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Title: Public land leasing and property rates as land value mobilization mechanisms to finance public transport infrastructure in Nairobi – A case in point of Thika Superhighway.

Name: Danson Githumbi Maina

Supervisor: Oreoluwa Fika

Specialization: Urban Land Management

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Title

Public Land leasing and property rates as land value mobilization mechanisms to finance public transport infrastructure – A case of Thika Superhighway Nairobi

Name:

Danson Githumbi Maina

Country

Kenya

Supervisor:

Oreoluwa Fika

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Summary

Kenya has been on a path of infrastructural development aimed at achieving its Vision 2030 status of attaining middle income status and as a result has been accumulating external debt for infrastructural development albeit of the financing viability that can be obtained from land. Land Value capture concept empowers land administrators and local authorities the validation to recoup part or whole of increment in land values accruing from government/public development interventions. The practice deploys various instruments for capturing land value and for the case of Kenya, the instruments are land leasing and property rates, however, while these instruments are at play, the authorities do not recognise that they are capturing land values.

This research was conducted in Nairobi with the main objective of establishing how land leasing and property rates/taxes could be used to capture land values through revenues generated from leasing and property rates where increments in value of land can be used to finance construction and maintenance transport infrastructure. To ascertain this objective, the main research question which read ‘How effective is public land leasing and property rates as land value mobilization instruments to finance the construction and maintenance of public road transport infrastructure?’ guided the entire research process.

Establishing the effectiveness of an instrument entails measuring changes in defined outcomes which have set targets and operationalizing the targets would achieve the outcome. For this research, construction of 1kilometer of Thika superhighway is the defined outcome that would be measured against the target revenues generated from leasing and property rates generated annually.

To establish the effectiveness of land leasing to construct 1kilometer of a road he class of Thika superhighway, it was firstly discovered that stand premiums generate less revenue compared to annual rents and this was occasioned by the fact that stand premiums are paid for new leases and lease renewals and more interestingly both stand premiums and annual rents were paid daily. However, even with the generation of stand premiums daily could not be compared with annual rent generation. From the revenues, the Stand premiums were sufficient to construct 0.97kilometers of a road. It may be sufficient but not effective to construct a kilometre of road since the revenues may not be relied upon to meet the objectives of constructing a road. On maintenance however, the premiums are sufficient to maintain 41.9 kilometre of Thika superhighway class road. On the other hand, annual rents are sufficient to construct and maintain 12.7 kilometres and 552 kilometres respectively of a road the class of Thika superhighway standard. This implies the annual rents are effective to meet the objectives of construction and maintenance of road. On property rates, the revenues are sufficient to construct and maintain 25.8 km and 22.2 km respectively and therefore can be said to be effective in road construction and maintenance. Infrastructure development has an impact on land values which the government can capture as Accessibility Increment Contribution.

In conclusion, the instruments are sufficient to construct and finance road construction but are not effective since the objectives are not defined and thus the target for revenue generation are not set that can capture the land values to finance road construction and maintenance.

Keywords

Stand Premiums, Accessibility Increment Contribution

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This report is dedicated to make a change in Kenya in terms of land administration to finance infrastructure development.

Abbreviations

IHS	Institute for Housing and Urban Development Studies
AIC	Accessibility Increment Contribution
USV	Unimproved Site Value
NLC	National Land Commission
KeNHA	Kenya National Highways Authority
DLB	District Land Board
CLB	Community Land Board
CBD	Central Business District
IEBC	Independent Electoral and Boundaries Commission
USD	United States Dollars
IMF	International Monetary Fund
GIS	Geographical Information System
LVC	Land Value Capture
MoLHUD	Ministry of Lands, Housing and Urban Development

