriculture, county health facilities, county transport, trade and development regulation, county planning and development, and county public works.

The preparation of physical development plans for the market centres is therefore one of the functions of county governments. This goes along with development control instruments, which county governments have mainstreamed into their administration through Land Planning and Management Departments, and committees on town planning and markets administration. Through these instruments, county governments are able to make policies and regulations that touch on the performance and functionality of market centres.

The County Governments Act requires each of the 47 counties to prepare County Integrated Development Plans (CIDP) that would guide development of the county for five years. It would

outline development projects and programmes in various sectors that are geared towards improving the social and economic welfare of the people. Another instrument that county governments are required to prepare are County Spatial Plans (CSP), which should be aligned to the National Spatial Plan (NSP).

In the 1960s many governments, including that of Kenya, implemented rural growth and service centre strategies as a means of reinforcing an existing hierarchy of service centres and reducing regional imbalances and distributing government services on an equitable basis. The hierarchy recognized three levels of central places, which were also reflected in the market facilities: growth centres, district centres and rural service centres. However, this policy did not succeed "as an instrument of spatial policy" (Richardson, 1978) because it was not "conceived within the framework of a national urban development strategy". He suggests that for the policy to succeed, it must promote agro-processing industries, attract rural migrants who would otherwise head for the cities, and strengthen the service hierarchies in rural regions.

2.4 Profile of factors of Performance and Functionality of market centres

According to Satterthwaite and Tacoli (2003), the five main factors that influence performance and functionality of market centres are the prevailing farming systems in the rural surrounding; their accessibility through the existing road infrastructure; availability of storage and processing facilities; linkages with a wider trade network of middlemen; and relations between producers and traders. The figure below is a summary of these and other factors that influence performance and functionality of a rural market centre.

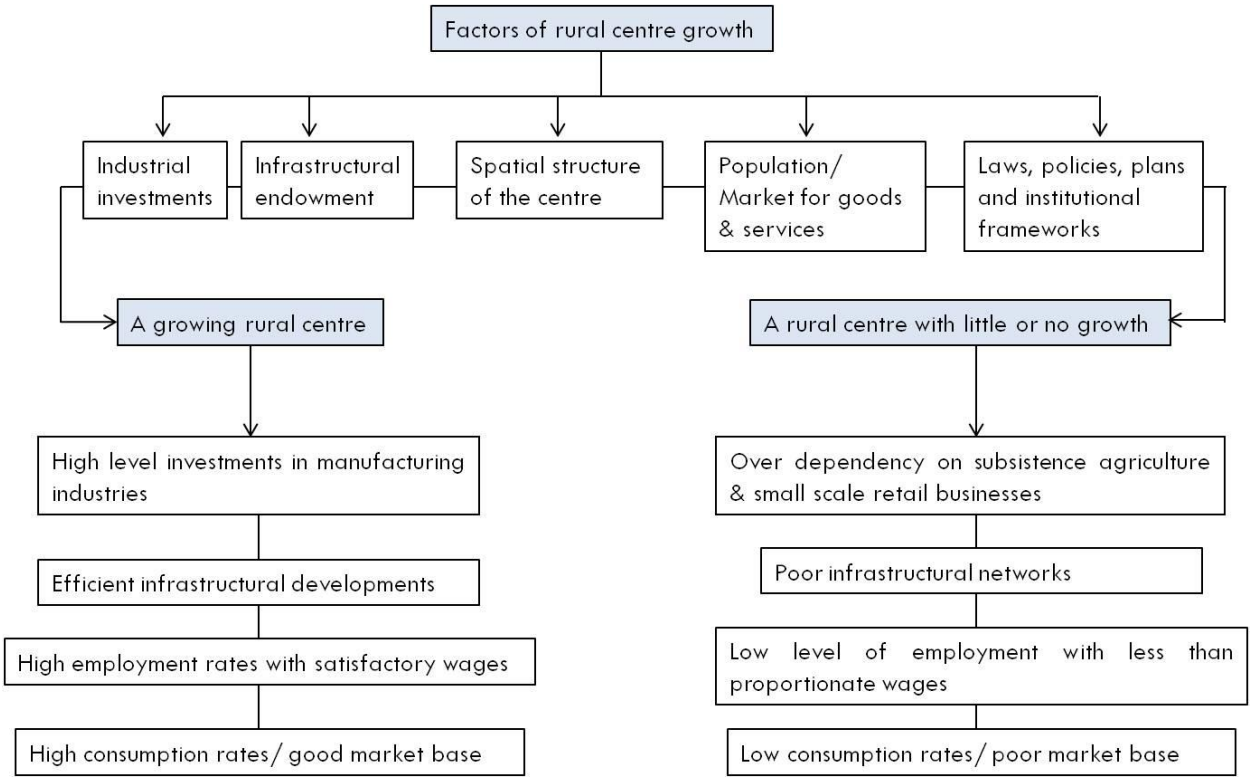


Figure 6: Factors of Performance and Functionality
Source: Author, 2017

2.5 Theoretical Framework

The theoretical framework combines theories of regional economic development with location theories that attempt to explain the structural relationships within and between rural and urban areas. A summary of the theories and their elements that are of relevance to this study is given below.

Table 1: Summary of Theories and their Relevance to the Study

Theory	Element
Central Place Theory: Walter Christaller, 1933	Central places (cores) are focal points for transportation, commerce and service provision. The agglomeration of activities at market centres creates forward and backward economic linkages with the surrounding rural area. The centres are organized in hierarchical order, with each centre having its own "range" and "threshold" for goods and services.
Growth Pole Theory: Francois Perroux, 1955	Growth occurs at poles or centres of concentration of economic activities where there are centrifugal and centripetal forces. Centripetal forces attract industrial or commercial activity to the centre, while centrifugal forces direct activity away from the centre. These are also known as "polarizing" and "propulsive" forces that stimulate successive economic activity.
Circular Cumulative Causation Theory: Gunnar Myrdal, 1956	In a socio-economic system, such as that created at a market centre, a change in one variable will cause successive changes in other variables related to it. Change may be positive or negative and occurs through "spread" and "backwash" effects. Spread effects are inward bound (centripetal) while backwash effects are outward bound (centrifugal).
Neighborhood Unit Concept: Clarence Perry, 1929	A basic unit of urban integrated planning which seeks to create healthy and secure communities based on a centrally located primary school; scattered recreational areas such as sports grounds and parks; a nucleated shopping centre at the intersections of the main street; and a quiet, safe and aesthetically pleasant residential area.

Source: Author, 2020

2.6 Conceptual Framework

The figure below is a summary of the conceptual framework derived from the above literature.

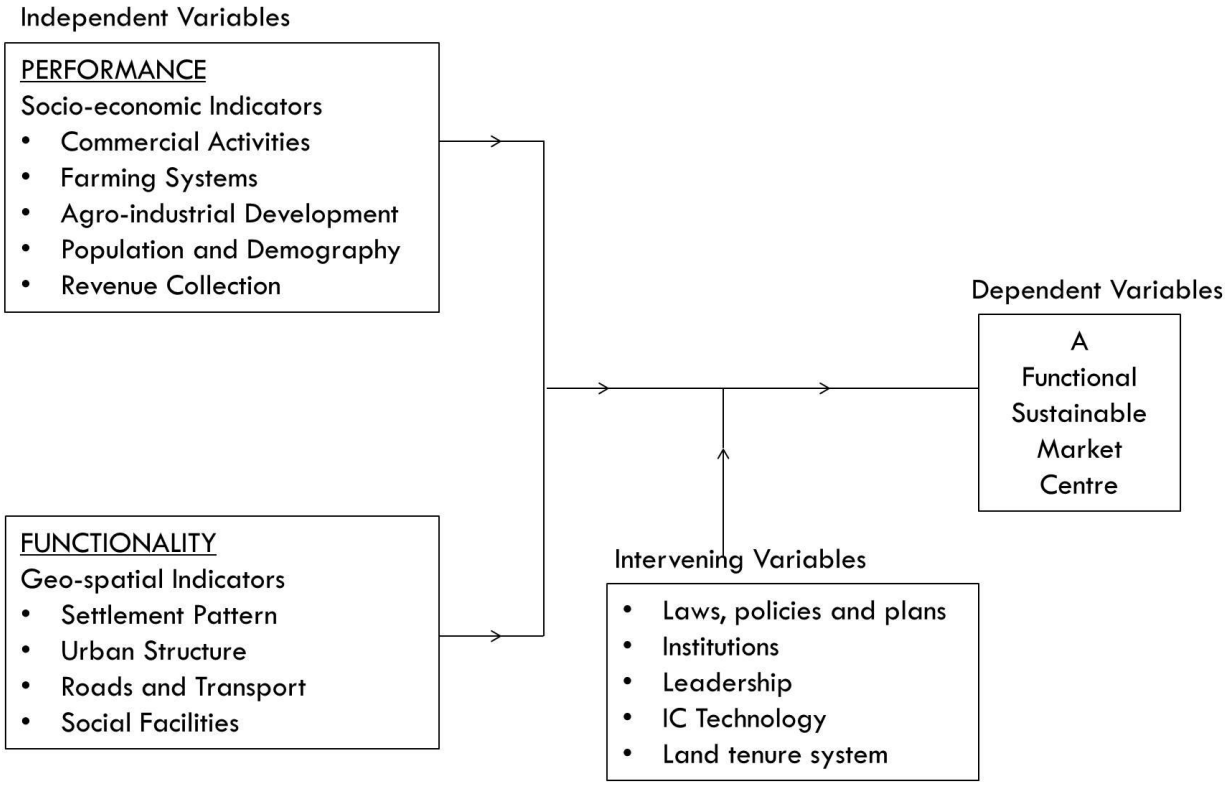


Figure 7: Conceptual Framework
Source: Author, 2019

2.7 Sustainable Market Centre Growth

The ideal market centre is one that performs its functions efficiently and effectively at the present moment, while continually increasing its ability to sustain itself economically, ecologically and socially for the future. The principle of equity, inclusivity and public participation should be observed at all levels of planning and management of available resources. According to the Merriam Webster dictionary, the term "growth" means expansion, increase or progressive development. Market centre growth therefore refers to actual physical expansion of the centre, which would entail an increase in the number of buildings as well as in population. However, according to Jana (1978) in Gajar (2015), the process of growth of a market centre goes beyond mere spatial expansion. It goes through several stages that begin with the establishment of the market; vanishing of periodicity when the market is fully established, in

which instance the market becomes operational on a daily basis; increase in total volume of trade as well as the number of marketing hours per week; increase in density of population; increase in number of market structures and reduction in the spatial gaps between permanent structures at the centre.

Physical or spatial growth is normally assessed on the basis of developments that come up in a centre in space and time. New buildings and improved infrastructural facilities are both an indicator and a product of growth (Sagi, 2014). If, for instance, a market centre's economic performance is good, then investors will be attracted to it and they will establish new businesses and premises. This will in turn trigger the need to upgrade infrastructural facilities such as roads, electricity and water provision. On the other hand, if a centre is well serviced beforehand, then it will attract new investments, thus improving its economy. Good infrastructural networks such as roads will also facilitate smooth flow of products between one centre and its rural hinterland as well as with other centres in the region. Physical infrastructure (roads,water and electricity) is an essential service that facilitates transportaion, production and marketing (Mamta, Sanjay, & Ahuja, 2014). The level to which a rural centre is endowed with essential infrastructural networks and facilities is in itself a determinant of whether or not the centre is able to performits functions well.

2.8 Legal and Policy Framework

2.8.1 Policies

a. Sustainable Development Goals

The Sustainable Development Goals (SDGs) are the blueprint adopted by the United Nations to achieve a better and more sustainable future for all. They superseded the Millennium Development Goals (MDGs) whose term ended in 2015. SDGs address the global challenges related to poverty, inequality, climate change, environmental degradation, prosperity, and peace and justice.

The 17 Sustainable Development Goals (SDGs), with their 169 targets, form the core of the UN 2030 Agenda. They balance the economic, social and ecological dimensions of sustainable development, and place the fight against poverty and sustainable development on the same plane for the first time.

Of relevance to this research are goals 8, 9 and 11 which aim to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all; to build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation; and to make cities and human settlements inclusive, safe, resilient and sustainable.

b. Africa Agenda 2063

Agenda 2063 is a strategic framework for the socio- economic transformation of the continent over the next 50 years. It builds on, and seeks to accelerate the implementation of past and existing continental initiatives for growth and sustainable development. The Agenda aspires to see a prosperous Africa, based on inclusive growth and sustainable development; good governance, democracy, respect for human rights, justice and the rule of law; and development that is people-driven, relying on the potential offered by African people, especially its women and youth, and caring for children.

The Agenda focuses on provision of modern, affordable and livable habitats and quality basic services; income generation and job creation; modern agriculture for increased productivity and production; women and girls empowerment; youth empowerment and children's rights and creation of strong partnerships.

c. The Kenya Vision 2030

Kenya's Vision 2030 aims at transforming Kenya into "a newly industrialising, middle income country providing a high quality of life to all its citizens in a clean and secure environment." It further outlines a number of strategies to be employed in various sectors within the rural Kenya, all of which would be geared towards achieving the aforementioned goal. In this regard, the subject of rural centre growth takes centre stage. It is generally accepted that if true transformation is to take place, then rural growth and development needs to be improved in the country since a majority of Kenyans reside in rural areas and depend on the rural economy for their livelihoods.

d. National Spatial Plan (NSP) (2015-2045)

To overcome the above stated obstacles, the NSP strategy proposes that all external market oriented industries to be directed to Nairobi growth area and Mombasa. The material oriented industries on the other hand should be directed to rural growth centres and high agro-potential

areas. Generally, other measures that should be taken are: to provide adequate transport and support infrastructure for agriculture and industry; to diversify energy production sources in order to reduce costs of production and enhance its reliability; to adopt appropriate technology and, finally; to promote the formation of cooperative societies to advance marketing in small urban centres.

e. Big 4 Agenda

The Big 4 agenda forms part of the current government's development manifesto which is aimed at refocusing development and resources on key priority areas across the country for the period between 2018 and 2022. It draws its development direction from Kenya Vision 2030 and is anchored on four major areas of focus i.e.

1. Building affordable housing;
2. Creating employment through manufacturing;
3. Enhancing food security; and
4. Providing healthcare for all.

On housing, the government seeks to achieve a target of at least 500,000 affordable homes in all major cities by 2022. Regarding manufacturing, the aim is to create 1.3 million jobs through manufacturing enterprises, and to raise the manufacturing sector's share of GDP from nine per cent to 15 per cent by the year 2022. It is planned that at least five million square feet of industrial sheds will be established to improve cotton production.

On food security, the objective is to produce 2.76 million bags of maize, potato, rice and feeds in 52,000 acres by the end of 2018, with an additional 70,000 acres targeted under public-private partnership for the various crops, cotton, aquaculture and feeds production. The government also aims to establish 1,000 SMEs at production level, provide credit to over 20,000 individual farmers, construct a shipyard and increase domestic fishing fleet by 68 vessels along the Indian Ocean coastline.

Finally, in terms of healthcare, the intention is to increase the number of people with health cover from 16 million to 25 million by end of 2018. The ultimate goal is to provide universal health coverage for all.

The centres under study are potential loci for the establishment of the SMEs and manufacturing enterprises envisioned in the Big 4 Agenda. Furthermore, the surrounding rural hinterlands are potential zones for commercialized agriculture. Lake Kanyaboli in particular provides great prospects for aquaculture, while the expansive Yala Swamp which has been estimated to measure 17,000 acres could be used to produce thousands of tons of grain and cereal.

g. Siaya County Integrated Development Plan (2013-2017)

The Siaya CIDP (2013-2017) is the county's development framework, which had been prepared to guide the development of the county for 5 years, between 2013 and 2017. It outlines projects and programmes in various sectors, whose implementation would improve the socio-economic status of the people of Siaya in one way or another.

The plan, in its section 3.2.2, recognizes Boro, Ndere and Ratuoro as Market Centres and important catalysts of the county's economic growth and vital cores of investment. It further points out the need to prepare up-to-date plans for these centres, which would guide the establishment of the requisite infrastructure and spur investment attraction.

Among the achievements of the first CIDP, according to the Governor of Siaya County H. E. Cornel Rasanga Amoth in an address that he gave to County Executive Committee Members while opening discussions on the second CIDP, are a tractor hire subsidy programme which managed to plough some 14,000 acres of land – to increase agricultural production and enhance food security; opening up of 850 km of new rural access roads and gravelling of 1,170 km of existing roads to improve accessibility of rural production areas; and installation of 341 solar street lights in key urban areas to improve security and promote trade and investment.

The second CIDP for Siaya county for 2018 – 2022 pinpoints the opening, grading and gravelling of rural access roads (in partnership with World Bank under the Kenya Urban Support Programme (KUSP) to improve infrastructure in urban centres. It also aspires to establish a sewerage system for major urban centers in the county, of which Boro and Ndere are major second tier centers, in partnership with African Development Bank. Other flagship projects identified are;

a) Provision of piped water to every market center,
b) Construction of market sheds, market hubs and public toilets in every market center,

c) Surveying of land in all urban centers,
d) Creation of a revolving fund for co-operative societies in the county to re-invigorate them and provision of training and business management skills to officials and members of the societies, and
e) Expansion of revenue streams and bases, and automation of the revenue collection system

2.8.2 Laws

a. The Constitution of Kenya (2010)

Article 6 of the Constitution of Kenya 2010 (CoK) creates two levels of government namely national and county governments that are distinct and inter-dependent. The purpose of the devolved system of government is partly to promote social and economic development and the provision of "proximate services" throughout the country; to ensure equitable sharing of national and local resources; and to facilitate the decentralization of state organs, their functions and services, from the capital city of Kenya (Nairobi) to county capitals. Among the devolved functions (Fourth Schedule, CoK) are agriculture, county health facilities, county transport, trade and development regulation, county planning and development, and county public works.

Article 27 of the CoK stipulates that measures should be put in place to encourage affirmative action programs and policies to address past inequalities. Hence the establishment of a Commission for Revenue Allocation in the public finance management structure. It also recognizes that all persons are entitled to economic and social rights (Article 43) which include rights to health care services, adequate housing and sanitation, adequate food of acceptable quality, clean and safe water and appropriate social security to vulnerable groups in the society. Most economic and social facilities are located in central places where they are easily accessible to the rural population. Some of these facilities include health, education and administration facilities as well as business and employment establishments. As such, it can be said that the proper development of rural centres is key to meeting these human and civic rights.

***b*. The County Governments Act (2012)**

The aim of this act is to provide for county governments'powers, functions and responsibilities to deliver services and for connected purposes. These include giving effect to the purpose and

principles of devolution, entering into partnerships with any public or private organization for any work, service or function for which it is responsible.

b. Physical and Land Use Planning Act (2019)

The Physical and Land Use Planning Act provides for planning of human settlements, both in the urban and rural areas. It specifically provides for the need to plan and guide developments in rural centres, which tend to be the areas of concentration of various rural economic activities. Some of the centres under study actually have Physical Development Plans.

c. Urban Areas and Cities Act (2011)

This is an Act to provide for the classification, governance and management of urban areas and cities; to provide for the criteria of establishing urban areas, to provide for the principle of governance and participation of residents and for connected purposes. The Act establishes Boards of Cities and Municipalities to undertake the provision of social services among other things. While most of the rural centres do not qualify to be cities or municipalities, they perform different essential urban functions to the rural communities.

The Act was amended in 2019 to encompass market centres as a specific category of urban areas in the country. Among the criteria it stipulates for conferment of a market centre status are a resident population of at least two thousand residents; integrated urban area development plan and existence of facilities such as street lighting, health facilities, sports and cultural centers/facilities, abattoirs/slaughterhouse, refuse collection/solid waste management facilities, child care facilities, pre-primary education centres, community centres, primary school, bus park, road network/streets/walkways/sideways/cycle ways, recreational parks and animal control and welfare services.

d. Community Land Act 2016

This Act gives effect to Article 63(5) of the constitution of Kenya and provides for the recognition, protection and registration of community land rights. Its essence is the management and administration of community land, which is described as land that is occupied by an organized group of users who share socio-economic or other similar common interest such as geographical or ecological space, common ancestry, ethnicity, and the like. More particularly

and of interest to this study, it provides for the role of county governments in relation to unregistered community land.

Other legislations that are noteworthy in this study are Environmental Management and Coordination Act 1999, Public Health Act and Traffic Act.

CHAPTER THREE
METHODOLOGY

3.1 Overview

Three market centres were purposively selected using a non-probability sampling method in which subjective judgment was applied. According to Patton (2002) purposive sampling "is widely used in qualitative research for the identification and selection of information-rich cases for the most effective use of limited resources". The three centres are Boro, Ndere and Ratuoro and are located in Central Alego ward of Siaya sub-county. The ward is approximately 142.80 sq. km. and comprises eight sub-locations namely Ojwando A and B, Kochieng A and B, Koyeyo, Kakumu Kombewa, Kadenge and Obambo. It is envisaged that the three centres exert an influence in one or more of the sub-locations mentioned, such that respondents sampled in the study are likely to have come from all or any one of them.

The three centres are considered to be 'rural service centres' which are normally located in the centre of a village and serve around 500 to 1,000 families (a population of 5,000 people is the usual standard) with a catchment area not exceeding a 10 kilometer radius from the market. In Bangladesh, for example, the majority of users of small markets come from within a radius of 5 kilometers.

3.2 Study Design

This study has adopted a descriptive survey design in which both quantitative and qualitative approaches are used in data collection, data analysis and reporting. This design was thought to be most appropriate given the exploratory and descriptive nature of this study.

Cross-sectional study design has been used to make comparisons between different population groups at a single point in time i.e. the point when data was collected. The variables observed in order to come up with conclusions about the factors that contribute to the performance of the centres include demographic characteristics of the population (such as age, gender, income and education levels); physical characteristics such as buildings, roads; land use systems; infrastructure and services; and revenue accruing to County Government from the centres under study. One disadvantage of a cross-sectional study design (as opposed to a longitudinal one), is that it may not provide definite information about cause-effect relationships because it is like a

snapshot; - it does not capture information about the situation as it was before or after, but only as at the time of study.