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Chapter 1: Introduction

1.1 Background

For the African countries, the debt crisis of the 1970s to late 1980s spurred an exceptional manifestation of rural to urban migration as a result of fiscal policy measures adopted by governments to end the crisis. Additionally, the debt crisis generated policies that served to rationalise the class relations and tackle the main question of land: who owns the land? (Federici, September 2001) As a result of the policies aimed at propelling the economies from economic collapse, economies witnessed an unparalleled growth of spontaneous settlements as well as informal settlements due to soaring costs of acquiring serviced plots of land within the urban areas which are unaffordable to majority of the urban poor families thereby attracting informal land markets which offer unserviced plots of land (Smolka, January 2003). Urbanization therefore has been observed as the modern phenomenon to occur in human history with rapid trends occurring in Asia and Africa and in Kenya in particular, it has put a strain on county governments to provide basic services such as transport and sanitation thereby allowing for the burgeoning and development of informal settlements where unaffordable land drives the residents to live in unplanned settlements without accessibility and necessary basic services.

Over time, cities and urban areas transform and expand there by exposing the rural urban fringe to direct impacts of urbanization with the residents facing myriad of challenges and opportunities in meeting their life needs and accommodating the resultant effects of land use changes (Thuo, 2013)(Thuo, 2013) . Land use changes are governed by regulations that impact on property values by increasing the land values which yields both amenity and scarcity effects. Strict land use regulations have not been adhered to thereby negatively impacting on housing affordability and provision of infrastructure.

Land is the primary form of asset in Kenya which supports all forms of production and the land tenure systems in force can be designated as private, communal, public and open access lands. Land in Kenya is owned by four entities namely the central government, county governments, private individuals and groups with different legal instruments governing different classifications of land and their titleholders. The exponential increase in population growth has created a necessity for land for residential, commercial as well as for agricultural purposes and the urban areas have demarcated zones for various land uses which have, over period of time, evolved into mixed forms of zoning for example people residing close to industrial complexes not only lack adequate housing but also lack basic infrastructure such as water, sewerage and accessibility factor.

According to (Jaegar, 2006), land use regulations tend affect property values in a myriad of ways in addition to the fact that these regulations tend to increase property values by creating amenity effects and scarcity effects. Amenity effects provide services that benefit the people and an example of such a regulation with amenity effects is the property tax which provides revenue to deliver public services. Scarcity effects arise as a result of making land scarce for a particular development thereby increasing the value of land in nearby locations. Infrastructure facilities define the spatial skeleton of an area thereby supporting the location of residential, commercial and industrial properties. Increase in population has witnessed an increase in water and transport infrastructure complexities in particular vehicular mobility. This has thus necessitated governments to provide infrastructure which exhibit public good characteristics. The impact of increased accessibility of land can be captured and reinvested to the society (Walters, 2011).

Land in close proximity to roads or any other infrastructure such as water trunk line or sewer trunk line has high value compared to those far off the transportation nodes or connection to trunk line. From observation of road construction in a new area, land values increase significantly due to increase in accessibility hence pushing up the values of residential and commercial properties along and around the transport nodes

The concept of Land Value capture has not been conceptualized in Kenya despite the cost of land increasing by the day and property owners paying rates annually to local government and revenue authority. The local authorities and the central government can exploit the soaring land values as a means to finance provision and maintenance of various infrastructures thus providing accessibility to basic services and reduce reliance on external borrowing.

1.2 Problem Statement

24% of Kenya's population lives in urban areas whereas the urbanization rate stands at 4.36% (Central Intelligence Agency [CIA],) and as a result of the burgeoning population, basic services such as water, sanitation and roads for accessibility are required, however they are not provided due to lack of funds and for a mere reason that these new regions where populations are migrating to were not considered in the cadastre for provision or extension of services. As a result, residents have had to contend living in areas without services and where accessibility is deprived.

According to the Vision 2030, the Kenya government unveiled a long term national development blueprint that will see the country transform into a new industrializing, middle income economy by the year 2030 (Habari, C. L., 2011). One of the sectors of the blueprint is the infrastructure where the government is in the process of establishing and upgrading new infrastructure in major towns.

Nairobi region covers approximately 696 km² with a population of 3.375 million residents and growing, the city's population is growing at a rate of 4.36% per annum (Central Intelligence Agency [CIA],). Nairobi, like many other cities in the world has experienced challenges in finding resources to finance transport and other service infrastructure investments thus resulting in massive debt borrowings. The government can benefit from the opportunities of accessibility brought about by construction of new transport infrastructure to recover the capital cost of the investment (Medda, 2012) where many are situations where land value increment has been as a result of both public and private investment (Bourassa, S. and Hong, Y., 2003).

One of transport infrastructure constructions in Nairobi is the Thika Super highway which is one of a kind 8 lane highway in Kenya connecting Kenya to Ethiopia to the north and cuts across other counties and has had an impact on the land and rental properties both within and on the outskirts of Nairobi which are situated along the highway. Locations along the Thika highway in Nairobi had become the new urban sprawl of populations that could not afford house rents or land prices in areas close to central business district of Nairobi and as such is home to sprawling residential apartments which are characteristic of the middle class professionals. Before the construction of the highway, the land values along the highway stagnated and from observation seemed to be depreciating due to traffic congestion, increased travel time within short distances and road carnage was rampant and as result witnessed migration of people from areas along Thika road and those with land started sold off in order to buy land elsewhere and rental values declined. However, from observation on land sales from various land agents and real estate companies, upon the announcement of upgrading and

construction of the highway, the value of land and property rose with the cost of land trebling over a period of six months to 1 year after commencement of construction of the highway. The intrinsic value of land along the super highway appreciated due to the location, accessibility to the CBD and the collective investment of road construction hence the government can recapture this increased value which did not result from owner's investments. Eventually, the entire area on and along Thika Super highway from Ngara all the way to areas past Ruiru experienced increase in land prices and real estate development which attracted high rental incomes.

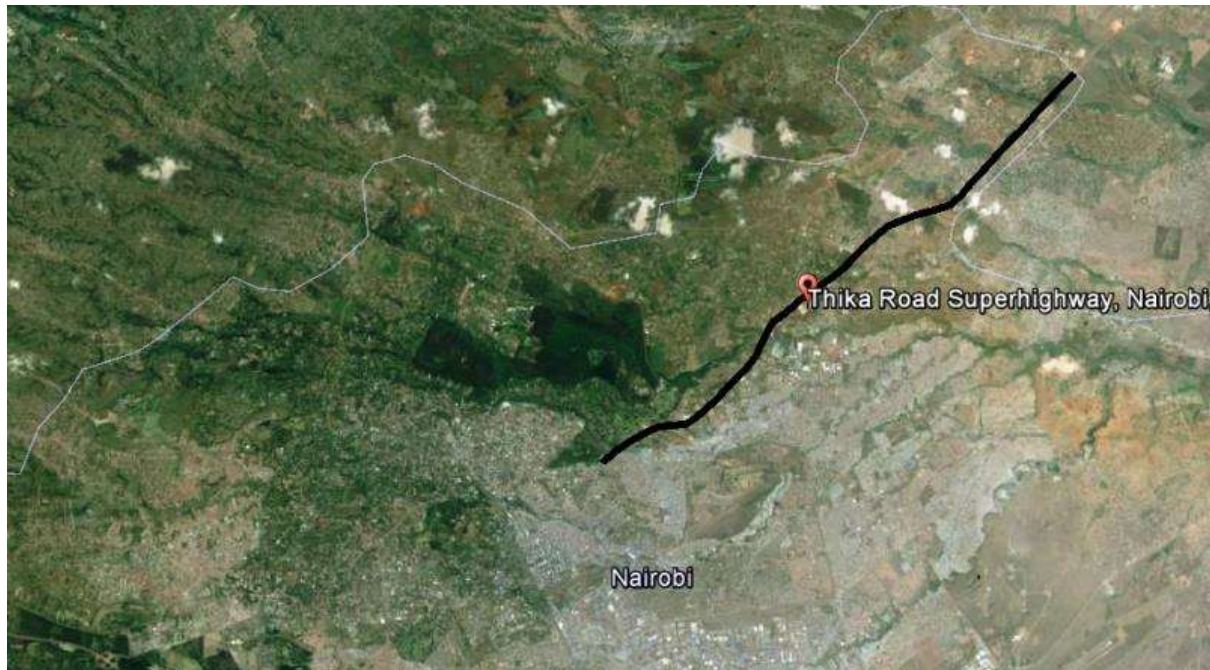


Figure 1: Location of Thika Superhighway within Nairobi

(Source: Google Earth 2014)