3.3 Study Population

The population for this study includes all residents of Central Alego location totaling 30,993 (KNHPC Report, 2009) and 3000 traders in market centres (Siaya County Integrated Development Plan, 2013). The other persons interviewed are the key Informants whose offices have had an impact on operations and functions of market centres. These include the Department of Lands, Physical Planning, Surveying and Housing; the Department of Finance, Planning and Vision 2030 and the Department of Trade, Industry, Labor and Cooperative Development at the county level. The population served by the centres includes all residents of Central Alego location totaling to 30,993 (Kenya National Housing and Census Report, 2009). This is a significantly high population which serves to provide the human resource element to investments as well as a market for goods and services exchanged at the centres.

3.4 Sampling

3.4.1 Sample Size

Sample size was determined by the following formula provided by Yamane (1967).

$$n = \frac{N}{1 + N(e)^2}$$

Where n is the sample size,
N is the population size, and
e is the level of precision.

A sample size of 100 consumers was determined from a population of 30,993 people who are resident in the ward. A second sample of 97 traders was derived from a population of 3000 traders on the assumption that each centre would have approximately 1000 traders. This at ±10% precision levels (e), 95% confidence level and 0.5 degree of variability.

i.e.

a. Sample size for Consumers

The sample size for consumers was taken from the population of central Alego ward which was 30,993 as at year 2009.

$n = 30,993/\ 1+30993(0.1)^2 = 99.7$ *(approximately 100 people)*

b. Sample size for Traders

It has been estimated that a rural market centre serves a population of upto 1,000 families. Given that the average family size is five persons, this would translate to 5,000 persons irrespective of age. The sample size for traders was derived from this figure, such that one 1000 traders per market centre was taken to be the standard. Going by the formula provided by Yamane, the sample size for traders was calculated as follows:

$n = 3000/\ 1+3000(0.1)^2 = 96.8$ *(approximately 97 traders)*

3.4.2 Sampling Frame

The sample frame for this study is presented in table below

Table 2: Sample Frame and Sample Size

Category	***Population***	***Proportionate Sample***
Households	30,993	100
Traders	3,000	97
Total	**33,993**	**197**

Source; Author (2017)

The sample frame consists of 100 consumers and 97 traders. Furthermore, 3 County Government Officers, Local leaders and national government officials dealing with physical planning were included in the study as Key Informants (KI). Motorcycle Riders Groups (*Boda boda Associations*) were also engaged in Focus Group Discussions as the main public transport providers.

3.4.3 Sampling Procedure

A preliminary survey was conducted to map out different categories of businesses at each market centre. The purpose of this was to ensure that each category would be covered during the

interviews. From the observation guide, the table below was developed to help in identifying categories of business activities at the centres. It was noted that businesses in the formal sector have their smaller replicas in the informal sector of the economy. For example, an eatery serving cooked food in a permanent building is replicated in the market square under an umbrella with a wooden bench for seats. Another difference between formal and informal businesses was that the former were required to have annual business permits whereas the latter were not. However, the latter paid the market superintendent a fee (e.g. sh. 20/= for a vegetable vendor in the open or *"abedo"* area).

Table 3: Formal and Informal Businesses

Formal	Informal
• Wholesale shop • Retail shop • Hardware • Workshop • Butchery • Eatery • Hair and beauty • Money Transfer • Livestock • Transport	• Lorry/pick-up sales point • "Stalls" • *"Abedo"* • *"Eats"* • Welding • Motorcycle and bicycle repair

Source: Field Survey, 2018

Convenience sampling was applied to both consumers and traders at the market centres. It involved engaging willing respondents as they went about their chores. Administration of the questionnaires was more haphazard than structured, but the interviewer tried as much as possible to talk to different categories of businesses as identified in the preliminary survey. Some of the identified respondents were either too busy to respond to the questionnaire or plainly unwilling to give details of their businesses to a stranger. In some of these cases, participant observation with casual chat was found to be the most convenient method of getting information. In the food kiosk category, for example, the researcher was able to talk to the *nyuka and nyoyo* sellers by buying and consuming a good amount of their product.

One disadvantage of the study methodology is the one-off nature of it. The business people from outside the region come to the centres only once a week, and during that time they are extremely

busy selling their wares within the limited time that they have. There is no sufficient time for respondents to address the questions adequately. They have to travel to a different market centre the same day. This has contributed to a lack of boarding and lodging facilities at the centres.

Further, key informants were identified within the study area. These were county government officers, local leaders and national government officers from departments relevant to the study topic.

3.5 Data Collection

3.5.1 Primary Data

a) Questionnaires; Primary data was collected from sampled traders and consumers by use of separate questionnaires for each category. Each category of respondent was interviewed as they went about their business of the day; the traders as they served their customers, and the customers as they shopped.

b) Focus Group Discussion (FGD) was conducted with two categories of commercial activity; - *boda boda* riders and livestock traders. An FGD guide was used to help interrogate issues about the activities at the markets.

c) Key Informant Interviews were undertaken and interview schedules developed for each of the key informants.

d) A schedule for local travel for *boda boda* operators was developed. The operators were involved in an exercise in which they recorded with an enumerator when they got a passenger, where they were going to, the distance in their own estimation, how much fare they were charging, and departure and return times. The data collected therein was tabulated in a frequency distribution table, and subjected to analysis through descriptive techniques.

e) An Observation Guide was generated to help in identifying the types and condition of businesses and infrastructure.

Table 4: Observation Guide I

No.	Item/Service	Available	Not Available
1.	Farm produce/green groceries		
2.	General household items (e.g. utensils)		
3.	Electronics		
4.	Clothing		
5.	Farm equipment/implements		
6.	Agro-veterinary		
7.	Pharmacy		

8.	Health centre		
9.	Primary school		
10.	Secondary school		
11.	Polytechnic		
12.	Market square		
13.	Chief's office		
14.	Police post		
15.	Piped water		
16.	Sewerage system		
17.	Electricity supply		

Whereas the above guide was to enumerate the facilities in absolute terms, the quality of infrastructure was also to be noted for qualitative analysis.

Table 5: Table 4: Observation Guide II

No.	Item	Observation
1.	Number of operational shops in the centre	
2.	Number of closed shops in the centre	
3.	Conditions of buildings	
4.	Types of buildings	
5.	Conditions of roads	
6.	Land use mix	
7.	Types of activities	
8.	Intensity of activities on different days of the week	
9.	Development densities	

3.5.2 Secondary Data

Secondary data was obtained from reports in the county and national government offices. More secondary data was obtained from

a) Records and documents such as business permits issued and monthly market revenue returns for the three centres.
b) Maps and diagrams
c) Development Plans
d) Books and journals
e) Internet

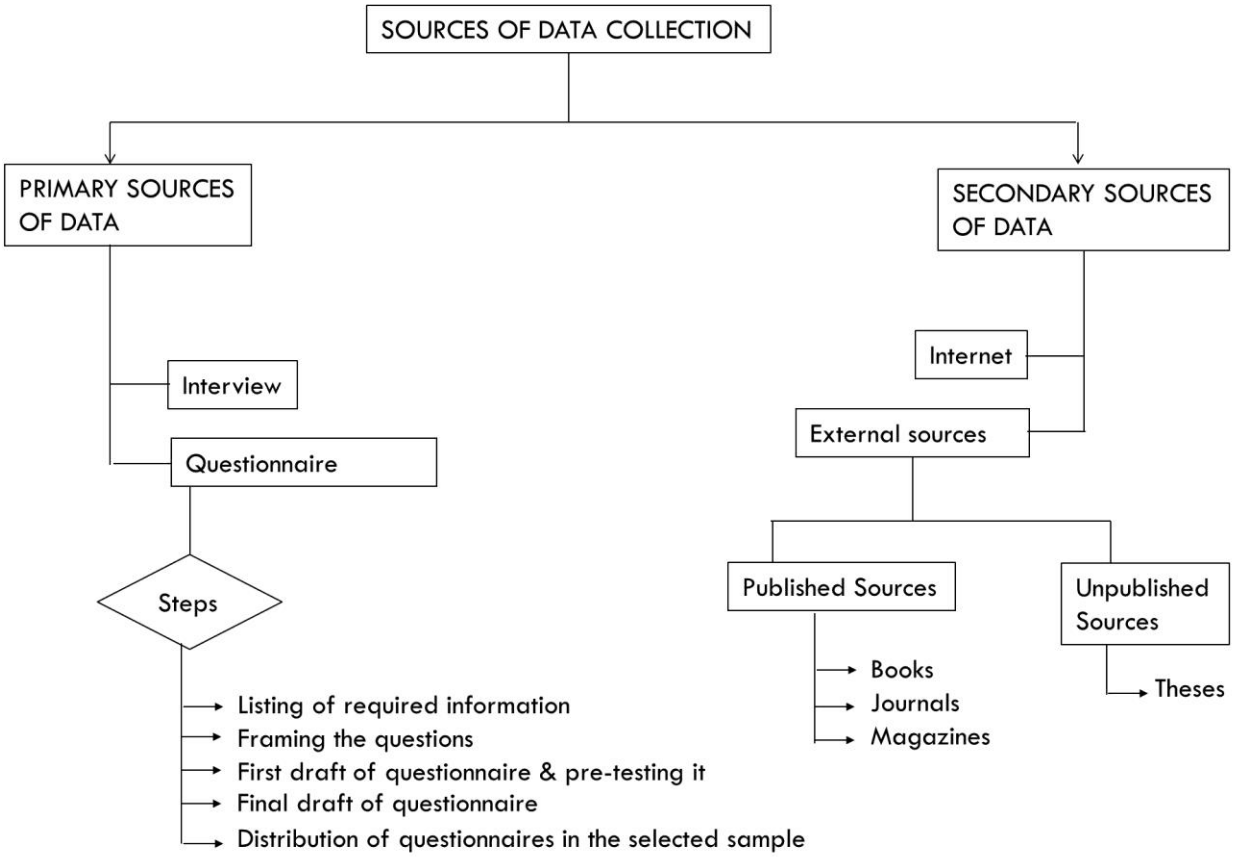


Figure 8: Sources of Data Collection
Source: Author, 2020

3.6 Data Analysis

Descriptive statistics was used to analyze primary data that was collected. This entailed use of such measures of central tendency as mean and mode. Both qualitative and quantitative data was analyzed using Statistical Package for Social Sciences (SPSS) software. Data view was used to enter and automate or code the responses to questions asked. The specified variables were computed and analyzed in Variable view and presented in the form of frequency counts (e.g. how many respondents were satisfied with services available in the centres), charts and graphs.

Google Earth provided an easy path for searching, zooming and identifying physical features that could be viewed, such as rivers and roads. The Geographic Information System (GIS) framework was used for collecting, analyzing and presenting geographic and spatial data. It was useful in locating and organizing layers of information into visualizations using geo-processing operations that included geographic feature overlay, feature selection and analysis, topology processing,

raster processing, and data conversion maps. Maps and physical development plans of the market centres and their surrounding rural environments were analyzed and new proposals produced regarding the physical development of the centres.

Narrative analysis was used to analyze qualitative data that was collected from interviews with key informants and discussions with focus groups. In some instances participant interviews were conducted, for example in talking to owners or workers in the eateries the interviewer bought and ate food with the consumers to encourage camaraderie and chit chat. A talk with an elder at Boro market provided valuable historical/cultural insights into the significance of the market square during the reign of Paramount Chief Amoth Owira.

3.7 Data Interpretation and Presentation

- ✓ Quantitative data – tables, charts and graphs
- ✓ Qualitative data - narrative, photographs
- ✓ Spatial data – maps, physical development plans

3.8 Limitations

The determination of sample size was hampered by lack of actual relevant statistics on the market centres under study. Population data that was relied on, from the population census of 2009, did not enumerate the number of persons/businesses at market centres in the country. It only did so for major urban areas;- Siaya, Bondo and Usenge.

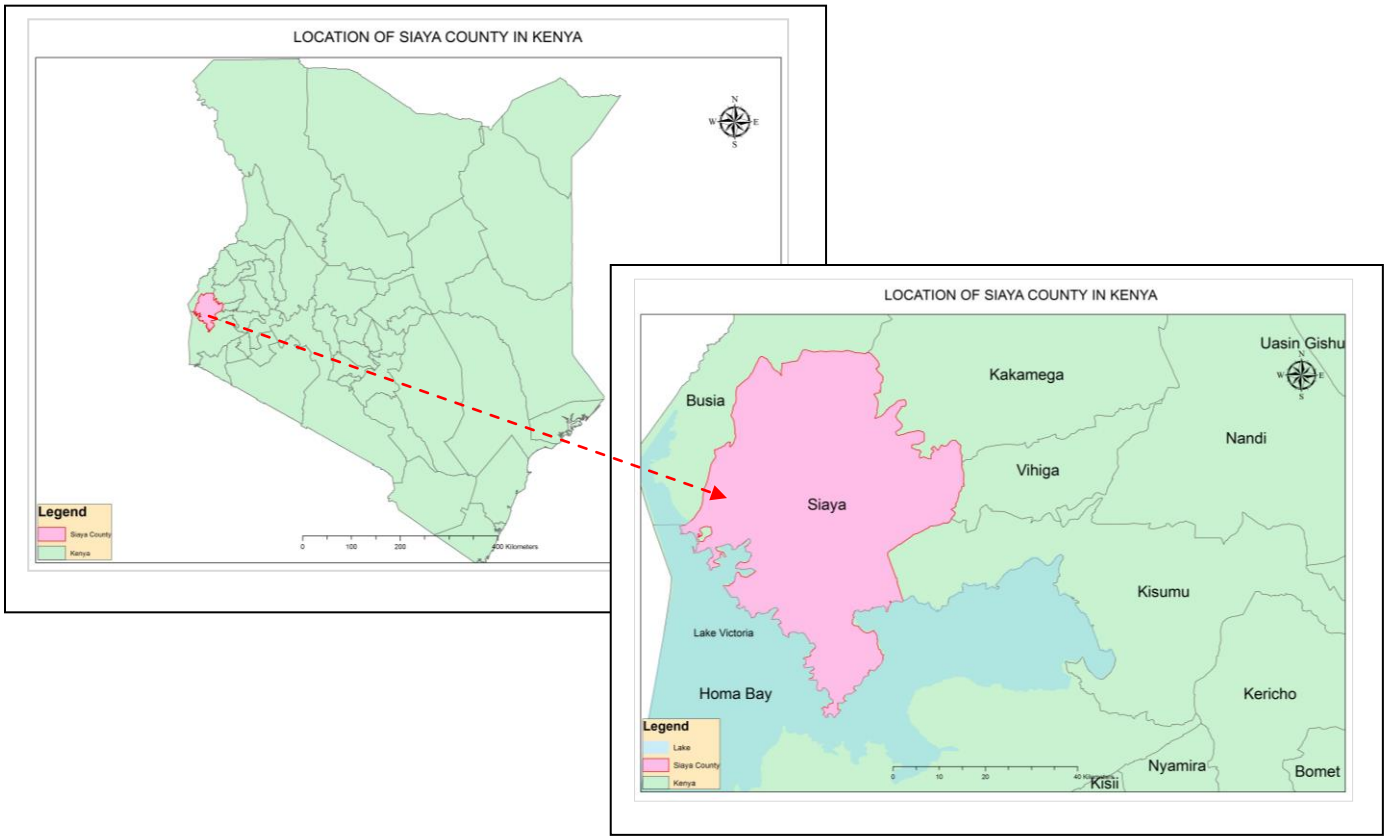
Secondly, the non-probability sampling techniques applied in the study bear the disadvantage of "lack of representation" of the entire population (Kothari, 2014). The level of generalization of research findings (confidence level) is therefore low compared to that which would have been made had probability sampling methods been used. Nevertheless, non-probability sampling is useful to demonstrate that a particular factor (e.g. a propulsive industry) exists in the population. It can also be used in an exploratory study such as this one which dwells on explaining aspects of the study in a detailed manner and attempts to connect theories and concepts of market centre growth and development to the existing situation on the ground.

CHAPTER FOUR

STUDY AREA

4.1 Location

The study area is located in Siaya County, Kenya. The County lies approximately between longitude 33º 58´ and 34º 33´ East and latitude 0º 26´ South to 0º 18´ North. The centres are all within Siaya Sub-County and within a radius of less than 20km from Siaya town, which is the County Headquarters. The maps below show the location of these centres.



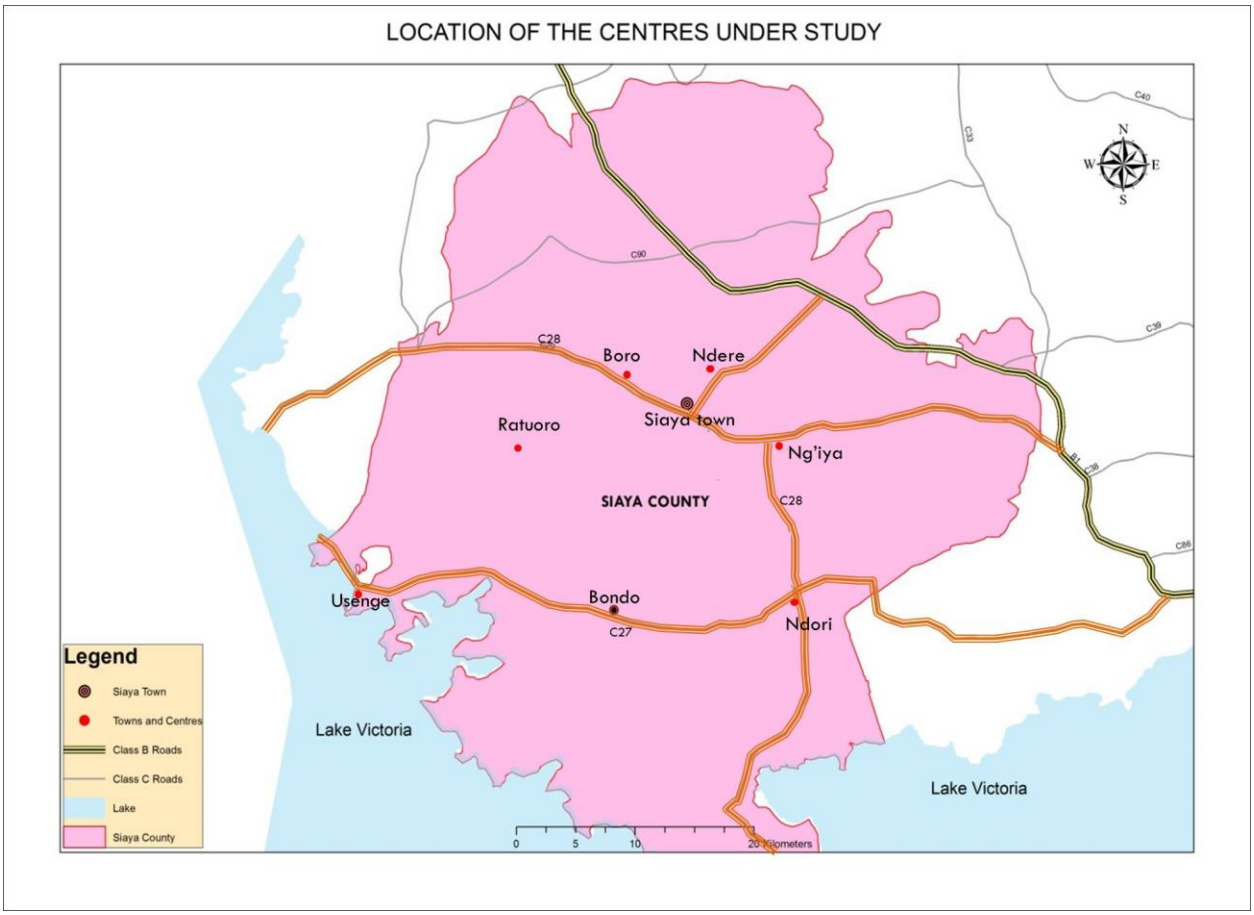


Figure 9: Location of the Study Area
Source: Author, 2018

The centres under study co-exist with other trading nodes within Siaya county. These are shown in the map below.