From the increased values in land and rental properties as a result of the road construction, the government has an opportunity to recoup the increment in land values which arise as a result of public investment and, internationally, various mechanisms have been used to capture the increments in land values which include developer exactions, value capture and asset management (Walters, 2012) which Kenya can adopt and benefit from.

While the central and local governments continue to source for funds to finance and implement the blue print plan on infrastructure, one of the untapped sources of finance is on the increment of land values. Land administration in Kenya dictates both premiums, annual rents for leased properties and property rates for freehold properties within municipalities as land payment systems.

Land taxes generate significant revenues in applied jurisdictions and are generally levied as a small percentage tax on total holdings, which increases at different thresholds. However, even with the generation of revenues through leasing and property rates, a poor state of infrastructure provision and maintenance exists despite payment of such fees. It is for this reason that the researcher aims to find out how the land leasing and property rates can be used to finance transport infrastructure (Bird and Slack, 2010)

1.3 Research objectives

The main objective is to identify how land lease and property rates/taxes could be used to capture land values where increments in value of land can be used to finance construction and maintenance transport infrastructure. The specific objectives of the research are:

1. To examine how land leasing and freehold can be used to generate revenue to finance public transport infrastructure looking at road construction and maintenance;
2. To examine how leasing and property rates can be used to fund public transport infrastructure;
3. Contribute to a body of knowledge on how leasing and property rates as value redistribution mechanisms can be used to finance public transport infrastructure.

1.4 Research Question

How effective is public land leasing and property rates as land value mobilization instruments to finance the construction and maintenance of public road transport infrastructure?

The sub-questions from the main objective include:

1. What are the legal framework and institutional setup that enable the collection of property rates, annual rents and premiums that can be used to finance road infrastructure?
2. How successful is land leasing or property rates in financing road construction?
3. How successful is land leasing or property rates in financing road maintenance?
4. What were the increments in land value along Thika Road before and after construction?

The author based his research on the similarities and differences exhibited by the two (2) instruments in that while both instruments are land related and are applicable within Thika road, they are different in the sense of ownership i.e. leasing and freehold and different administration, enforcement and collection mechanisms.

1.5 Scope of the Study

This study is focuses on public land leasing and property rates as land value capture and mobilization instrument for the construction and maintenance of road infrastructure. It will be pigeonholed into theoretical and geographical range where theoretically, research will be centred on land value mobilization with emphasis on land leasing and property rates instruments while geographical range will focus on the City of Nairobi. This research highlights on international experiences on leasing and property rates in light of land value capture and explore how revenue generation from land value capture has benefitted citizens in other countries where it has been successfully implemented. The central government and the 47 county governments in Kenya can adopt land value mobilization and redistribution if properly and clearly formulated and structured to generate revenue to finance their development agendas and infrastructural development which is crucial for the attainment of the Kenya Vision 2030 strategy. Land value redistribution will therefore become a model and a good learning reference for all counties in Kenya and the neighbouring countries in East Africa which may intend to generate revenue to finance public infrastructure.

1.6 Motivation for the Study

Kenya's external debt currently stands at USD 12 billion (Central Bank of Kenya, 2014) translating to USD 308 per every Kenyan citizen young, old and unborn to repay this debt most of which is undertaken for infrastructural development. Therefore this study aims at

exploring a financing avenue that can be tapped into to finance infrastructural development and reduce on the external borrowing for infrastructural development. In addition, the research is aimed at contributing to an improved process and better understanding of property rates and public land leasing and the benefits that can be obtained from land leasing and collection of property rates.

Chapter 2: Literature Review and Conceptual Framework

2.1 Introduction

Urbanization has birthed an unwitnessed and unprecedented phenomenon where 50% of the global population resides in urban areas thereby triggering interactions between land policies and infrastructure for the benefit of quality of life and economic opportunities which form the bulwark of urban development. According to (Ingram and Brandt, 2013), infrastructure facilities form the spatial skeleton of urban areas which in turn supports other land uses such as location of residential, commercial and industrial activities.

Technology for delivering infrastructure has been advancing with key debate concerns emerging focusing in particular the adequacy of infrastructure maintenance and means to finance the construction and maintenance of infrastructure. While economic and social benefits occasioned by infrastructure are enormous, maintenance of infrastructure has been overlooked where governments are in constant search for efficient financing mechanisms such as issuance of infrastructure bonds in Kenya (Ingram and Brandt, 2013). It is worth noting that private investments and foreign development assistance have increased as a result of high business rate of return occasioned by investments in infrastructure. However, while governments borrow loans for infrastructure development, they are faced with risks in form of currency risks which is a traditional critical feature of infrastructure project finance. Servicing foreign debts and equity involves payment in foreign currency and as such, foreign financing flows to projects with a limited ability to generate funds leads to currency risks.

(Ingram and Brandt, 2013) point that low income countries are facing massive infrastructural needs for example, the projected annual cost of infrastructure investment stands at US\$ 450 billion and maintenance needs at US\$ 305 billion totalling to US\$ 755 billion which represents 5% of the low income countries GDP. On the other hand, developed countries are grappling with means to finance infrastructure maintenance with costs relatively lower compared to the low income countries. For the low income countries, the emerging modes of infrastructure financing based on private finance and ownership have not proved resilient in the face of domestic macroeconomic shocks and international financial crises.

At this juncture, there is need to recognise innovative infrastructure financing schemes that are consistent with the local economic conditions. Attention is drawn to land based financing models through land value capture which have been successfully implemented in Latin America and Hong Kong. Just as physical infrastructure affects urban development, road infrastructure shapes land policy by affecting location choices and land values where land values are affected through increment and decrement effects but there are other factors that influence land values with a bias to increment in land values as discussed in the topic to follow.

2.2 Increase in Land Values and its causes

Land value describes the amount of money a parcel of land is able to attract in form of land rents from various land uses thereby making land the most invaluable natural asset of any country. Land comprises all that is above and below the surface of the earth and everything attached to the earth surface (Molen, 2005). Land being an invaluable resource comprises of two distinct characteristics: It is immovable and is relatively fixed in supply hence cannot be created a new and neither can it be destroyed. With these distinct characteristics, land appreciates in value even by a small margin when comparing agricultural land and land

located in an urban area due to its fixed supply in nature and unlike man made capital, the quantity of land cannot be diminished by an increase in tax (DeCesare, Luiz, et al., 2003).

Population: Scholars such as (DeCesare, Luiz, et al., 2003, Cappelletti and Helsley, 1987), have contended that while the supply of land is fixed, the demand for land grows invariably with increase in human population thereby deducing land values is determined by demographic changes, public investments in infrastructure and economic growth rates. However, in some instances, densities can decline with distance but still this cannot affect the land values in form of land rents and price since as economic conditions change over time, population densities in an area can increase with commuting distance.

Land use: (Lichfield and Connellan, 1997), attribute land value increase to related potential of land use which depends on the capacity to generate rent thereby asserting the interrelatedness of land values with land uses. However, some land use practice can have a decrement impact on land values such as location of a garbage dumpsite or a morgue. While the value of land may still hold, the properties on the land may depreciate thereby selling the land would generate low prices thereby translating to low land values. On the other hand if land use restrictions have a negative impact on agglomerations, economic values of an area will be affected which will subsequently lower the value of land.

Location: Besides land use potential and demographic changes (DeCesare, Luiz, et al., 2003, Isakson and Ecker, 2001, Hong and Bourassa, 2003), location plays critical factor in increasing land values. According to Alonso (1964), location majorly influences the value of land where potential users bid for land with greatest locational advantages which attracts a high land price. The locational aspect of land values is corroborated by models and theories such as Ricardo's model of fertility and Heinrich von Thunen theory of accessibility. On the other hand, where accessibility is a problem, the land values will stagnate and only depend on demand for land upon population increase to cause increase in land values.