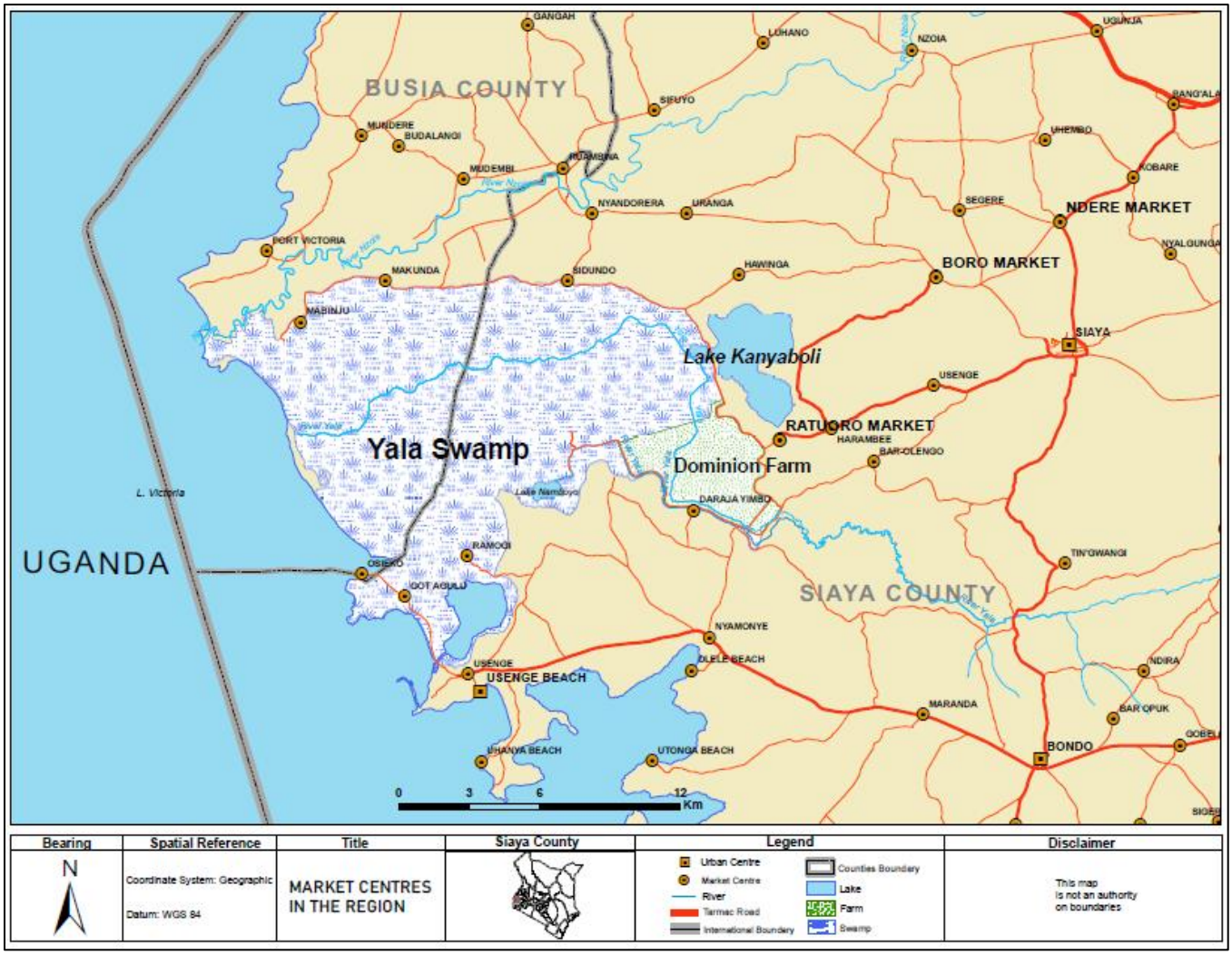


Figure 10: The Physical Environment
Source: Author, 2018

4.2 Population

The composition of the population is an important aspect in planning and implementing programs that "meet the present and the future needs of the different segments of the population" (NSP, p.49). The objectives of such a plan would be to make proposals that would improve the quality of life of the people, as envisioned in Vision 2030. In Kenya, the cohort of the population that is under 15 years of age is 40% of the total population. This implies that greater emphasis should be placed on provision of facilities and services that serve the young generation than those that serve the aged.

In terms of density, the western region of Kenya is one of the most densely populated areas. Vihiga, Kakamega, Kisii and Nyamira counties lead the pack followed by Kisumu, Bungoma, Busia, Siaya, Homa Bay and Migori (not in any particular order). Siaya County falls in the medium density category with population of between 441 and 960 persons per square kilometre. (NSP, p. 53). However, Siaya CIDP 2013 – 2017 gives the projected average population density in the county as 350 persons per square kilometre as at 2017. The projection for Alego Usonga sub-county is given as 354 persons per square kilometre (KNBS, 2013); (CIDP, p. 6). It shows that 65.3% of the population of Siaya is below 24 years of age. This re-enforces the need to plan for a youthful population.

4.2.1 Population Size

The population of Central Alego location is 30,993 (Kenya National Housing and Census Report, 2009). This is a significantly high population which serves to provide the human resource element to investments as well as a market for goods and services exchanged at the centres. There are approximately 3000 traders in market centres (Siaya County Integrated Development Plan, 2013). The ratio of traders to the entire population can therefore be estimated to be 1:10.

4.2.2 Demographic characteristics

Demographic trends include literacy, mortality and morbidity rates; life expectancy, employment and poverty distribution.

4.2.3 Human Development Index

The human development approach is concerned with building and utilizing human capabilities to their maximum potential. It views human development as linked with economic development through policy choices (Siaya CIDP, p.11). Three dimensions of human development have been identified, with attendant measures and desired goals, as follows:

Table 6: Human Development Index Approach

Index	Measure	Goal
Health	Life expectancy at birth	85 years
Education	Adult literacy and school enrolment	100%
Income	GDP per capita in purchasing power parity	$40,000

4.2.4 Rural urban Migration

Rural to urban migration is driven by push and pull factors. Push factors repel the population from rural areas, and include lack of formal employment, low wages in the agricultural sector, and limited business opportunities. Pull factors attract migrants to urban areas and include greater employment opportunities offered by the manufacturing sector and its associated activities, presence of leisure and entertainment facilities, and higher educational and technological standards which offer opportunities for personal and societal advancement (Espindola et al, 2006).

Harris and Todaro (1970) maintained that rural-urban migration occurs when the urban expected wage exceeds the rural actual wage. They hypothesized that, in making a choice – to move or not to move - migrants react to economic incentives, earnings differentials and the probability of getting a job at the destination of choice. Whether their reaction is due to fact or mere perception is unimportant. The long-run effect is that equilibrium is reached when the effects of urban unemployment equal that of rural unemployment i.e. the incentive is longer there. A stabilization of rural-urban wage differential occurs. This may result in reverse migration, where migrants move away from large urban centres to small rural ones (where the cost of living is lower).

4.3 Regulatory Framework

The three are recognized as market centres that provide minor urban services to the rural population. Under the devolved system of government, the County Government is responsible for planning and administration services, which include preparation and implementation of development plans, issuing of business licences, collection of market revenue, and provision of public services such as water supply, garbage collection, public health and maintenance of feeder or access roads.

4.4 Physical Environment

The study area experiences bi-modal rainfall. The long rains occur between March and June while short rains are received between September and December. The average amount of rainfall received annually ranges between 800 and 1,600mm. Areas around Boro lie in the low altitude zones and thus receive less rainfall than the high altitude zones. They are therefore suitable for growing drought resistant crops.

The average temperature is 21° C. Humidity is on the other hand relatively high. The mean evaporation is between 1,800mm and 2,200mm per annum. The climatic conditions are generally favourable to various human activities.

The study area has a gently undulating topography and an average elevation of 1,400m. The lowest zones are along the Lake Kanyaboli, which is closest to Ratuoro centre. The topography is generally favourable for both farming activities and physical developments. The geology of the study area is composed of basalts, desites and rylites, that consist of coarse and fine aggregates used in the construction industry. The main soil type is ferrasols. The fertility levels of these soils range between low to moderate and as such their crop productivity abilities must be enhanced by use of fertilizers.

Central Alego is host to two unique features that it shares with neighboring wards in different sub-counties. These are the Yala Swamp and Lake Kanyaboli, which spread into Yimbo (Bondo sub-county) and Budalangi (Busia county). These features give the area potential for commercial farming, agro-industrial development and tourism.

Yala Swamp is a trans-boundary freshwater wetland straddling a section of the Lake Victoria waterfront in Siaya and Busia counties. It measures approximately 17,500 ha. It is formed by the backflow from Lake Victoria at the estuaries of Yala and Nzoia rivers respectively. The swamp is host to a number of users who include the local community, Kenya Wildlife Service (it is an ecosystem rich in biological diversity), and lands formerly managed by Dominion Farms Limited. The land falls under the category of unregistered community land which is described as land that is occupied by an organized group of users who share socio-economic or other similar common interest such as geographical or ecological space, common ancestry, ethnicity, and the like (Community Land Act, 2016).

In 2004, the defunct Siaya and Bondo county councils signed an MOU with Dominion Farms Limited that gave the firm a lease of 45 years for agricultural purposes. The firm is an international agricultural consortium based in America and operating in Kenya and Malawi in Africa. The land under lease measures 3,700 ha. and was being used for rice production; fish farming; banana plantains; beans; sugar cane; livestock and poultry.

The land that was leased to Dominion Farms Limited was set apart vide legal notice no. 2740 of 1970 for the purpose of 'organized settlement'. However, the settlement programme was never implemented and most of the land remained idle and fallow. The Lake Basin Development Authority used a small part of the land for experimental research station, but when Dominion came along LBDA ceded to them their operations in the gazetted part of the swamp. From an Environmental Audit done in 2009, the following areas of conflict were noted:

a. Ecosystem biodiversity vs. Mechanized Agriculture

Need to protect biodiversity from harmful chemicals used both aerially and terrestrially, and from the effects of mechanized agricultural methods which tend to be mono-cultured. This stems from the threat of eutrophication i.e. over-nutrition from leaching of nitrogen compounds into soil and water thereby causing excessive growth of algae such as the water hyacinth in the lakes.

b. Local community vs. Foreign investor

MOUs and lease agreements give the lessee exclusive rights of use. This leads to displacement of the local community from a resource which they have traditionally had unrestricted user rights to. The report notes that both areas of conflict can be addressed by making trade-offs that would provide for methods of biodiversity protection and conservation, and projects that would guarantee benefit-sharing through CSR initiatives that are mutually negotiated between the developer, the county government, the community and any other stakeholder.

Status of the Yala Swamp

The land is formerly un-adjudicated trust land that was held by the respective local authorities for and on behalf of the local communities of Siaya and Busia counties. It is now classified as community land under Article 63(2)(iii) of the Constitution which defines it as land that is "lawfully held as trust land by the county governments".

In addition, it is a wetland and all wetlands are protected under the Ramsar Convention on biodiversity. This implies that all developments within the swamp should adhere to the principles of environmental sustainability as prescribed in the CoK 2010 and EMCA 1999. Hence it is a requirement that EIA/A be done and approved by NEMA for any development in the area.

Finally, part of the swamp that abuts Lake Kanyaboli was gazetted as a game reserve in 2011. It is now under the management of Kenya Wildlife Service.

4.5 Economic Environment

A study by the United Nations conducted in 2007 on industrial perspectives of sustainable development concluded that industrial investments are vital drivers of economic growth. Currently, in the three centres, there are no major industrial developments that can spur economic growth. Attempts have been made from time to time to establish agro-based industries based on the location and nature of agricultural production areas but these have, in the end, failed. Lack of such investments has resulted in underperformance of the centres in terms of volume and intensity of trade and provision of physical infrastructure.

4.6 Infrastructure

The centres are fully reliant on road transport. The road network consists of bitumen standard and earth roads. The former are however only two and they constitute Rang'ala-Siaya-Bondo road and Siaya-Boro–Port Victoria road. The rest are gravel roads, which normally require to be repaired after every rainy season. There is also one airstrip in Dominion (close to Ratuoro) which is however currently not in use. The main modes of transportation are non-motorized transport, bicycles and motorcycles. The transport system is therefore underdeveloped and needs some improvement.

There are both natural and manmade sources of water in the study area. The most conspicuous of the natural water reservoir is Lake Kanyaboli. Quite a number of the water vendors in Ratuoro draw their water from this lake, at Kadenge water point and fish landing bay. Ndere relies on water drawn from a shallow well, while Boro has piped water provided by Siaya Bondo Water and Sewerage Company (SIBO). The latter is a recent development and water is retailed at a water kiosk built in the market square. Like the transport system, there is need to make major improvements of the water supply system in the centres.

Figure 11: Kadenge water point on Lake Kanyaboli

None of the centres has a sewerage network. Neither do they have proper solid waste management systems. However, the county government recently installed a few solid waste collection bins at the centres but they some of them have since been vandalized, especially in Ratuoro. This is an area that also requires improvement.

The centres have access to electricity supply network as a result of the rural electrification program that has been implemented countrywide in the past few years. This is a positive development and a potential enhancer of economic growth.

The social facilities in the centres include Uyoma Primary School (in Ndere); Boro Primary School, Boro Secondary School, St. Kizito Academy, Boro Health Centre, Chief and Deputy Commissioner's offices, cattle market, churches (in Boro); and Kadenge Ratuoro Health Centre (in Ratuoro). While some of these facilities are in good condition, others are old and dilapidated and should therefore be renovated and upgraded if necessary.

4.7 Potential for Growth

All three centres have great potential for growth given their individual strengths: Boro with a major tarmacked road (C28) passing through it and with the only cattle market in central Alego. There is a spatial openness about it that makes it particularly attractive to growth even with current facilities alone namely a Catholic Church; an administration office hosting the chief and the Deputy County Commissioner; a health centre; and a primary and secondary school. A story is told of an old *"ober"* tree in the market square which is of huge administrative and cultural significance.

In colonial times, the then Paramount Chief Amoth Owira used to hold barazas there. The powers given to him by the British colonial administration allowed him to dispense wisdom, advice and punishment in equal measure to his charges. This included, if need be, tying wrongdoers to the tree and whipping them as an example to others not to attempt the same wrongs. It is under this tree that the current Governor of Siaya County, H. E. Cornel Rasanga Amoth, a scion of the late Paramount Chief's large family, was ordained by elders to vie for the post of Governor.

Ndere has a less colorful history. Yes, there is a tarmacked road (C28 linking it to Butere-Mumias, Busia and Kisumu. There is also a primary school, a polytechnic and a godown previously used for ginning cotton. But what the old generation of respondents remembered most, with some nostalgia, was that in the 1950s and 60s it was a larger trading centre than Siaya town. At that time it was known as "Ndere ka wa Indi" that is "Ndere home of the Indians". The Indians were the masters of the cotton industry. They built the ginnery and, across the road from it, they built a unique set of five houses each of which was both a "duka" at the front and a residence at the back. The Indian Quarter was at the far end of the market centre.

Ratuoro is the least colorfull of the three market centres in terms of history. Its existence is umbilically connected to agricultural activity in the Yala Swamp, be it by local traditional farmers, Lake Basin Development Authority or Dominion Farms Limited and any other Kenyan or international investor. Without the agricultural potential of the vast Yala Swamp, it would cease to perform the functions expected of a market centre and cede these functions to Harambee market which is more strategically placed.

The recognition of Harambee as a more strategic location at the meeting point of four roadways is seen in the fact that i) it is a periodic market with a designated market day; ii) it has a market square in its structure and iii) it has a monthly revenue target of ksh. 500/= allocated to it by the county government. In fact, if the tourism potential of Lake Kanyaboli is developed, it is Harambee market that will be the principal beneficiary of economic and physical growth to the utter detriment of Ratuoro. Ratuoro would lose the little lustre that it is remaining with after the departure of "msungu".

However, there is hope that with comprehensive/integrated regional physical planning and political goodwill (which is what was lacking during the reign of Dominion Farms), and opening up of communication/road channels across the weirs of the river Yala and onward into Yimbo Usenge, there would be hope for Ratuoro. Otherwise, as things stand now, it is very much a closed shop which needs an injection of political and economic goodwill for it to thrive again.

Figure 12: The Main Street into Ratuoro Market Centre
Source: Field Survey, 2018

CHAPTER FIVE
FINDINGS

5.1 Overview

This chapter presents the research findings, which are aligned to the study objectives. It discusses the current performance level of the market centres under study, how they function and the factors that contribute to these two aspects of the study. In this regard it outlines the socio-economic characteristics of the population, in addition to geo-spatial elements pertaining to the study area. Of particular interest is the condition of infrastructure and services available at the centres. All three centres, for example, have health facilities which include maternity services and, in the case of Ratuoro, a unit dealing with HIV patients under the Centre for Disease Control (CDC) program. Other services common to all three centres are police posts for security and churches of different denominations for spiritual nourishment.

5.2 Performance Level of the Market centres

A number of parameters have been considered in assessing the performance level of the centres. These include the nature, concentration and intensity of economic activities, presence or absence of agro-industrial investments, condition of infrastructural developments, level of employment and wages or income, revenue generation, economic linkages between the centres and their surroundings and opportunities in the centres. The assessment of performance of the centres by the local residents has also been taken into account.

5.2.1 Nature and type of business activities

The study reveals that all business activities at the centres are small–scale. This is indicated by the types of goods observed in formal shops and in the open market area. The most traded items are low order consumption goods such as soap, sugar, cooking oils and fats, salt, wheat flour, bread and long-life milk. These are often sold in small portions, so that instead of selling a full bar of soap at, say, 150 shillings, the bar is cut into small 10 and 20 shilling pieces as per the wishes of the customer. Similarly, sugar is sold in quarter kilo quantities rather than one or two kilo packages. This shows a low level of consumerism that is hardly encouraging for business growth. Other goods of this nature include body jellies, match sticks, hair extensions, and soda.

The prevalence of certain types of businesses is also an indicator of low performance. The table below shows that the most prevalent business is "eateries". This term has been chosen because they hardly qualify to be called restaurants.

Table 7: Types of Goods and Services Offered

Types of products/services sold /offered	**Percent**
Eateries	18.2
Livestock business	17.0
Retail shops	14.8
Hair styling and cosmetic shops	11.4
Grocery shops	9.1
Light industrial services (welding, tailoring and rope making)	8.0
Money transfer services	6.8
Repair services	3.4
Milling services	3.4
Hardware shops	2.3
Chemists	1.1
Transportation services	1.1
Veterinary services	1.1
Tents and seats	1.1
Bookshops	1.1
Total	**100.0**

Source: Field Survey, 2018

Eateries are the largest business activity, and are dominated by food cooked in the open air or in makeshift structures. Such foods include chapati, mandazi, vegetable samosa and potato chips. Other cooked foods such as beans, vegetables, meat, and fish are sold in more formal eateries which are, however, few in Boro but non-existent in Ndere and Ratuoro. Fruits and vegetables from nearby farms, and fresh and dried fish, are sold in makeshift stalls and "*abedos*" while butcheries are located in the more formal premises for public health reasons.

5.2.2 Business Premises

Forty one per cent (41%) of the business premises are situated in temporary and semi-permanent structures. The permanent ones make up 36.4% of the premises. This means that there is shortage of business premises where highly valued goods can be traded. The figure below shows the kind of structures erected at open-air markets in all three centres. They provide a display counter for the low order goods described above, and a roof over the head. The photo was taken on a non-market day and at a non-market hour.

Figure 13: Typical "stalls" in the market square at Boro on a non-market day
Source: Field Survey, 2018

Figure 14Market stalls in Ratuoro at "market hours"
Source: Field Survey, 2018

Livestock market

The other business activity of note is livestock trade. In central Alego ward, this business is conducted only in Boro market and only on Friday. Business is conducted between the hours of 8.00 am and 12 noon. Items sold are cattle, sheep and goats. The main actors are cattle traders who come from far and wide, and who move with their cattle from market to market on designated days. In the case of Alego-Usonga sub-county, the other cattle markets are N'giya in east alego and Nyadorera in west Alego/Usonga. Other actors are individual farmers who bring their cattle to the market, and brokers who act as intermediaries between sellers and buyers. According to the cattle traders interviewed, business in Boro market is particularly advantaged

because it takes place on Friday. Many burial (*liete*) and bride price (*nyombo*) ceremonies take place on Saturdays. Revenue from the livestock business is what uplifts Boro from, for example, Ndere. For each cow/bull sold, the county government receives ksh. 200, and ksh. 100 for each goat or sheep sold. The livestock market is Boro's "unique selling point" (King, 2011) which helps to distinguish it from other competing centres in the study area. It brings in customers who do not visit the other centres, and creates a spin-off business for rope and *uji* and *nyoyo* sellers which were not witnessed in the other centres under study.

Figure 15: The Livestock Market at Boro
Source: Field Survey, 2018

Figure 16: Activities generated by the Livestock Trade: Selling of Ropes and Foodstuff
Source: Field Survey, 2018

5.2.3 Agro-Industrial Investments

Presently there are no agro-industrial establishments in the three centres. Those that existed before are now extinct. These are the Ndere Ginnery and Dominion Farms Ltd in Ratuoro respectively, which are both no longer operational. According to the residents, the folding up of these two enterprises has had a negative impact on performance and growth of the centres. About

22.2% of the consumers involved in this study attributed poor performance of the centres to the closure of these two establishments, arguing that they were a major source of income to employees and farmers and therefore provided them with the purchasing power for the circulation of money in the centres.

The picture below was taken at the gate to the defunct Ndere ginnery, which has been in-operational for more than two decades.

Figure 17: Entrance to the Defunct Ginnery in Ndere
Source: Field Survey, 2018

The closure of Ndere Ginnery in the 1980s is linked to the collapse of cotton farming in Siaya County in particular, but in Kenya in general. According to Nicholls (2017) cotton farming and industry thrived in Kenya during and after British colonial rule. The areas near Lake Victoria were particularly favorable to cotton, which became "a valuable cash crop which sustained many families in the region". Production reached a peak in 1985, when Kenya was producing about 100,000 bales annually, from cotton grown by local farmers and collected by Kisumu Cotton Mills (Kicomi) for ginning. This compared with 400,000 bales in Uganda and 700,000 in Tanzania. By 2014 Kenya was producing only 25,000 bales annually and eventually the industry collapsed. Cotton farmers switched to maize and other subsistence crops.

Some of the reasons given for the collapse of cotton ginning were weak farmer organizations, high costs of production, inadequate quality inputs and over-reliance on rain-fed production. During the cotton boom of the late 1970s and early 1980s, the government had supported the industry through the Cotton Board of Kenya, which had an organized marketing system that saw

farmers get paid promptly. The board invested heavily in factories such as Raymonds in Nakuru and Rift Valley Textiles (Rivatex) in Eldoret, as well as Kisumu Cotton Mills (Kicomi). But the textile market was liberalized in 1991 and the Cotton Board became ineffective. Second-hand clothes were imported, providing a serious challenge to local cloths. Gradually the firms closed down and cotton ginneries became idle. Previously one of Kenya's main exports, cotton seemed to be in its dying days. Raw textiles were, instead, purchased from Taiwan and Singapore (Nicholls, 2017).

In its current development blueprint regarding manufacturing, the national government aims to create 1.3 million manufacturing jobs and raise the share of the manufacturing sector from nine per cent to 15 per cent of the GDP by 2022. It is planned that at least five million square feet of industrial sheds will be established to improve cotton production. In 2019, the County Government of Kitui established a cotton milling factory in Kitui town and is promoting farmers in the region to grow enough cotton to keep the factory going.

Siaya CIDP pp.121 has identified re-vitalization of agro-based industries such as cotton ginneries and sugar mills as a key strategic area of development. The county government hopes to promote this sector by providing quality and affordable farm inputs; affordable credit facilities to farmers; and bulking of seedlings for the targeted crops in strategic locations, presumably in market centres nearest to the farmers. This strategy would have the effect of re-vitalizing the centres and increasing their prospects for growth. However, "as the government tries to revive the cotton industry as part of its Big Four Agenda, including introduction of the genetically modified bio-tech (BT) cotton, the reasons for the crop's checkered course in the country's agricultural history should be very carefully analyzed, meaningful policies formulated and translated into sustainable practice" (Daily Nation, Saturday December 21, 2019).

5.2.4 Condition of Trunk and Access roads

The centres are generally poorly endowed with basic infrastructure, which is known to facilitate economic flows. Only two roads connecting them to potential trade partners in other regional centres are tarmacked and are in good condition. These are the roads connecting Ndere to Siaya and Rang'ala (C28) and the one connecting Boro to Siaya and Nyadorera (C29). The road from Ratuoro to Siaya, Boro and Yimbo is a gravel road that is impassable to two-wheel vehicles during the rainy season.

Figure 18: C29 Bitumen Road from Siaya Town to Port Victoria at Boro Market
Source: Field Survey, 2018

Secondly, only Boro centre has piped water supply and so if any industrial plant were to be established in the other centres, there would have to be the installation of water supply infrastructure first. Third, none of the centres has sewer network and proper solid waste management facilities. There are only a few market-waste collection bins recently supplied by the County Government of Siaya. These however cannot handle bulky waste.

According to 2.6%, 21.7% and 3.7% of the traders interviewed in Boro, Ndere and Ratuoro respectively, poor infrastructure is a significant cause of poor performance of the centres. It is however noteworthy that at least one access road connecting Ndere to Boro and Segere was being upgraded to bitumen standard at the time of this study (see the figure below, of the Ndere-Segere junction road). This road connects the C29 to the C28 road

Figure 19: Ndere – Boro Bitumen Standard Road Upgrade
Source: Field Survey, 2018

Figure 20Proposed Maintenance works of Kamlag – Ratuoro Bitumen Road
Source: Field Survey, 2018

5.2.5 Recent Developments

New developments are universally considered as evidence of progress. Asked to enumerate the recent changes in the centres, the respondents pointed out the following.

Table 8: Recent Changes in the Centres

	Boro	Ndere	Ratuoro
Change	**Percent**		
Increased business opportunities	3.4	9.5	13.6
Piped water supply	10.3	0	0
Reduction of cash flow	3.4	0	0
Additional schools	3.4	0	4.5
Improved roads	27.6	23.8	9.1
Solar lighting infrastructure establishment	10.3	9.5	13.6
Construction of new buildings and shops	13.8	14.3	13.6
Improved transportation through *boda boda* means	3.4	0	0
No response	6.9	0	4.5
Electricity provision	10.3	4.8	9.1
None	6.9	38.1	18.2
Total	100.0	100.0	100.0

Source: Field Survey, 2018

From the above table, the improvement of roads ranked high among the respondents in Boro and Ndere and this was confirmed by the fact that the two centres are connected to other inter-county centres by C28 and C29.

Notably, some of the changes pointed out are negative. These include closure of major agro-industrial establishments and reduction of cash flow.

5.2.6 Millenium Buildings

A discussion with property owners sought to find out details of developed land in the centres. The first aspect interrogated was the age of buildings. It was established that more than 50% of the buildings were built between the 1960s and 1980s. Those developed between the year 2000 and 2018 were less than 1%. This shows that very little physical growth has taken place in the centres in recent years. Images of some of the most recent buildings, which constitute less than 1% of the buildings in the centres, are shown below.

Figure 21: Recent Buildings in Ndere (left) and Boro (right) respectively
Source: Field Survey, 2018

Figure 22: Recent Development in Ratuoro
Source: Field Survey, 2018

They were also asked to indicate the last time they renovated the buildings. Their responses revealed that only 2.2% of the property owners have renovated their buildings in the last three years. Those that have not done so cited lack of capital as the main reason. The picture below shows an example of old and abandoned buildings in Ndere.

Figure 23: Old and Abandoned Buildings in Ndere
Source: Field Survey, 2018

5.2.7 Level of Employment and Incomes

As indicated in section 5.2.3 above, about half the population are self-employed and are undertaking small-scale retail businesses from which they accrue incomes that are significantly low. Considering the statistics of monthly business sales vis a vis expenditures in business, it is apparent that the majority 43% make monthly sales of upto Ksh. 60,000 (equivalent to about a maximum of 2,000 per day). On the other hand, all of these people (plus 4% others) incur expenses worth a maximum of Ksh. 10,000 (see the table overleaf).

Table 9: Cross Tabulation of Business Sales and Expenditures

	Average monthly business sales	**Average monthly business expenditure**
Below Ksh. 10,000	15.9%	47.7%
Ksh. 10,000-24,000	13.6%	8.0%
Ksh. 24001 - 60,000	13.6%	11.4%
Ksh. 60,001 - 120,000	36.4%	8.0%
Above 120,000	1.1%	0%

Source: Field Survey, 2018

More specifically, the team whose monthly sales turnover is a max of Ksh 10,000 forms 15.9% of the traders. This team also incur expenses of upto Ksh. 10,000; which means their maximum profit per month is less than Ksh. 10,000 (less than Ksh. 333 per day). Another 13.6% make

maximum monthly sales of Ksh. 24,000 and still incur expenses of upto Ksh. 10,000. This means that they make upto a maximum of Ksh. 14,000 per month in profits (Ksh. 466 per day).

This means that a majority of business people earn profits that are quite low. Moreover, the data gathered from the households indicate that upto 75% of the households have monthly incomes of less than Ksh. 10,000. Evidently, therefore, the people hardly get any surplus money to invest in bigger business establishments.

In addition, the employment opportunities in the centres, as pointed out by the local residents, are mainly casual jobs in business enterprises and domestic jobs (see tables below). This is another indication of low performance of the centres.

Table 10: Job Opportunities Available within the Centres

Job opportunities	**Percent**		
	Boro	**Ndere**	**Ratuoro**
None	10.3	14.3	22.7
Casual employment in individual business enterprises	51.7	71.4	45.5
Domestic jobs to residents in the centre	31.0	14.3	27.3
Water vending from Lake Kanyaboli	-	-	4.5

Source: Field Survey, 2018

Furthermore, very few businesses have employment opportunities. About 28.1% of the businesses have zero employees, 69.5% have 1 to 5 employees and only 2.4% of the businesses have 6 to 10 employees. This is illustrated in the chart below.

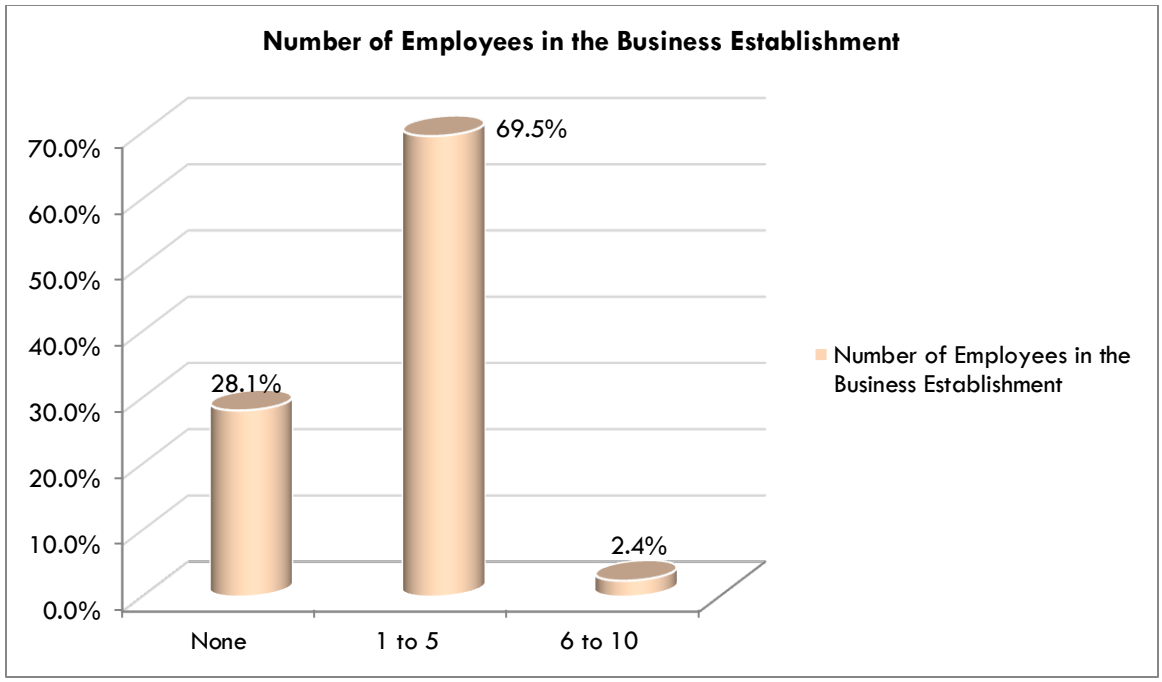


Figure 24: Number of Employees in the Business Establishment
Source: Field Survey, 2018

5.2.8 Revenue Generation

The records at the County Government of Siaya indicate that the revenues generated from the centres are as follows.

Table 11: Revenue Generated from the Centres

Centre	Monthly Revenue Target (Ksh.)	Average Monthly Revenue Collected (Ksh.)
Boro	36,000/=	23,000/=
Ndere	20,000/=	8,000/=
Ratuoro	0/=	0/=

Source: County Government of Siaya, 2018

The above statistics are further indications of low performance of the centres. They show that the centres generate way below what they are expected to in order to support provision of public services by the county government. Whereas Boro generates upto 63% of expected revenue, Ratuoro collects no revenue. The case of Ratuoro is exceptional, as the targets may have been set at a time when Dominion Farms was operational. After the exit of Dominion, there followed a flight of both capital and labor from the centre. Currently, the County Government has not set a target for revenue collection from Ratuoro neither does it send a market superintendent there. In fact, the centre is not a periodic market as there is no designated market day. It was found that

cleaning and disposal of market waste is done by an individual who 'used' to work for the county council under the old constitutional order. After adoption of a new constitution in 2010 and replacement of the county council with the current county government, the individual was not absorbed into the system as an employee. However, she has continued to provide the service to the market traders at their pleasure i.e. for whatever token they care to give her. She sweeps the *abedo* area after every one or two days, collects the waste at a corner of the market then burns it.

5.2.9 Economic Linkages between the Centres and their Surrounding

The centres have different levels of functional interlinkages with their surrounding hinterlands and other centres. These linkages are determined by the assessment of origin of goods sold, origin of customers and the travel patterns of the local people.

In reference to the origin of goods sold, the results of this study show that the bulk of the goods originate from the rural hinterlands of the centres. This is illustrated in the chart below.

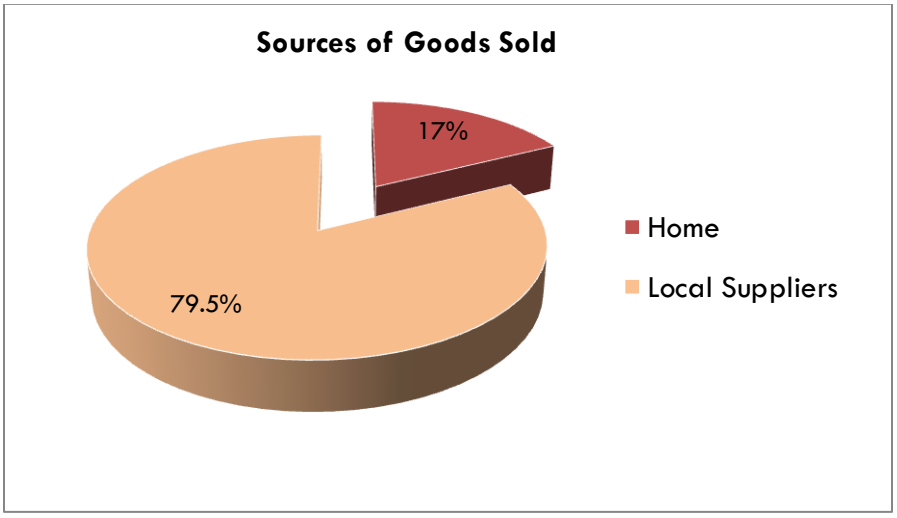


Figure 25: Sources of Goods Sold
Source: Field Survey, 2018

This is an indication that the centres have almost nil interaction with the areas outside their hinterlands in so far as sourcing for commodities for sale is concerned.

The assessment of the origin of customers shows almost a similar trend since a majority 73.9% of the customers come from within the centre's immediate vicinity. Only 20.5% come from the neighboring zones.

Considering the travel patterns of the people, the general picture is that the majority of the people travel to places that are between 1km and 16km away from the centres. This data was gathered by tracking the travel patterns of people over a period of about 8 hours using *boda bodas* (which is the main mode of motorized transport). Five no. *boda boda* operators in each centre were recruited for the exercise. The findings are shown in the tables below.

Table 12: *Boda boda* Travel Patterns in Boro

Operator	Time out	Place of origin	Destination	Distance (Km)	Cost (Ksh)	Time back
1	8.42AM	Boro stage	Nyandhos	10	300	9.47AM
2	8.55AM	Boro stage	Kalenyjuok	3	50	9.16AM
2	9.51AM	Boro stage	Nyachwinya	3	50	10.12AM
1	10.08AM	Boro stage	Siaya	7	80	12.06PM
3	10.13AM	Boro stage	Mbaga	7	70	10.27AM
4	10.20AM	Boro stage	Siaya	7	100	11.03AM
2	10.24AM	Boro stage	Pap Boro	2	20	10.30AM
2	10.30AM	Boro stage	Ulongi	2	30	10.55AM
3	10.44AM	Boro stage	Siaya	7	100	11.53AM
5	10.47AM	Boro stage	Segere	6	70	11.01AM
2	11.02AM	Boro stage	Aduwa	4	50	10.19AM
4	11.04AM	Boro stage	Lwala	3	50	11.20AM
4	11.23AM	Boro stage	Rawa	4	70	12.12PM
3	11.36AM	Boro stage	Nyachwinya	3	50	12.18PM
3	12.18PM	Boro stage	Chief's camp	0.8	30	12.21PM
1	12.21PM	Boro stage	Adodi	1.5	30	12.27PM
2	12.24PM	Boro stage	Aduwa	5	50	12.52PM
3	12.38PM	Boro stage	Kamoth	1	20	12.42PM
1	12.39PM	Boro stage	Ruanda Lang'o	1	50	1.10PM
3	12.45PM	Boro stage	Kanungo	7	70	1.23PM
4	12.42PM	Boro stage	Boro centre	0.1	20	12.59PM
4	1.11PM	Boro stage	Siaya	7	100	1.44PM
5	1.15PM	Boro stage	Umaje	0.9	50	1.25PM
2	1.20PM	Boro stage	Uyolo	5	50	1.30PM

Source: Field Survey, 2018

Table 13: *Boda boda* travel patterns in Ndere

Operator	Time out	Place of origin	Destination	Distance (Km)	Cost (Ksh)	Time back
1	1433HRS	Ndere	Gombe	1	50	1449HRS
1	1459HRS	Ndere	Liganwa	0.5	40	1514HRS
1	1519HRS	Ndere	Palpal	1	50	1530HRS
2	1459HRS	Ndere	Palpal	1	50	1530HRS
3	1521HRS	Ndere	Siaya	4	50	1548HRS
1	1534HRS	Ndere	Palpal	1	50	1551HRS
3	1601HRS	Ndere	Anduro	10	100	1645HRS
1	1537HRS	Ndere	Kobare	1	50	1612HRS
2	1605HRS	Ndere	Aora Rabolo	1	50	1618HRS
4	1620HRS	Ndere	Uhanya	3	100	1649HRS
1	1637HRS	Ndere	Ngunya	4	100	1713HRS
5	1647HRS	Ndere	Siaya	4	100	1720HRS
4	1650HRS	Ndere	Siaya	4	50	1801HRS
3	1656HRS	Ndere	Sega	10	200	-

1	1714HRS	Ndere	Siaya	4	50	1745HRS
3	1714HRS	Ndere	Palpal	1	50	1733HRS
3	1733HRS	Ndere	Segere	2	50	1756HRS
4	1819HRS	Ndere	Siaya	4	50	1830HRS

Source: Field Survey, 2018

Table 14: *Boda boda* travel patterns in Ratuoro

Operator	Time out	Place of origin	Destination	Distance (Km)	Cost (Ksh)	Time back
1	1307HRS	Ratuoro	Ratuoro neighbourhood	2	50	1316HRS
2	1327HRS	Ratuoro	Harambee	1	70	1338HRS
4	1342HRS	Ratuoro	Gendro	2	50	1400HRS
5	1300HRS	Ratuoro	Siaya	16	150	1520HRS
3	1307HRS	Ratuoro	Dominion farm	4	50	1436HRS
3	1440HRS	Ratuoro	Hawinga	8	100	1516HRS
4	1506HRS	Ratuoro	Nyamonye	12	200	1605HRS
3	1542HRS	Ratuoro	Kamlag	3	50	1608HRS
1	1552HRS	Ratuoro	Siaya	16	150	1630HRS
5	1602HRS	Ratuoro	Usenge	23	300	1718HRS
3	1608HRS	Ratuoro	Siaya	16	200	1620HRS
2	1615HRS	Ratuoro	Siaya	16	250	1638HRS
4	1655HRS	Ratuoro	Gendro	2	50	1710HRS
1	1552HRS	Ratuoro	Kalkada	25	250	1744HRS

Source: Field Survey, 2018

Notably, the most visited town is Siaya. This is mainly because it is the County Headquarters with most of the higher order goods and services such as clothing, farm implements, electronic goods and national and county government offices. This is an indication that there are spread and backwash effects between the market centres and the rural periphery. Surprisingly, the range of local travel of Ratuoro is higher than that of the other two centres. This means that market users of Ratuoro travel longer distances to reach it for whatever good or service that they seek. From this statistic it can be inferred that Ratuoro has a greater area of influence than the other two centres. According to the central place theory the smaller the centre is, the smaller will its area of influence be. Being the smallest of the three centres, Ratuoro is expected to have the shortest range yet this is not so

In terms of external trade linkages, Boro has the highest range. It was observed that in Boro, on market day, four medium sized lorries (locally referred to as *canters*) were parked at the centre and were selling produce in bulk (wholesale). The produce ranged from cabbages, carrots and Irish potatoes from Molo in Nakuru county, to maize and beans from Bungoma and Trans Nzoia counties respectively, to manufactured goods such as cooking oils, soaps and detergents, shoes and sandals, and clothing from companies based in Kisumu, Eldoret and Nairobi.

There exist economic linkages between the centres and other minor and major urban areas in the region and beyond through a transport network (Figure 9A). These should be strengthened in order to spur their growth further.

5.2.10 Assessment of Centre Performance by Local Residents

According to the majority of local residents the centres are generally underperforming. This is shown in the table below.

Table 15: Assessment of Centre Performance by Local Residents

Economic performance	Percent		
	Boro	Ndere	Ratuoro
Good	34.5	28.6	22.7
Poor	48.3	61.9	77.3
Average	17.2	4.8	-
I don't know	-	4.8	-
Total	100.0	100.0	100.0

Source: Field Survey, 2018

Asked to give justifications for poor performance, the respondents indicated the following.

Table 16: Justifications for Poor Performance in Ndere

Justification	Percent
Lack of accommodation space for non-residents	4.8
Expensive products	4.8
Low customer base	4.8
Poor money circulation	9.5
Insufficient business shades	4.8
Lack of employment or income generating opportunities	19.0
Seasonal business opportunities	4.8
Low business potential	4.8
Rampant theft cases	4.8

Source: Field Survey, 2018

Table 17: Justifications for Poor Performance in Boro

Justification	Percent
Poor supply of essential products	3.4
Lack of micro-finance institutions	3.4
Low customer base	10.3
Poor money circulation	13.8
Insufficient business SHEDS	3.4
Lack of employment or income generating opportunities	3.4
Seasonal business opportunities	3.4
No response	6.9

Source: Field Survey, 2018

Table 18: Justifications for Poor Performance in Ratuoro

Justification	Percent
Lack of functional factories	4.5
Low customer base	18.2
Closure of major agro-industrial establishment	13.6
Poor money circulation	22.7
Lack of employment or income generating opportunities	9.1
Seasonal business opportunities	4.5

Source: Field Survey, 2018

Those that pointed out positive performance in the centres cited the following justifications. Compared to Ndere and Ratuoro, Boro scored highly – 75% - in terms of respondents' perception of good performance than Ratuoro – 37.5% - and Ndere – 25%.

Table 19: Justifications for Good Performance in the Centres

Justifications	Boro	Ndere	Ratuoro
Wide customer base	✓	✓	✓
Improved road network connectivity to other regions	✓		
Existence of peace	✓		
Availability of affordable essential commodities	✓		
Improved business activities	✓		
Improved water supply	✓		
High sales on fish		✓	
Improved transportation through *boda boda* services			✓
Sufficient market for farm produce			✓

Source: Field Survey, 2018

5.2.11 Opportunities in the Centres

Despite the high rating of underperformance in the centres, residents pointed out a number of opportunities which have enhanced the profile of the centres in the recent past.These are tabulated below.

Table 20: Opportunities which have Influenced Growth in the Centres

Opportunities	Boro	Ndere	Ratuoro
Street lighting which enhances late hour operation of business	✓	✓	✓
Road and infrastructure improvements	✓	✓	✓
Electricity supply	✓	✓	✓
Social cohesion among businesspeople	✓		
Increased business premises	✓		✓
Improved transportation	✓		
Local financial assistance groups	✓	✓	
Proximity of the centre to a main road	✓		✓
Strategic/central location of the centre	✓		✓
Inter-regional trade	✓		
Existence of agro-industrial investment	✓	✓	✓

Devolution		✓	✓
Hard work from residents		✓	
Market day operations		✓	
Increased housing		✓	
Farming activities		✓	✓
Inter-regional trade			✓

Source: Field Survey, 2018

5.2.12 Types of Goods and Services in the Centres

According to King (2011), the types of goods and services offered are one of the key performance indicators of market centres. He argues that the greater the variety of goods and services offered, the better the performance of a centre. Considering this PI, it is notable that Boro offers the largest variety of goods and services followed by Ndere and Ratuoro in that order (See the table below).

Categories of Commercial Units	**Commercial Units**	**Available Units by Centre**		
		Boro	**Ndere**	**Ratuoro**
A1	**SHOPS:** Shops, retail warehouses, hairdressers, travel agents, post offices, newsagents, garages, opticians, sandwich bars, showrooms, domestic hire shows and funeral directors	General shops Bicycle Repair Clothing, Agrovet Salon & barber shops	General shops	General shops
A2	**FINANCIAL AND PROFESSIONAL SERVICES:** Banks, building societies, estate and employment agencies, professional and financial services and betting offices	Money transfer outlets/M-PESA shops	Money transfer outlets/M-PESA shops	Money transfer outlets/M-PESA shops
A3	**FOOD AND DRINKS**	General household provisions for consumption	General household provisions for consumption	General household provisions for consumption
A4	**DRINKING ESTABLISHMENTS**	Two bars one with lodgings Wines and Spirits shop	-	-
A5	**HOT FOOD TAKEAWAY**	Formal restaurants Informal food kiosks	Informal food kiosks	Informal food kiosk
B1	**BUSINESS:** Offices not within Class A2, research and development, studios, labs, high tech and light industrial	Fuel pump Hardware Welding	Fuel pump Hardware	Fuel pump
B2	**GENERAL INDUSTRY**	Metal welding and fabrication	-	-

		Motor-cycle repair		
B8	**WAREHOUSES**	Medium-sized hardware stores	Disused cotton ginnery Small-sized hardware store	Disused warehouses and workshop/garage
C1	**HOTELS AND HOSTELS:** Hotels, boarding and guest houses, and hostels	Hotel and accommodation	-	-
C2	**RESIDENTIAL INSTITUITONS**: Residential care homes, hospitals, nursing homes, boarding schools and residential colleges and training centres	-	-	-
D1	**NON RESIDENTIAL INSTITUTIONS:** Churches, Church halls, clinics, health centres and consulting rooms, museums, training centres, schools, libraries, art galleries, crèches and day nurseries, law courts	Police post Primary school Secondary school Health centre	Youth polytechnic Primary school Police post	Church Health centre
D2	**ASSEMBLY AND LEISURE:** Cinemas, dance, sport and concert halls, bingo and other indoor and outdoor leisure uses, gymnasiums, skating rinks	Video house Playground	Video house	Video house
SG	**UNIQUE ESTABLISHMENTS**: Theatres, launderettes and dry cleaners, taxi operator, amusement centres, car showroom, petrol filling station, tanning shops, beauty parlours nightclubs and casinos	Lorry park	Lorry park	-
Others		Cattle holding ground	-	-

Source: Author, 2019

5.3 Challenges to Better Performance of the Centres

According to the residents in the study area, the following are the challenges to better business performance of the centres.

Table 21: Challenges Affecting Business

Challenges	Percent
Poor cash flow	21.1
Poor infrastructure	15.8
Muddy business space	2.6
Lack of market days (for Ratuoro only)	2.6
None	7.9
Unavailability of goods	2.6

Insecurity	13.2
High taxation	2.6
Unconducive business premises	2.6
Low sales	5.3
Drought and floods	2.6
Business competition	13.2
Total	**100.0**

Source: Field Survey, 2018

Poor cash flow scored highly as a challenge, probably because of lack of salaried employment opportunities and low level of economic activities due to absence of a cash crop in the farmland. The poor state of internal and access roads was ranked second, and insecurity together with a highly competitive business environment was third.

a) Internal Structure and Design

Ndere and Boro are the quintessential rural market centre – having a well-defined open market square surrounded by business-cum-residential plots/buildings on three sides. The plots measure a standard 50 by 100 feet and are equipped with a service lane at the back.

The centres are designated markets, and the land is leased to the developers by the county government for a specified period of time with specific conditions of use. Hence their structure is nucleated around the market square.

Ratuoro has grown organically within limited space that is defined by a health centre and agro industrial stores and workshop. Its spatial structure is both linear, along a narrow main street, and organic. The land and buildings are of no particular size or design, perhaps because the land tenure system – which is freehold – does not contain stringent development conditions associated with leasehold tenure.

b) Public Utilities

Recent improvements in the provision of public amenities include street lighting, road upgrades and electrification. Ndere and Boro have gained more than Ratuoro in this respect since major roads traversing the centres have been tarmacked, thereby enhancing transportation between them and the other areas served by the same roads. The infrastructural improvements are potential enhancers of physical and economic growth. The emphasis of the county Government

has been on larger centres situated along inter-county roads (Class C). Boro and Ndere have benefited from being situated on these major roads.

It was noted that none of the centres has a sewerage system. Individual developers are supposed to provide either pit latrines or septic tanks for their buildings, or else condemn their tenants to use public pit latrines built by the County Government. It was also observed that, other than Boro, neither of the other centres has a properly developed and upgraded internal road network, and clean piped water supply system. These are essential support facilities for performance and growth.

5.4 Factors Influencing Functionality of the Centres

5.4.1 Location Factor

According to the residents, Boro and Ndere centres are strategically located hence their higher activities. Their comparative advantage stems from the fact that they are situated on a tarmacked road coming from Kisumu city, through Siaya town, to the neighboring counties of Busia and Kakamega. The two are only 7km and 5km away from Siaya town respectively. They are thus both potentially transit towns. Ratuoro does not enjoy the same advantages. For one, it is at the end of a 14km gravel road from Siaya town. There is therefore no transit traffic through it. The advantage that it has over the other two is that it is on the edges of Lake Kanyaboli and the Yala Swamp. If all other factors were to be held constant, Ratuoro would be the major beneficiary of agro-industrial investments emanating from the two natural resources.

5.4.2 Economic Factors

a. Types of Investments and Areas of Business Specialization

From the discussion in sections 5.4.1, 5.4.2 and 5.4.5, it is notable that people have invested mainly in retail businesses from which they yield significantly low incomes and profits. They hardly get any surplus cash (savings) that they can invest in land and buildings which can spur growth of the centres. The few new buildings that were noted have been built using funds from external sources and not from the businesses at the centres (e.g. retirement benefits in the case of new buildings in Ratuoro).

b. Financial Capital for Investments

Access to financial capital is generally limited. According to the findings of this study, about 71.6% of the traders had to save to start their businesses. Only 12.5 % raised capital through loans whose sources were varied. Furthermore, low access to capital is one of the major problems cited by both traders and households as the cause of poor economic performance of the centres.

c. Market Catchment

From the analysis of the economic linkages between the centres and their surroundings indicate that the bulk (more than 70%) of the customer base in the centres is local. This shows that the business activities are not diversified enough to capture the needs of the market beyond the local area.

d. Incomes to Businesses and Households

Incomes to businesses and households have been found to be too low to facilitate extra investments within the centres.

e. Cost of Doing Business

The cost of doing business has been assessed based on the business expenditures commonly incurred. These cover mainly rents and taxes. Those who own properties where they conduct businesses are only 21.1% while tenants are 31.6%. This means that a bigger number of traders pay monthly rents. The monthly rents paid are as shown below:

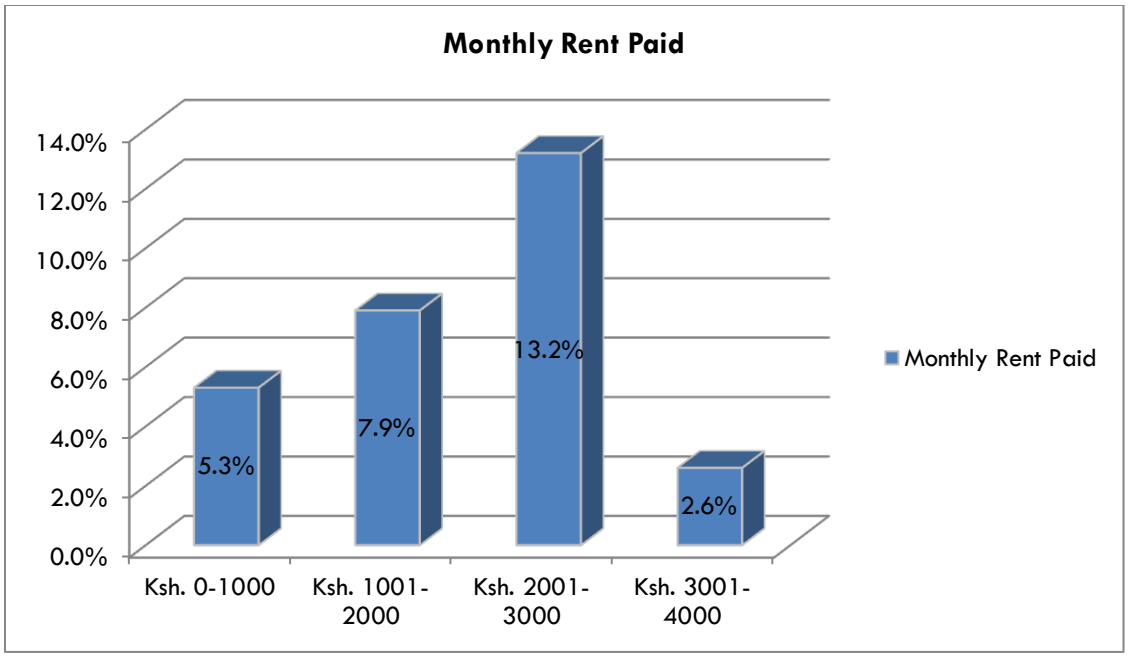


Figure 26: Monthly Rent Paid
Source: Field Survey, 2018

The rental charges are considerably low, compared to the market rates in most of the towns in Kenya. However, looking at them vis-à-vis the monthly sales made by the majority of traders (which is mostly less than Ksh. 10,000), it can be said that the rental charges eat into a significant portion of the business incomes. This is a scenario that hardly promotes growth of a place.

Looking at the business taxes paid by the traders in the centres under study, they are mainly inclusive of the payments for licenses and business permits. The types of licenses paid for are as follows.

Table 22: Types of Business Licenses Used

License	Percent
CESS Receipt	28.9
Business Permit	36.8
None	2.6
Levy	15.8
Total	100.0

Source: Field Survey, 2018

The costs incurred by the majority of traders for these licenses range from Ksh. 500 to 5000. These are paid for either daily or annually. Further details are shown below.

Table 23: Amount Paid for the License and Frequency of Payment

		Frequency of payment for the license			Total
		Annually	**Daily**	**Market Days**	
Amount paid for the license	Ksh. 0-500	0%	13.8%	15.5%	29.3%
	Ksh. 1001 - 2000	3.4%	0%	0%	3.4%
	Ksh. 2000 - 5000	56.9%	0%	0%	56.9%
	Above Ksh. 5000	10.3%	0%	0%	10.3%
Total		**70.6**	**13.8%**	**15.5%**	**100.0%**

Source: Field Survey, 2018

From the above table, it is notable that those that pay less than Ksh. 500 do so daily or on market days only. They are mainly those that pay for the CESS receipts. The rest pay for the licenses annually.

Translating this to monthly payments, it means that a majority spend an average of between Ksh. 400 and Ksh. 700. This does not take so much from their sales. However, there are those (2.6% of traders) who feel that these charges are too costly and should be cut down.

Essentially, therefore, the cost of doing business in Boro, Ndere and Ratuoro is not extremely high. However, the business environment has also not allowed for the establishment of businesses whose operations are ordinarily costly. As such, it can be said that cost of doing business is not a factor that directly affects growth in these centres.

5.4.3 Social Factors

The main social factors that have been cited to affect growth of the centres are the problems of idleness and insecurity. They are both caused by limited employment opportunities. It can therefore be argued that increased investments and employment opportunities would help to solve these challenges.

a. Household Population Size and Composition

The analysis done in this study indicates that a majority of the households are composed of 1 to 5 members, followed by those made up of 6 to 10 people (see table below). The household sizes are generally substantial compared to the national average. There is a substantial consumer base for goods and services in the study area.

Table 24: No. of Household Members

Household size	Percent
1-5	56.9
6-10	40.3
Above 10	2.8
Total	**100.0**

Source: Field Survey, 2018

It further shows that 43.1% and 56.9% of the population in the study area are males and females respectively. The age composition is as summarized in table 2 below. There are more females than males in the study area, but the disparity is not significant.

Table 25: Respondent Composition by Age:

Category	Age bracket	Percent
Youth	18-35	38.9
Middle aged	36-60	43.0
Above retirement age	61+	18.1
Total	**-**	**100.0**

Source: Field Survey, 2018

The above statistics depict that the study area has a huge labor force, meaning that It has a substantial consumer base for goods and services on the demand side. Conversely, on the supply side, there is sufficient workforce that can engage in farming activities in the surrounding countryside. The population characteristics show that there is a high potential for economic production and growth in the centres, given the huge potential for irrigated farming presented by the Yala Swamp and fish farming by Lake Kanyaboli, and other employment and investment opportunities. Gender balance is not a significant issue as the ratio of males to females is very low.

b. Education Levels

The biggest proportion of the population has attained primary level of education. Those that have attained tertiary education level are only 2.8% (See Figure 7 below). According to Siaya County Integrated Development Plan (2013-2017), the basic literacy rate stands at 79.8%. Another 18.3% cannot read and write (illiterate). This means that those with tertiary education form 2.9% of the population. This shows that those that have the training for skilled employment are very few. The potential for both wage-employment and self-employment is for the lower level cadres such as labourers and artisans.

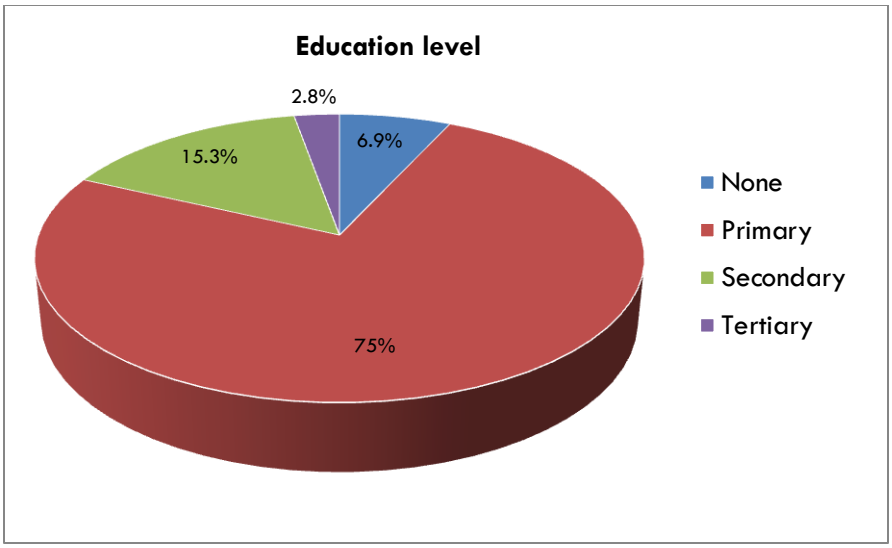


Figure 27: Education Levels
Source: Field Survey, 2018

c. Employment

The majority (50%) of the people are business people (self-employed) who engage mainly in retail business activities. They are followed by the unemployed who form 30.6% of the population. The wage employees constitute 11.1% of the population while the subsistence farmers and retirees cover 4.2% and 2.8% respectively (see the figure below)

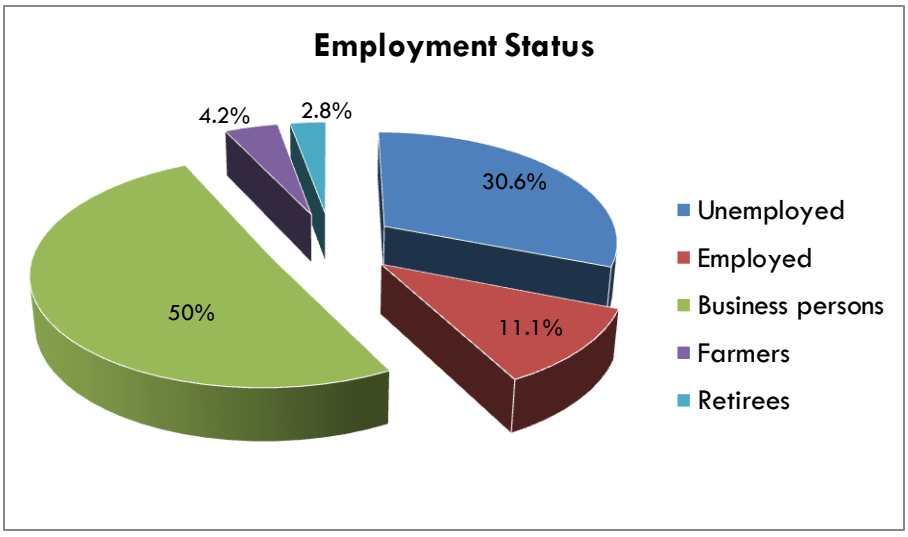


Figure 28: Employment Status
Source: Field Survey, 2018

At the county level, 17% are under wage employment while 40% are unemployed (G.o.K, 2013). This confirms the findings of this study that the unemployed forms a significant proportion of the population.

Among those employed in the study area, 8.3% work in local enterprises in Boro, Ndere and Ratuoro centres. Only 1.4% of them work outside the centres. The general picture shows that unemployment is quite high, which may contribute to slow growth in the centres since wage-employment is associated with increased consumption of goods and services as well as with increased circulation of money. According to the residents of Ratuoro, when Dominion Farms was operational, the centre was a beehive of activity from day to day because the workers would spend their wages on green groceries and other foods such as sweet potatoes and cassava from the surrounding farms, fish from Lake Kanyaboli and general provisions from the shops on a daily, weekly or monthly basis. At that time, there was one formal bar (pub) that was operational. It had to close its doors when Dominion ceased to operate and its workers were retrenched.

d. Household Incomes

About 75% of the households in the study area have monthly incomes of less than Ksh. 10,000. Further details are shown in the chart below.

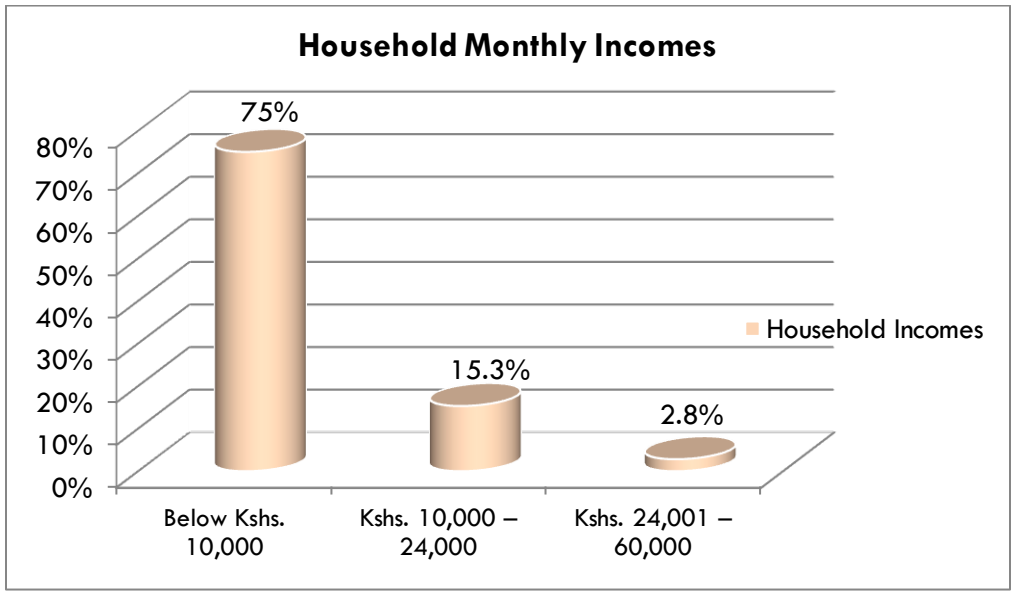


Figure 29: Average Monthly Household Incomes
Source: Field Survey, 2018

The above statistics indicate that the household incomes are quite low especially when analysed against the household majority sizes, a majority of which have members above five. Majority of market users earn less than Ksh. 10,000/= per month. This income is very low given that the minimum wage in Kenya is Ksh. 13,572/=. It can only accord them a hand-to-mouth existence, with no surplus capital (savings) to invest in business or buildings

Assuming that only those who are in the high-income bracket can afford to invest, then only 2.8% of those sampled are able to engage in any meaningful investment that would lead to better performance and growth. Otherwise, capital for investment has to come from outside the centres and their immediate surroundings. Even with capital from outside the region, the purchasing power of the local inhabitants would still be low given that there are no industries to provide employment and, as such, return on investment projections would not be attractive enough to attract big capital.

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5.5 Spatial Structures and Development Plans of the Centres

There are four types of buildings or structures that correspond with commercial activity at the market centres. These are;

i. The large "permanent" shops,
ii. The small permanent "stalls"
iii. The impermanent "rafters", and
iv. *"Abedo"*

Figure 30: Permanent and Semi-Permanent Structures at Boro Market
Source: Field Survey, 2018

Each of the three centres under study has unique spatial features which determine the direction of their physical growth and expansion. These are detailed out below.

5.5.1 Spatial Structure

a) Boro

Boro takes a nucleated structure. It has developed on one side of Siaya-Nyadorera road. It has an open air market which is enclosed by commercial buildings. These together form the commercial core of the centre. The non-commercial zones are located outside this core and they include agricultural, residential, educational and public purpose areas. There is however a livestock market to the south of the commercial core which serves Boro and the neighboring region.

There's is also a major road junction on the northern edge of the commercial core. It is the intersection between Siaya-Nyadorera and Boro-Lake Kanyaboli roads. These roads connect the centre to other centres and towns and are thus important transport corridors and structuring elements to the upcoming developments in Boro. This structure is shown below.

Figure 31: Illustration of Boro's Spatial Structure
Source: Adopted and modified from Google earth, 2018

From the above illustration, it is notable that there is a potential for the centre to grow in a radial pattern, following the direction of the major transport arteries thereon.

b) Ndere

Like Boro, Ndere market centre is also nucleated around the market square. The centre is on a transport corridor which emanates from Bondo town to Rang'ala on the Busia Road. Lesser

roads connect Ndere to Boro via the Siaya – Nyadorera Road, and Ndere to Ugunja through Uhembo sugarcane plantation and Ambira (see the figure below).

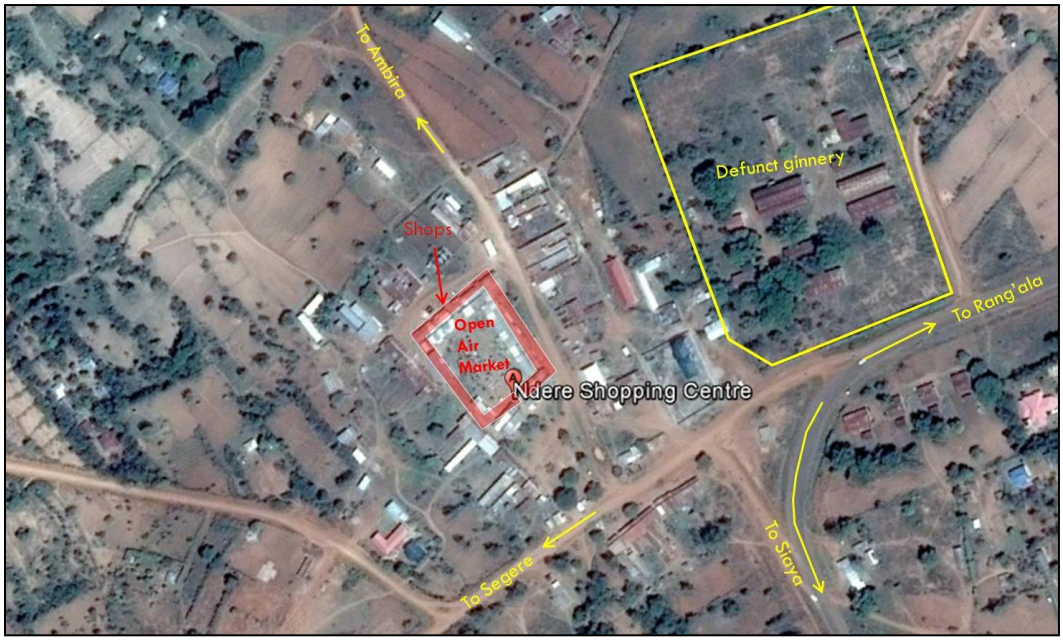


Figure 32: Illustration of Ndere's Spatial Structure
Source: Adopted and modified from Google Earth, 2018

It also has a commercial core made of an open air market which is surrounded by commercial buildings. A unique land mark in the centre is the Ndere ginnery which is currently defunct but which was a major influence on its growth during the time when the centre was coming up. The location of Ndere makes it a prospective a transit node if the economic interactions between Siaya and Ugunja were to get better.

c) Ratuoro

Ratuoro's spatial structure is fairly irregular. The shops are sandwiched between a health centre and a substantially large compound within which the *Dominion Farm Ltd* stores are located. The main road (Siaya-Yimbo road) along which the centre is located meanders around the *Dominion Farm* compound, thus further influencing the irregular nodal structure. The open air market is a small triangular space at the eastern edge of the Dominion stores compound. These are illustrated below.

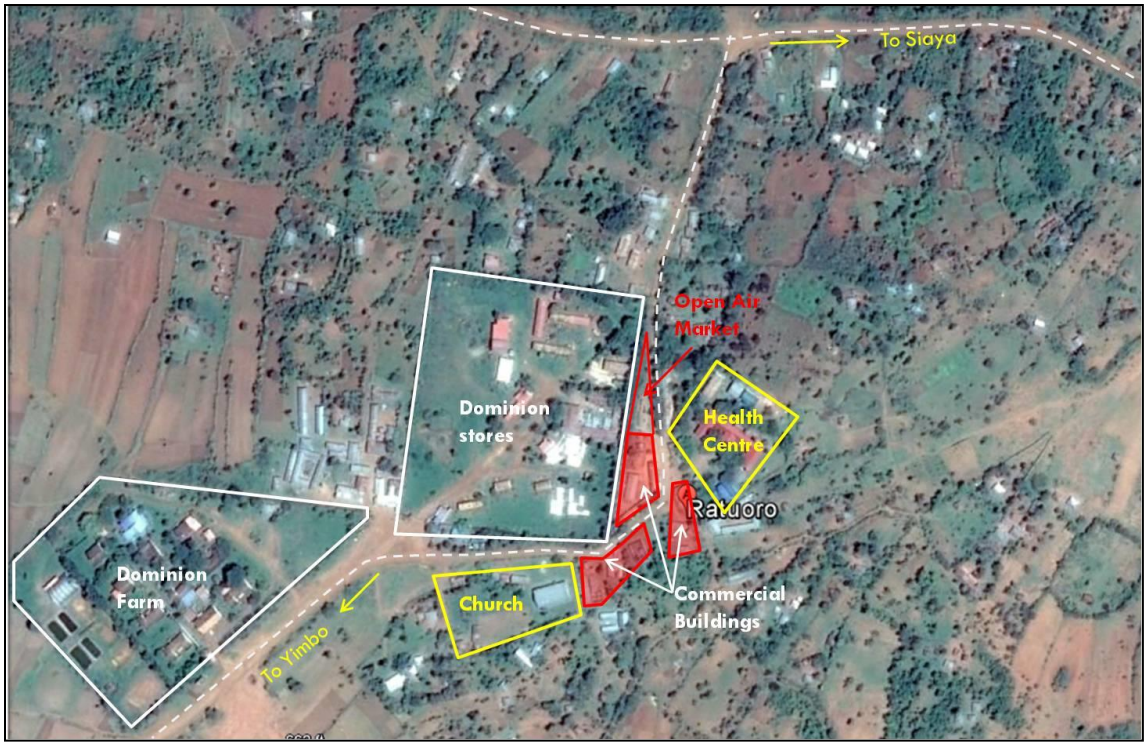


Figure 33: Illustration of Ratuoro's Spatial Structure
Source: Adopted and modified from google earth, 2018

The Dominion stores compound and the health centre seem to hinder outward growth of the centre and they therefore constrict the centre quite significantly.

Figure 34: An Abandoned Investment in Ratuoro
Source: Field Survey, 2018

5.5.2 Physical Development Plans for the Centres

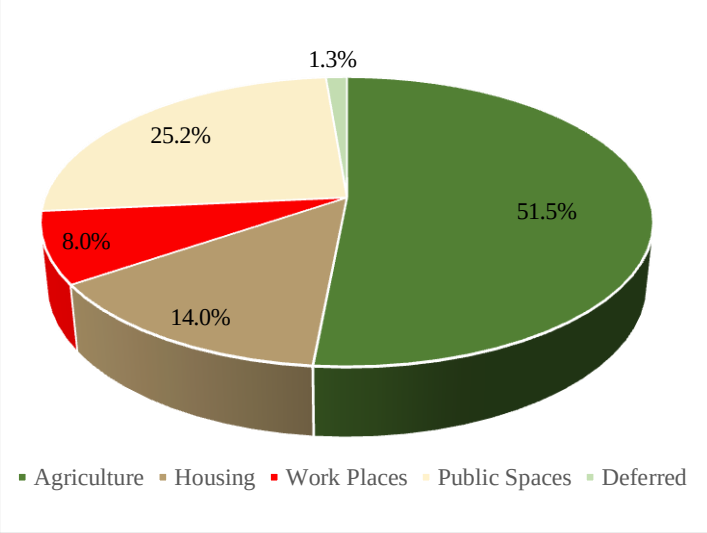
The development plans for the centres are those that were prepared between 10 and 20 years ago. The latest one for Boro and Ratuoro were for instance prepared in 1995 and 2007 respectively. Further details are given below.

(a) Boro

Boro has been planned in such a way that agriculture covers 13.4 Ha (51.5%), housing takes 3.6 Ha (14%) while public space occupies 6.6 Ha (25.2%) and work space account for 2.1 Ha (8%). The land use distribution is detailed out below.

Table 26: Proposed Land Use Distribution in Boro

Land Use		Area (Ha)	%
Broad Categories	**Specific Categories**		
Agriculture	-	**13.4**	**51.5**
Housing	Residential	**3.6**	**14.0**
Work Places	Industrial	1.0	3.9
	Commercial	0.5	2.1
	BCR	0.5	2.0
	Subtotal	**2.1**	**8.0**
Public Spaces	Educational	1.0	4.0
	Recreational	0.8	3.2
	Transportation	3.1	11.8
	Public Purpose	0.9	3.6
	Public Utilities	0.4	1.4
	Conservation	0.3	1.2
	Subtotal	**6.6**	**25.2**
Deferred land	-	**0.3**	**1.3**
Total		**26.0**	**100.0**



It is notable that the plan gives room for a balanced land use mix. More particularly, the proposed space for work is significantly higher than the current area, an indication that the need for increased commercial and industrial productivity has been emphasized.

The spatial representation of the proposed land use structure is shown overleaf.

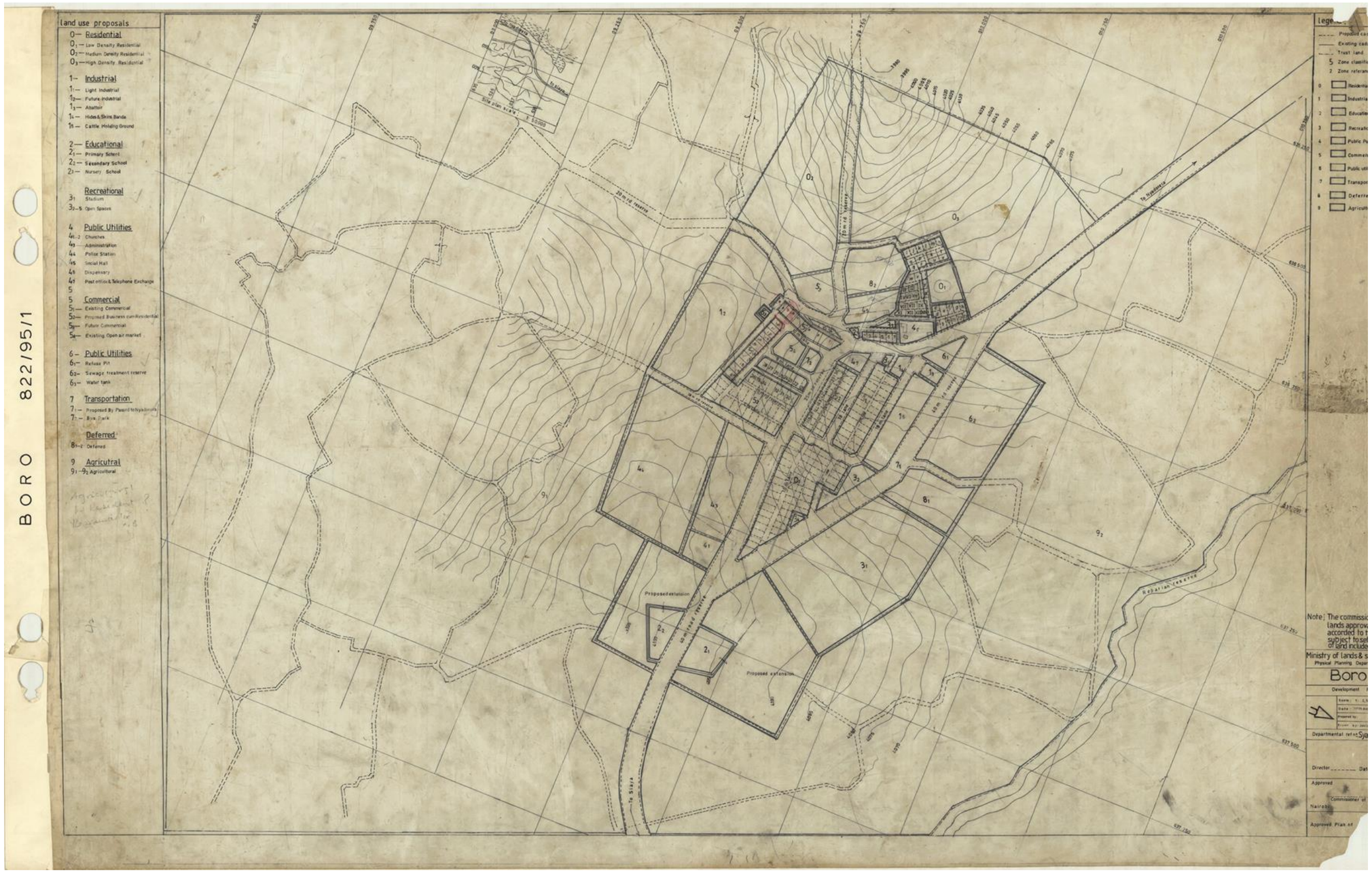


Figure 35: Original Development Plan for Boro (1995)

BORO LAND USE PLAN (1995)

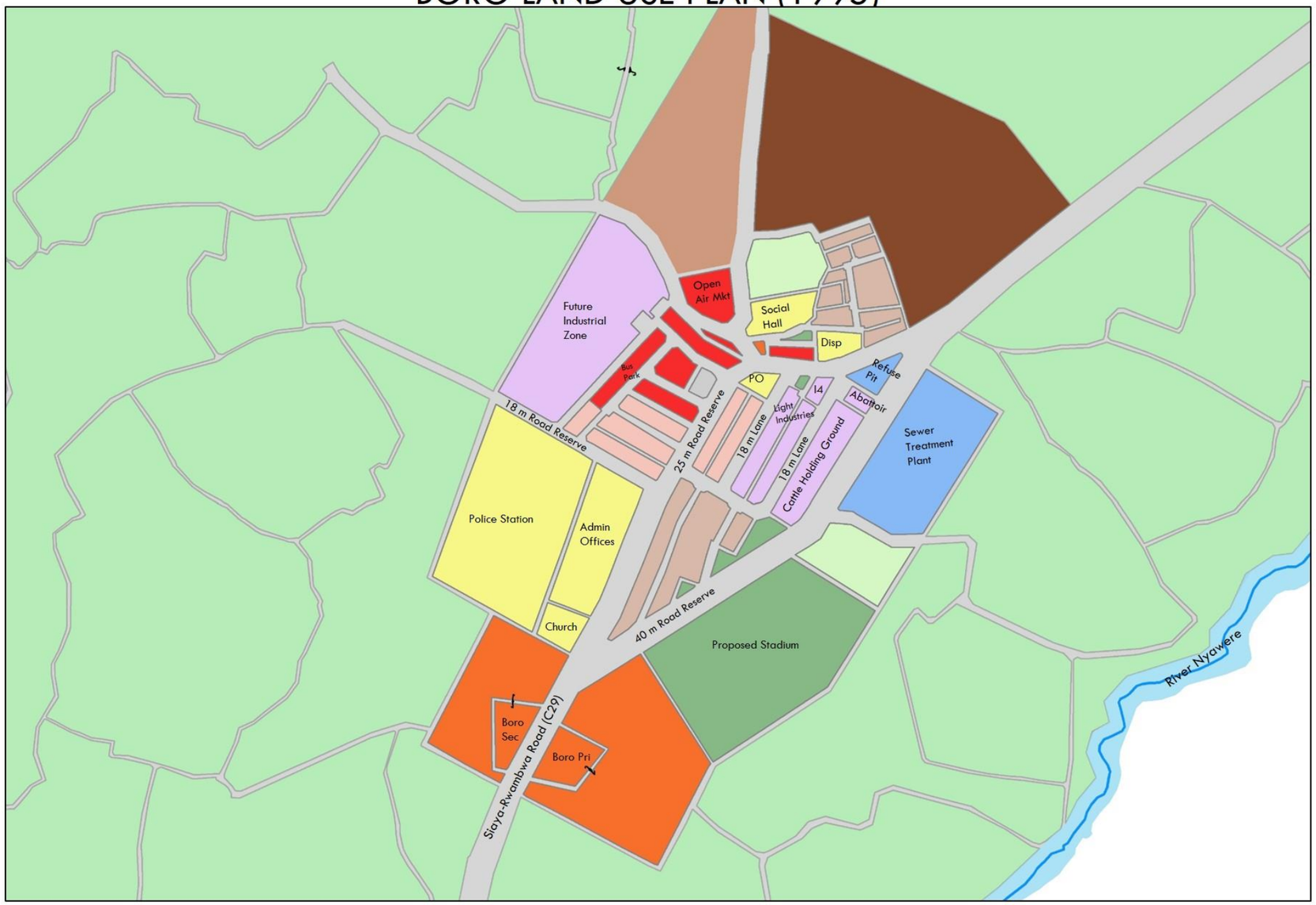


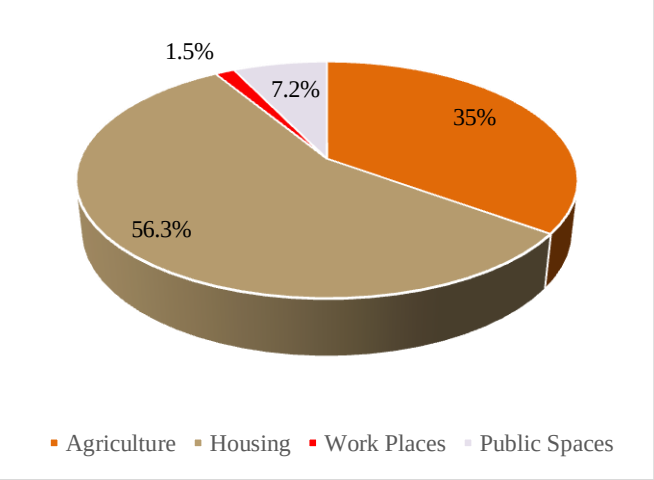
Figure 36: Proposed Land Use Plan for Boro (1995)

(b) Ndere

The development plan for Ndere, although available, could not be traced in the course of this study by the County Department of Physical Planning. However, the analysis of existing land use (chart and table below) shows that agriculture, housing, public spaces and workspaces take up 35.0%, 56.3%, 7.2% and 1.5% respectively. The area analyzed is about 12.0 Ha and is thus wider than the 3.0 Ha zone that currently accommodates peri-urban activities.

Table 27: Existing Land Use Distribution in Ndere

Land Use		Area (Ha)	%
Broad Categories	**Specific Categories**		
Housing	Residential	**4.2**	**56.3**
Agriculture	-	**6.76**	**35.0**
Work Places	Industrial	0.14	1.2
	Commercial	0.04	0.3
	Subtotal	**0.18**	**1.5**
Public Spaces	Educational	0.10	0.8
	Public Purpose	0.01	0.1
	Open spaces	0.06	0.5
	Transportation	0.70	5.8
	Subtotal	**0.86**	**7.2**
Total		**12.00**	**100.0**



The open spaces are multi-purpose as they act as second-hand clothes sale area, parking zone, entertainment and marketing area. The spatial distribution of existing land use activities is shown in the figure below. It has been drawn based on the google earth image (2019)

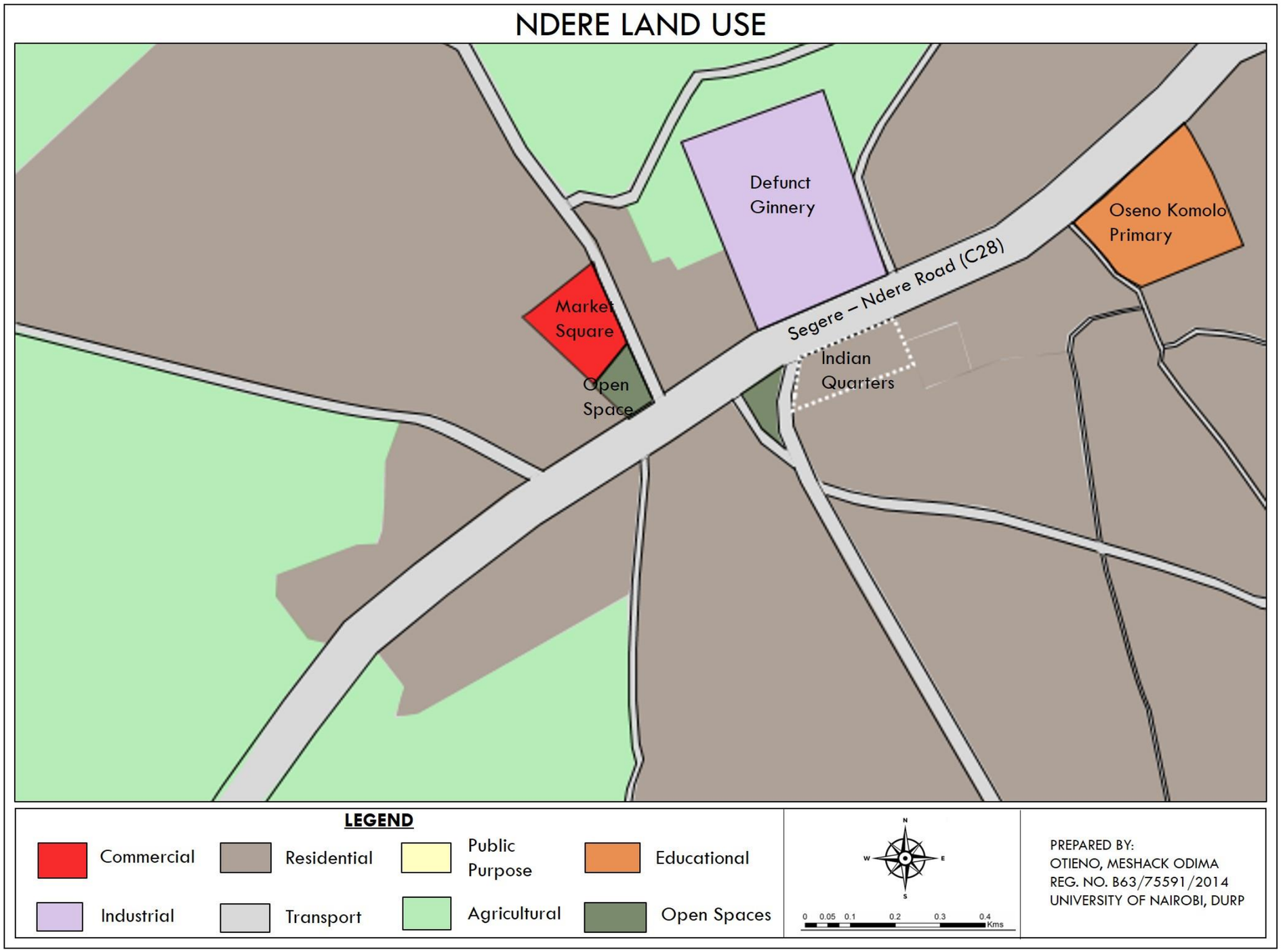


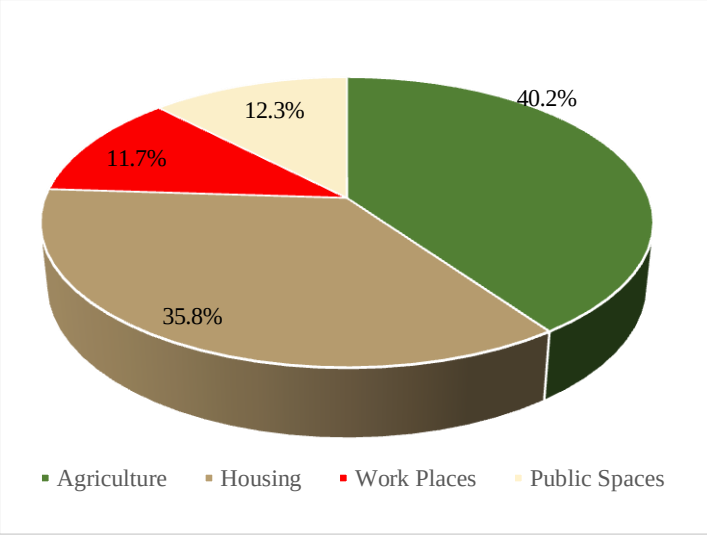
Figure 37: Existing Land Use in Ndere

(c) Ratuoro

The proposed Plan for Ratuoro depicts an expansion of the centre from about 2Ha to 15.0 Ha. The new configuration shows a significant restructuring of the land use pattern in such a manner that agriculture, housing, work places, and public spaces cover 6.03 Ha, 5.37 Ha, 1.76 Ha and 1.85 Ha respectively.

Table 28: Proposed Land Use Distribution in Boro

Land Use		Area (Ha)	%
Broad Categories	**Specific Categories**		
Agriculture	-	**6.03**	**40.2**
Housing	Residential	**5.37**	**35.8**
Work Places	Commercial	0.66	4.4
	BCR	0.65	4.3
	Industrial	0.45	3.0
	Subtotal	**1.76**	**11.7**
Public Spaces	Educational	0.08	0.5
	Recreational	0.12	0.8
	Transportation	0.23	1.5
	Public Purpose	0.42	2.8
	Public Utilities	0.23	1.5
	Conservation	0.78	5.2
	Subtotal	**1.85**	**12.3**
Total		**15.00**	**100.0**



Like Boro, a significant increase in work spaces has been made as a way to enhance the centre's productivity. The figure overleaf shows the proposed spatial layout for Ratuoro.

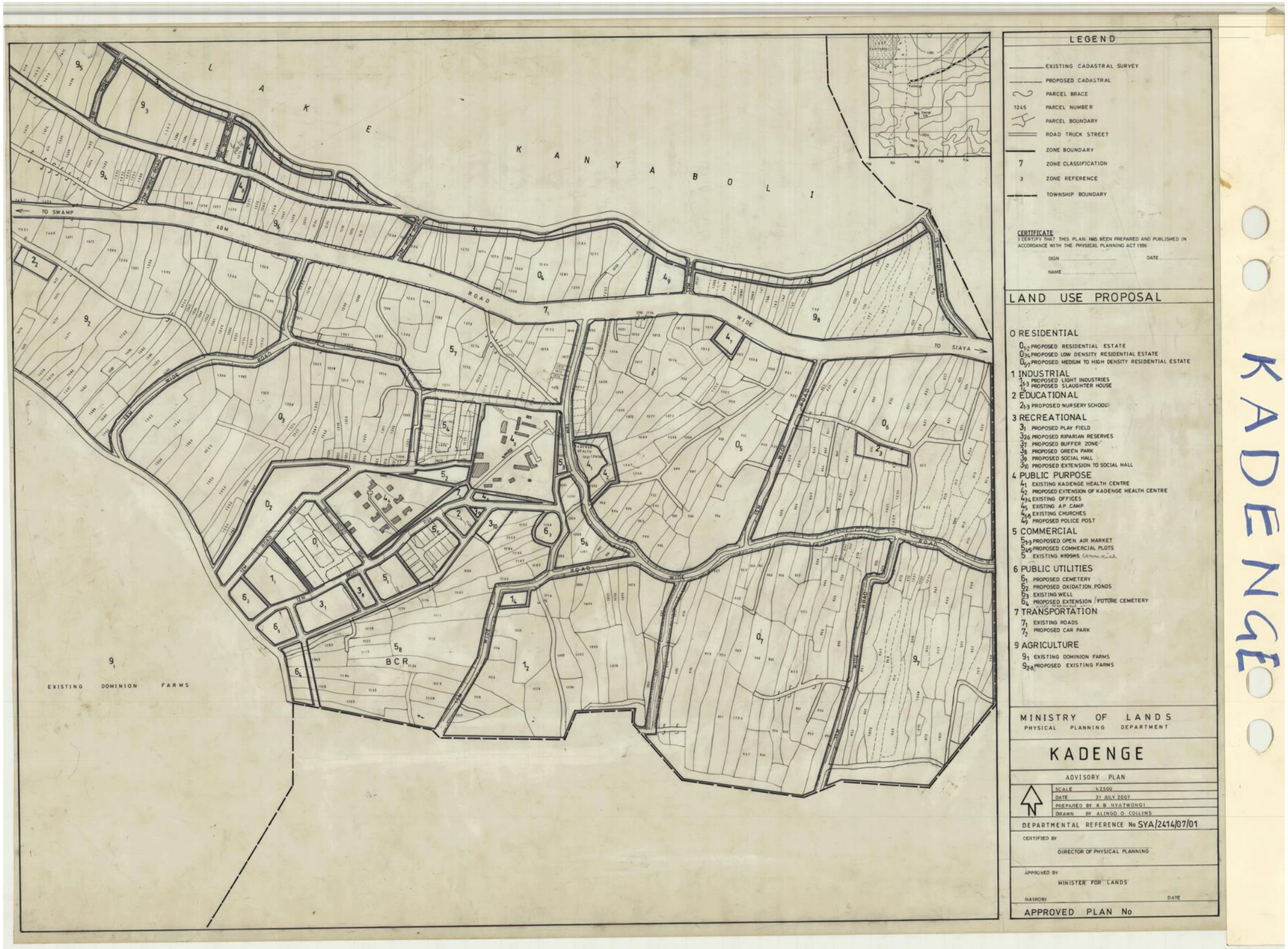


Figure 38: Original Development Plan for Ratuoro (2007)

RATUORO LAND USE PLAN (2007)

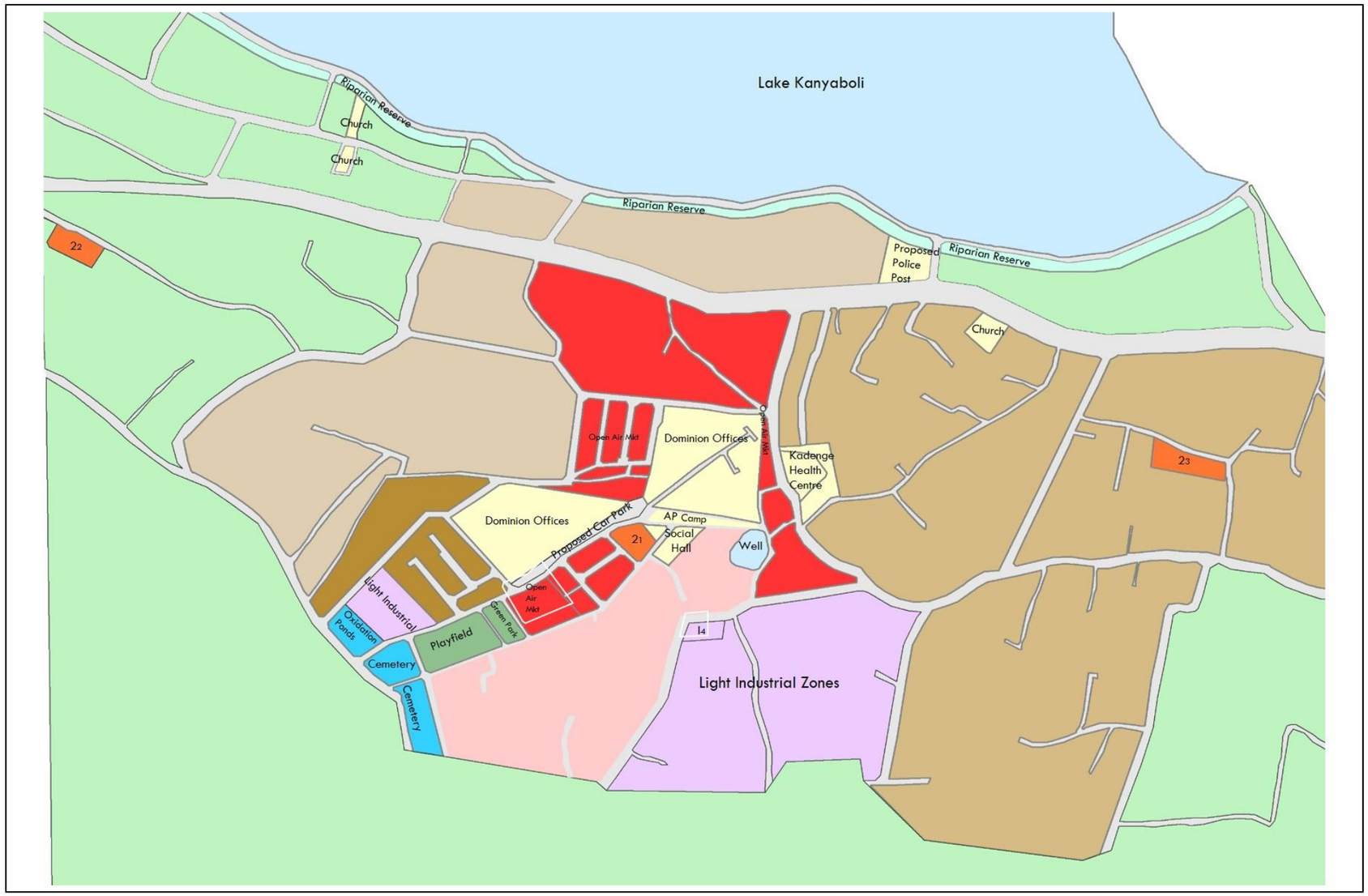


Figure 39: Proposed Land Use Plan for Ratuoro (2007)

It is noteworthy most the developments proposed in the above plans have not been implemented. In Boro, the block of land comprising zones 0_1, $3_{2,}$ $1_{5,}$ $1_{3,}$ $6_{1,}$ $1_{4,}$ $3_{5,}$ 4_7 and 5_2 have been affected by the re-alignment of Siaya-Rwambwa (C29) Road and are thus not there. The current livestock market is sited in the zone marked as 5_2. Furthermore, no industry, police station, stadium or sewerage facility has been developed in either Boro or Ratuoro.

It may thus be important to review the plans in consideration for the current situation, after which they can be implemented as soon as necessary. This will foster better land use mix within the centres and connectivity between activity areas within and outside the centres. It will also provide for adequate space for the necessary infrastructural facilities.

5.5.4 Potential of the market centres for growth and sustainability

The main emerging issue is that the centres have not grown as much as it would be expected. Several factors are responsible for this situation and they are physical, economic and social in nature. This notwithstanding, the centres have great potential for growth. Their location along major transport routes makes them potential transit towns. Secondly, Ndere and Boro centres have the potential for agro-industrial rejuvenation, owing to the fact that they have had investments in that area before.

Considering the criteria of conferring a market centre status as provided for in the Urban Areas and Cities (Amendment) Act (2019), it is notable that Boro ranks highest given that it has more facilities than Ndere and Ratuoro. Further, other factors such as revenue, number of shops and footfall qualifies Boro as the highest-ranking centre, followed by Ndere and finally Ratuoro. Boro is more capable of offering higher order goods than Ndere and Ratuoro. In other words, Boro has the greater potential for growth, followed by Ndere and Ratuoro in that order.

It is also notable that all the centres are dependent on Siaya for higher order services such as referral healthcare and administrative services. As such, the hierarchy of centres featured in the figure below captures Siaya town above the three centres under study.

Most importantly, the centres require deliberate planning and provision of the requisite infrastructure in order to attract investments that are major enough to create many employment opportunities. There is also the need to enhance both economic and physical linkages between the centres and the rural hinterlands as well as other commercial nodes within and outside Siaya County. This way, their growth will be enhanced significantly.

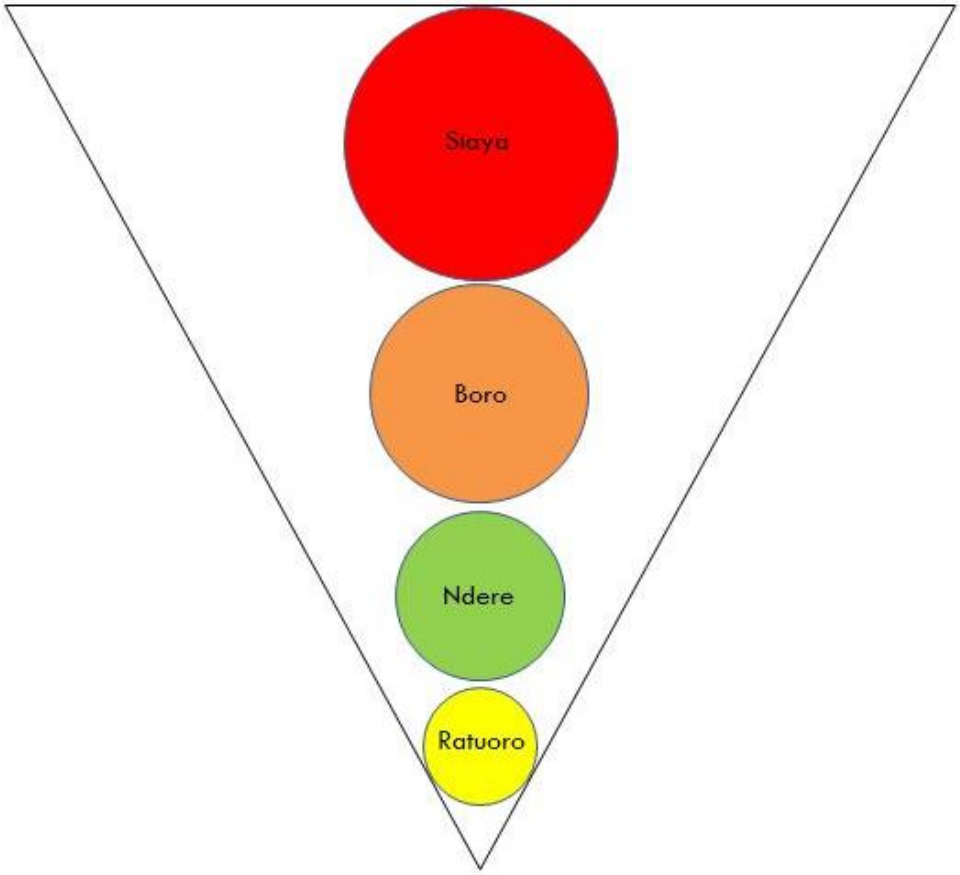


Figure 40: Hierarchy of the Centres
Source: Author, 2019

CHAPTER SIX
PLANNING IMPLICATIONS AND RECOMMENDATIONS

6.1 Overview

In this chapter, a discussion on the relationship between the study findings and urban and regional planning is given. This relationship is an essential prerequisite to offering the ideal planning recommendations to the problems identified in the study area. The discussion therefore covers the key study findings, their planning implications and the recommendations made by the researcher to improve performance and spur growth.

6.2 Summary of Findings

The key findings are as follows:

1. The level of performance of the three centres is generally low. This is depicted by:
    a) Limited opportunities for employment resulting in generally low household income levels;
    b) Low revenue collection by the county government and low returns on investment by traders;
    c) Poor economic linkages between the centres and their surrounding countryside
    d) Poor condition of internal roads, especially in Ndere and Ratuoro
    e) Dilapidated and sometimes un-inhabitable business premises;
    f) makeshift market infrastructure
    g) Low registration of positive development changes and a few significant negative ones over the recent years/Low business confidence
2. The spatial structures of the centres are nucleated in Boro and Ndere but irregular in Ratuoro. Furthermore, the centres depict:
    a) Central open air markets surrounded by commercial buildings in Boro and Ndere
    b) Organic developments along main roads in Boro and Ndere
    c) Haphazard developments in Ratuoro largely confined by Yala Swamp and Lake Kanyaboli
3. The factors that have led to the current performance level of the centres are multi sectoral. They can be generally grouped as physical, economic and social, and include:
    a) The quality of the spine roads connecting the centres to other regions;
    b) The catchment areas of the centres as defined by their “range” and “threshold”;
    c) The pattern of settlement in the surrounding rural environment;
    d) The purchasing power of the local inhabitants;

e) Profitability of business enterprises; and

f) Provision of quality public services and amenities.

Table 29: Summary of Findings in relation to Theories

Theory	**Finding**
Central Place Theory	The centres do perform their functions as market or trading places with backward and forward linkages to their rural and regional surroundings through transportation networks. They provide public services at varying levels of performance based on their comparative locational advantages or, as King (2012) puts it, their "unique selling points". The "range" of Ratuoro is unique in that it does not conform with the theory that the bigger the market centre, the larger its range. According to the study, the distance travelled by consumers to and from Ratuoro is larger than that travelled by consumers to and from either Boro or Ndere. However, one limitation of this study method – whereby motorcycle riders were asked to clock in their journeys over a specified period of time – is that it did not take into account the value and volume of merchandise transported. It took account only of distance travelled.
Growth Pole Theory	There are no propulsive industries in any of the centres sampled to create strong backward and forward linkages. Any "spread" and "backwash" effects that were noted could only be attributed to the activities generated by small scale traders at the centres, and to the administrative fact that the centres are designated as periodic markets which witness increased social and economic activities once a week on 'market day'.
Circular	No cumulative effect created by a major or propulsive

Cumulative Causation Theory		plant was found. However, Boro's livestock market generates tertiary activities such as rope making and food selling, and an increase in general expenditure and money circulation that enables the county government to collect a significant amount of revenue
Neighborhood Concept		The residential element in Boro and Ndere was insignificant; with a settlement pattern that is nucleated around the market square. Ratuoro, however, had a linear settlement pattern with organic growth of residencies in the surrounding farmlands. There was no public school in Ratuoro, but in Ndere a primary school (Uyoma Pry Sch.) and in Boro both primary and secondary schools (Boro Pry and Boro Sec.) were found. In both cases, the schools are within walking distance of the market centres however they are across the road (C28;29) from the centres thus creating risk to pupils crossing the road. But, in the absence of a strong residential element in the centres, the number of school children coming from the centres to the schools should be insignificant. Most of the pupils come from the surrounding rural areas.

6.3 Implications of the Findings

6.3.1 Low performance of the Centres

Low performance level is notably a result of the prevalence of small-scale economic activities in the centres or, conversely, lack of medium and large-scale economic activities. It would be overly simplistic to merely suggest that medium and large scale activities ought to be introduced, as these come with a multitude of other factors both local (such as formulating policies that boost investor confidence), to national (such as revival of the cotton and sugar industries). Any planning program should consider this as well as focus on accommodating and promoting small-scale businesses in equal if not greater measure.

The current planning standards for instance require minimum plot sizes of 50 by 100 feet. Such plot sizes have proved to be not popular with the small-scale traders who operate in the centres. For one reason or another, they prefer small spaces that are just enough for their wares. The idea of the local government to introduce the building of stalls all around the market square was perhaps in response to this demand for smaller spaces or stalls. This is reflected in the national psyche of "uchumi ya kadogo" where traders, even in cities such as Nairobi and Mombasa, prefer to operate in small stalls rather than big shops. Consumers also want to buy in small portions.

In Ndere, for example, it was observed that a trader unpacked a five kilogram packet of detergent into a pail and sold small cupfuls to customers at Ksh. 10/= per cup. It is therefore necessary to avail smaller spaces to a wider cross-section of users in order to increase access to land. The assumption here is that if access to land by the traders is increased, uses that are more dynamic and economically vibrant will spring up and proliferate. In this regard, the county government has shown the way forward. It is upon private landowners with large plots to follow suit by establishing buildings that can be partitioned into unit-sizes that are affordable to the majority of traders. One of the challenges observed with this development model is that the existing public amenities are not sufficient to serve the increased population of traders and customers. There is need to enhance water supply and reticulation, and services such as public toilets, to match the flow of users of these services and facilities. In particular, food vendors were noted to be a major cause of nuisance for cooking and washing their utensils in the open and pouring wastewater along walkways.

Secondly, there is need to plan for a land use mix that gives room for large-scale investments in the market centres. These kinds of investments have the potential for generating higher incomes and revenues, thereby boosting commercial activities in the centres, improving their performance and promoting their growth.

The other cause of low performance of the centres under consideration is poor infrastructural developments as evidenced by poor road network, poor water supply, lack of proper sanitation facilities, poorly equipped social facilities, obsolete buildings and makeshift market infrastructure.

The implication of poor road network is that there are minimal spread and backwash effects of the centres to and from their surrounding areas. For example, the fishing benefits and fish products in Lake Kanyaboli (in Ratuoro) cannot reach some of the nearest centres like Boro

because of poor connectivity. Similarly, the sugar farming benefits in Uhembo cannot reach Ndere centre, despite the direct connection between the two centres. This is because the road between these centres is more often than not in poor condition.

Ratuoro, in particular, has no direct connection to Nyamonye, which is an intermediary town on the Bondo-Yimbo-Usenge road, which interacts actively with Kisumu City). As such, no trickle down effects from the fish landing beaches of Lake Victoria is felt in Ratuoro, despite its potential for fish farming and production. .

The internal street networks within these centres are not well maintained. As such, there is need to improve their standard and quality. The necessity of improving water supply and sanitation is equally important to the well-being of the market users. For example, it was observed that Ndere is served by water from a hand-operated well in the market square.

The dilapidated and makeshift market infrastructure is a sign of an underdeveloped economy. It affects business negatively when it denies the traders useful business hours when it rains. In addition, many of the businesses are operated in the evenings when the sun is setting. This essentially means that the time left for business activities is very limited, hence the low returns. This also calls for proper planning for small-scale businesses, if improvement is to be realized (including providing for floodlights to increase business hours, if this is found to be feasible).

6.3.2 Settlement Pattern around the Centres

The linear and irregular spatial structures largely imply that there is little development control in these centres. Boro and Ndere however depict some level of planning adherence, considering the centrally located open-air markets, which are neatly surrounded by commercial buildings. However, the areas beyond this zone manifest organic developments, which are not in harmony with the existing development plans.

Ndere in particular is at risk of being by-passed because both tarmacked roads pass at the southern edge of the market hence denying it the “transit” element. Vehicles from Siaya to Rang’ala are now likely to speed past the centre without noticing it because of the curve that the current road has taken. It may be necessary to introduce a bus stop at a convenient location before or after the curve to improve visibility of the centre by people on transit.

Of the three centres, Boro is the only one exhibiting the likelihood of growing into a wholesale market, considering that it has direct access to the main road serving it.

In Ratuoro, there is hardly any planning and development control and as such even providing for proper access roads is difficult. This is exacerbated by the fact that the land is private freehold rather than public leasehold, the latter of which come with special development and administration conditions. Ratuoro's performance and growth are also likely hampered by its distance from Siaya town, and the presence of intermediate market centres such as Harambee and Obambo in between itself and Siaya town.

6.3.3 Other Intervening Factors

The multiplicity of factors that influence performance of the centres imply that a systems approach to planning is necessary in order to promote their spatial growth and expansion. . This means that proposals made for a centre must cover the various sectors of growth, *sic* physical, socio-cultural, economic, and environmental.

6.3 Conclusions

The focus of this study is on performance and functionality of Boro, Ndere and Ratuoro market centres. This refers to their ability to perform the functions for which they exist. The centres are basically rural service centres, which are designed to assemble and distribute people, goods and services in the rural and urban areas in the region. These functions can be seen in terms of economic, social and structural systems.

It has been established that the market centres are operating below optimal level due to a number of reasons. These are: Lack of a dominant cash crop in the surrounding rural farmlands and over-reliance on subsistence farming; absence of propulsive industries that could generate vibrant commercial activities; low levels of investment in business activities and nature of businesses which are invariably small scale; limited market base made of people with low purchasing power; inadequate capacity/lack of innovation of local residents to invest in more productive activities; insufficient investment in infrastructural developments by both public and private partners; out-dated development plans, and absence of development control mechanisms.

Although the centres perform the functions for which they exist, they do not do so optimally. They do not display that aspect of growth that has been observed by Jana (1978) of "vanishing periodicity" when the market becomes fully operational on a daily basis. On the contrary, they remain periodic – where market day is once a week for Boro and Ndere, and economic and social activities are at their peak only on market days. On non-market days,

some form of subdued activity is experienced in the evening hours. But this is just a ripple compared to the activity on market days.

Furthermore, activities come to a near standstill with the dark. Except for the occasional video den, and the bar in Boro which closes when the last customer leaves, all commercial activities cease with the dark not only because customers do not come to the centre at night, but also because of insecurity for the traders and workers most of who live in the nearby rural area. Because of the latter reason, it has been suggested that the residential component be deepened to absorb these workers and attract additional residents which would have the effect of lengthening business hours at the centres thus increasing cash flow.

This also research fills an important knowledge gap. It brings out empirical evidence on the status of growth and development of the three centres and further articulates the factors responsible for the situation.

Finally, the researcher suggests numerous recommendations as to how growth of the centres may be promoted. These recommendations are deemed applicable not only in the centres under study but also in other market centres where similar performance and growth challenges are experienced.

Other factors that have led to the current low performance status of the centres are demographic, socio-economic and governance related. Their influence on performance is seen in the low household income levels and limited employment opportunities; low returns on business investment by the private sector and low revenue collection by the public sector; and low investment in infrastructural developments by both private and public sectors as evidenced by abandoned and incomplete buildings, makeshift market structures and poorly maintained access roads.

Additional factors responsible for low performance in these centres include weak economic linkages between the centres and their rural hinterlands as well as with other commercial nodes; absence of commercial farming activities in the rural surroundings; and a limited market base made up of people with low purchasing power.

Given their vulnerabilities, the markets under study are far from becoming ‘growth centres’ and shall remain ‘rural service centres’ unless and until some form of manufacturing or processing facility is introduced.

6.4 Recommendations

6.4.1 Performance

1. Farming System

Sorghum growing should be encouraged considering its potential of becoming a cash crop. It is a hardy crop and suitable for this agro-economic zone. It can provide a source of raw material for an industry like a liquor brewery in the area. Presently, Kenya Breweries Limited is encouraging and facilitating farmers associations in Siaya County as a whole to grow sorghum for their factory in Nairobi. This model would not be beneficial to the market centres, as it would make them mere collection centres. The agglomerating effects of the industry would not be experienced. Instead, a smaller operation than that of Kenya Breweries, like that of Keroche Breweries in Naivasha, would be more suitable. It would make use of locally available raw material (sorghum) and labour to produce liquor. This would create employment and improve money circulation.

In Ndere, it was learnt that there are plans by a farmers' savings and credit co-operatve society to establish a fruit-processing factory. This is a large-scale investment whose potential to generate revenue and create employment opportunities in the centre and in the surrounding farms is quite high. However, the same idea had been initiated by the county government in Siaya town but came a cropper for lack of inputs (fruits) from the farmers. Such a move would also develop the potential for fruit farming – of mango, avocado and paw paw - thus re-invigorating the local economy by increasing money supply and circulation. Perhaps the place to start is with the farmers rather than with the structures.

A return to cotton growing could be considered, but this would be dependent on the revival of the cotton industry in the country and the re-opening of KICOMI in Kisumu, which is about 70 km away. KICOMI was a government owned cotton-milling company, which collapsed in the 1980s due partly to the Kenya Government's policy to remove controls on imported second hand clothes. As is the case with the fruit factory, it would be wise to start with the production end (the farmers) rather than the processing end (the ginnery).

2. Agro-industrial Development

It is noted that currently, the centres under study have zero large-scale investments hence the low returns in business, insufficient employment opportunities and low-income levels. Some of the large-scale investments that were initially existent in the centres (e.g. Dominion farm in Ratuoro) have since been closed down. Among the most viable large-scale investments are

agro-based industries. In Ratuoro for instance, an agro-industrial investor can exploit the resources of the vast Yala swamp and Lake Kanyaboli, the latter for aquaculture and for tourism and as well as a destination for leisure.

3. Conference Tourism

The shores of Lake Kanyaboli can be planned for development as a tourist resort using the Lake Naivasha model as a guide. It is especially suitable for conference tourism and sport fishing. The challenge for the county government would be the need to acquire land adjacent to the lake for allocation to suitable or appropriate developers of the tourist facilities. Already, the Kenya Wildlife Service has ring-fenced public land surrounding the lake as a game reserve by legal notice in the Kenya Gazette.

It is to be noted that the lakeside habitat is home to the sitatunga antelope, which is an endangered species in Africa. In addition to the above, the unusually calm waters of the lake provide an opportunity for floating hotels and green restaurants, subject to environmental impact assessment and audit to tease the impacts of such developments on livelihoods and the ecosystem.

4. Business Development

Form business and farmers' cooperative societies to encourage resource pooling and increase the local people's participation in investment in the centres and their surrounding countryside; create awareness and build capacities for innovative and diverse investments by the residents; and create a strong financial support system to increase access to capital for business.

5. Community Development (CED)

Embrace community economic development (CED), defined as action taken locally by a community to provide economic opportunities and to improve social, civic and environmental conditions in a sustainable way. That is, CED is a process through which communities initiate their own solutions to local problems. CED strategies create economic opportunities, but in a way that improves social, civic and environmental conditions. Finally, CED strategies tend to include some consideration for sustainability, or for building long-term community capacity to deal with future challenges and opportunities. (*from* "Small Towns, Big Ideas: Case Studies in Small Town Community and Economic Development", 2008 *in* "Small Town Development Approaches" First published in Nairobi in 2012 by UN-HABITAT.)

6.4.2 Functionality

1. Revision of Physical Development Plans

It is recommended that the existing development plans need to be updated and reviewed to reflect current realities on the ground and as proposed in the CIDP. The reasons why the plans have not been implemented should be addressed. In Ratuoro, the centre needs to be set apart and the private land abutting it acquired before comprehensive/integrated planning can be done and adequate road network provided.

It is recommended that planning adjustments or updates that suit small-scale business entrepreneurs be made. This entails reviewing planning standards to allow for smaller plot sizes, changing the leasing regime to become more flexible by giving short-term leases that are user-based rather than owner-based, and strengthening the residential component to encourage permanent residencies in the centres. There is also need to promote a more diverse land use mix for small, medium and large-scale investments;

Secondly, it is proposed that the land use mix within the rural centres should manifest at least 75% small-scale and 25% medium- to large-scale business investments to give room for establishment of the latter. The ratios can however be altered from time to time through development advisories, in order to respond to the prevailing land use and economic needs.

3. Land Tenure (Leasing)

Make land within the centres more accessible to small-scale traders who form the majority of market users. The leases on the plots that are currently underutilized and/or have obsolete structures can also be terminated. They can then be re-planned into the smaller portions mentioned above and leased to new applicants who can develop them more optimally. Re-development can also be enhanced by changing the leasing regime to become more flexible and granting short-term leases that are user-based rather than owner-based.

3. Infrastructure

Make infrastructural improvements that would also increase water consumption significantly. Siaya Bondo Water and Sewerage Company (SIBO) may thus be compelled to extend piped water supply to Ndere and, indeed, to all the centres for better sanitation and health. However, before this happens, there is need for deliberate allocation of space for laying down the requisite infrastructural networks.

The third recommendation is that the density and quality of road networks within and between the centres be improved. Road network re-alignment is particularly necessary in Ratuoro, where internal access is poorest. Like the transport network, it is also proposed that the water supply and sewerage networks be enhanced.

In Ratuoro, water can be pumped from Lake Kanyaboli. SIBO can begin by putting up a small water purifying and pumping operation before the centre grows enough for piped water supply. Sewer networks need to be provided in all the three centres, in readiness for major agro-industrial developments. None of them has the infrastructure currently.

4. Sustainability

Sustainability is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their needs" The three key elements of sustainability are Economy, Ecology and Equity. The first involves managing and using economic resources to meet present household and community needs. The second is about managing and conserving the environment, including preserving critical ecosystems in order to maintain ecological balance. The third entails the welfare of society and maintenance of social justice. A sustainable rural market centre should have a robust business environment centered around a unique identifier such as an agro-industrial enterprise that takes advantage of the farming system in the surrounding rural area. All three centres have been shown to have the potential to meet this criterion. The land and ecological resources present in Yala Swamp and Lake Kanyaboli provide a rich backdrop that requires careful management and conservation in accordance with the principles in Chapter Five of the Constitution of Kenya and the Environmental Management and Coordination Act 1999. Equitable distribution of public land resource, especially at the market centres, should be practiced with a view to providing access to land for the youth i.e. those who are below 35 years and in productive stage of employment. According to the Kenya 2019 Population Census Report, this cohort accounts for 75% of the rural population. They can play a critical role in the renovation and redevelopment of redundant buildings which have been described as "dead capital" by Ndemo (2020).

6.4.4 Areas for Future Research

A study of the relationship of rural market centres with urban areas under whose circle of influence they fall with a view to strengthening the service hierarchies in rural regions would be of complement to this research. It would focus on the backward and forward linkages

between rural market centres and their respective larger and smaller neighbors. Another area of research that is recommended is *the study of In-fill development and re-development* of old, disused and abandoned buildings in rural market centres.

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ANNEXTURES

Annex 1: Consumers Questionnaire

DECLARATION: *This questionnaire is an instrument used in a study on Performance and Functionality of three Rural Market Centres in Siaya County, Kenya, in partial fulfilment of the requirements for M.A (Urban and Regional Planning). Any information provided is confidential, and will be used for this purpose only.*

Name of Interviewer_____

Center Name_____

SECTION 1: RESPONDENT'S DETAILS

1.1 Respondent Name (Optional) _____

1.2 Age: _____ years

1.3 Gender: Male ☐ Female ☐

1.4 Level of Education:

None ☐ Primary ☐ Secondary ☐ Tertiary: ☐

1.5 Employment:

Unemployed ☐ Employed ☐ Business person ☐ Retiree ☐

1.6 Place of employment

Government office/ institution ☐ Private firm ☐ My personal enterprise ☐

1.7 Location of employment institution/enterprise

In my neighbourhood ☐

At the centre: Boro ☐ Ndere ☐ Ratuoro ☐

Other place (Specify) _____

SECTION 2: HOUSEHOLD CHARACTERISTICS

2.1 How many members are you in your household? _____

2.2 Kindly indicate the average monthly income of your household

☐ Below Kshs. 10,000

☐ Kshs. 10,000 – 24,000

☐ Kshs. 24,001 – 60,000

☐ Kshs. 60,001 – 120,000

☐ Above Kshs. 120,00

2.3 Average monthly savings

☐ None ☐ Above Ksh. 5,000

☐ Ksh. 1 – 1,000

☐ Ksh. 1,001 – 5,000

2.4 Where does your household buy the following items?

No.	Item	Shopping place
1.	Fruits & vegetables	
2.	Cereals	
3.	Other foods (flour, sugar, milk etc)	
4.	Cothing	
5.	Electronics	
6.	Farm equipment	

SECTION 3: INFORMATION ON THE CENTRES

3.1 How often do you visit the centre?

Daily ☐ On market days only ☐ Never ☐

3.2 What is the most common purpose for which you go to the centre?

Work/business ☐ Shopping ☐ Leisure ☐

3.3 If you never visit the centre, why?

_____

_____

3.4 Please indicate the items and services that are found in the market centre

No.	Item/Service	Available	Not available
18.	Foodstuff		
19.	Household items (e.g. utensils)		
20.	Electronics		
21.	Clothing		
22.	Farm equipment		
23.	Clinic		
24.	Dispensary		
25.	Health centre		
26.	Primary school		
27.	Secondary school		
28.	College/ Polytechnic		
29.	Market		
30.	Administrative offices (specify)		
31.	Piped water		
32.	Sewer system		
33.	Electricity supply		

3.5 What job opportunities are available within the centre?

- ☐ None
- ☐ Casual employment in individual business enterprises
- ☐ Domestic jobs to residents in the centre
- ☐ Permanent jobs in industrial establishments
- ☐ Permanent jobs in offices
- ☐ Others (Specify) _____

3.6 (a) Are there any developments made in the centre in the last 5 years?

Yes ☐ No ☐

(b) If yes, specify the development(s)

_____
_____
_____

3.7 (a) Kindly comment of the economic performance of the centre

It's doing well ☐ It's is NOT doing well ☐

(b) Please explain your response in 3.1(a) above.

_____
_____
_____

3.8 What are some of the benefits that your households get from the centre?

_____
_____
_____

3.9 What are some of the challenges affecting the centre?

_____
_____
_____
_____

3.10 How can the challenges stated above be solved?

_____
_____
_____
_____

3.11 Any other comment.

_____
_____
_____

Annex 2: Traders Questionnaire

DECLARATION: This questionnaire is an instrument used in the study on Performance and Functionality of three Rural Market Centres in Siaya County, Kenya, in partial fulfilment of the requirements for M.A (Urban and Regional Planning). Any information provided is confidential, and will be used for this purpose only.

Name of Interviewer_____
Center Name_____

SECTION 1: RESPONDENT DETAILS

1.1 Name: _____
1.2 Age_____(Years)
1.3 Gender: Male ☐ Female ☐

1.4 Relationship to business
Business owner ☐ Employee ☐ Other (Specify) _____

SECTION 2: BUSINESS INFORMATION

2.1 When was the business established? _____

2.2 What type of products/services do you sell/offer?
_____
_____

2.3 Where do you obtain your goods from? _____
2.4 Where do your customers come from? _____
2.5 The source of finance for the business:
Savings ☐ Loan ☐ Other (specify)_____

2.3What is your average daily sales? Ksh_____
2.4 Kindly indicate the monthly profit from the business.

- ☐ Below Kshs. 10,000
- ☐ Kshs. 10,000 – 24,000
- ☐ Kshs. 24,001 – 60,000
- ☐ Kshs. 60,001 – 120,000
- ☐ Above Kshs. 120,000

2.6 How many employees does the business have?
_____
2.7 Which are the busiest and lowest business days of the week?
Busiest_____
Lowest_____

2.8 (a) What type of business license do you have? _____
(b) How much do you pay for it? Ksh_____
(c) How often do you pay for it?
Annually ☐ ☐Monthly ☐

Daily Other (specify) _____

SECTION 3: BUSINESS PREMISE

3.1 Type of Structure

Permanent Semi-Permanent Kiosk

3.2 (a) Business premises ownership

Owner occupied Rented

(b) If rented, how much rent do you pay per month? _____ Kenya Shillings

SECTION 4: INFRASTRUCTURE

4.1 Please select your main source of water.

Siaya Bondo Water and Sewerage Co. ☐ River/stream ☐

Private operators/vendors ☐ Rain water ☐

Borehole ☐ Other (Specify)_____

4.2 (a) What kind of sanitation facilities are used in this premise? *(More than one choice allowed)*

Pit latrines ☐

Flush toilets ☐

Other (specify)_____

4.3 Does the centre have sewerage network?

Yes ☐

No ☐

4.4 How do you dispose your solid waste?

Burning ☐

Burying ☐

Open dumping ☐

Collection by County government ☐

Collective by private company ☐

Other (specify) _____

SECTION 5: DEVELOPMENT ISSUES

5.1 (a) Kindly comment of the economic performance of the centre

It's doing well ☐ It's is NOT doing well ☐

(b) Please explain your response in 3.1(a) above.

_____
_____
_____

5.2 What are some of the benefits that this centre offers to the residents?

_____
_____
_____

5.3 What are some of the challenges affecting business in this centre?

_____
_____
_____

5.4 How can the challenges stated above be solved?

_____
_____
_____

5.5 Any other comment.

_____
_____
_____

Annex 3: Key Informant Interview Guide

DECLARATION: *This interview guide is an instrument used in the study on Performance and Functionality of three Rural Market Centres in Siaya County, Kenya, in partial fulfilment of the requirements for M.A (Urban and Regional Planning). Any information provided is confidential, and will be used for this purpose only.*

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1. PHYSICAL PLANNING OFFICE

a) Existing land use plans for the centres
b) Recent projects in the centres
c) Any development projects planned in the centre
d) Opportunities in the centres
e) Planning challenges in the centres
f) Ways to improve growth of the centres

2. TRADE/REVENUE OFFICE

a) Revenue sources from the centres
b) Revenue collected from each source in the last financial year
c) Opportunities in the centres
d) Economic challenges in the centres
e) Ways to improve growth of the centres

3. ELDERS

a) The year when the centres were established
b) Reasons of choice of the centre's locations
c) Development trends in the centres
d) Opportunities in the centres
e) Development challenges in the centres
f) Ways to improve growth of the centres

4. LIVESTOCK TRADERS' REPRESENTATIVE

a) What is your stock in trade?
b) Where does it come from?
c) Where do you keep the stock before and after market day?
d) What profit do you take home?
e) What are the advantages of Boro?
f) What are the challenges you face in Boro?

Annex 4: Observation Guide

DECLARATION: *This observation guide is an instrument used in the study on Performance and Functionality of three Rural Market Centres in Siaya County, Kenya, in partial fulfilment of the requirements for M.A (Urban and Regional Planning). Any information provided is confidential, and will be used for this purpose only.*

A. Availability of various goods and services

No.	Item/Service	Available	Not available
34.	Foodstuff		
35.	Household items (e.g. utensils)		
36.	Electronics		
37.	Clothing		
38.	Farm equipment		
39.	Hardware shops		
40.	Wholesale outlets		
	Facilities		
41.	Chemists		
42.	Clinic		
43.	Dispensary		
44.	Health centre		
45.	Primary school		
46.	Secondary school		
47.	College/ Polytechnic		
48.	Market		
49.	Administrative offices (specify)		
50.	Piped water		
51.	Sewer system		
52.	Electricity supply		
53.	Church		

B. Other units of observation

No.	Item	Observation
10.	Number of operational shops in the centre	
11.	Number of closed shops in the centre	
12.	Conditions of buildings	
13.	Types of buildings	
14.	Conditions of roads	
15.	Land use mix	
16.	Types of activities	
17.	Intensity of activities on different days of the week	
18.	Development densities	