While von Thunen assumed aspects such as land uniformity and use on distance to the market he deduced that location is an integral component that influences land rents. In light to this, the authors views are that, keeping other factors constant, people would be willing to pay the best price to reside or be located at locations that provide amenities of which are a capitalization of land values hence it suffices to agree that the influence of location and land values is also attributed to the linkages of the location.

In addition, information plays a key role in impacting land values where central or local government announces information about a mega project to be developed in an area. In this case, the price curve of land accelerates rapidly with land owners acting as promoters of the intended project with the aim of selling land at its highest and best use in line with the project area (Otoya and Loaiza, 2000).

From the above discussion on causes of increment in land values, the author concurs that the overarching fact is that location, demographic changes, amenity provision and land use which are considered as public action and government interventions have a positive impact in land values. The increase in land values have been captured and mobilized in other parts of the world to finance infrastructural development and as the next topic follows; the author explores the concept land value mobilization.

2.3 Land Value Mobilization: History and concept

Land value mobilization will be used synonymously with land value capture which the author intends to focus on. The externalities that arise from the factors discussed above lead to an

unearned increments in land values that are appropriated by land owners which ought to be appropriated by public. The history of land value mobilization predates to the feudal system in Britain and Henry Georges era in the United States. Authors such as (Hong and Bourassa, 2003, Feinstein, 2012, Andelson, 2000, Anderson, 2004), have pointed on the genesis of land value capture to Henry George who had observed massive inequality in land ownership which was in the hands of a few thereby appropriating all the land values.

In his book *Progress and Poverty*, Henry George advocates for a single tax system on land that is sufficient for government to finance its expenditures and this is a common belief shared by proponents of Georgism (George, 1935). In essence, Henry George was advocating for a 100% tax on land values in form of rents which the few land owners appropriated from their massive tracts of land. However, Henry George's idea of a single tax on land has elicited a lot of criticism due to its impracticable nature. A 100% tax on land would cause the capital value of land to fall to zero as land owners would not obtain any rent making the land valueless on the market. In addition, all the rent would be siphoned to government thereby eliminating any incentive for owners to charge any rent hence making the rent equal to zero (Anderson, 2004).

Agreeing with (Walters, 2011, Smolka and Amborski, 2000, Mathur and Smith, 2013), land value capture is a process where a portion or all the land value increments as a result of public investment are recouped by the government through various means such as exactions, fees and taxes. The HABITAT conference of 1976 stated that the unearned increment resulting from the rise on land values as a result of change in use from public investment or decision or due to general growth of the community must be subject to appropriate recapture by the community (Walters, 2011). However, on the other hand taxing land to recoup the increase in land values is viewed as unfair to land owners whose value appreciates but not in tandem with the wages which would enable land owners to pay up and as such, punitive measures may be undertaken by the government hence leading to displacements.

Primarily, the intrinsic value of location depends on public investment and other external factors which increases the value of an individual property unrelated to the owners investment and thus should be recouped by the government on behalf of the community (Hong and Bourassa, 2003). Land value capture in essence then would act as a form of insurance to the community for privileges benefitted by land owners as a result of market values which the land owners did not contribute towards.

Increments in land values can also be attributed to the working of the real estate cycle which contributes to prestige of an area and the attainment of critical mass for development where land developers acquire virgin lands around urban fringes and develop gated communities with the necessary facilities thereby enhancing the value of land and the surrounding parcels (Feinstein, 2012). However, (Smolka, 2013) counter argues that the capacity to create unanticipated externalities should be appropriated in part by the developer since some of the land value increments are as a result of conditions already found in the city which are a result of government action and hence the author concurs with the argument above.

The author takes a stand with Smolka's argument that while land values may be attributed to the workings of the real estate cycle, the government has the right capture part of the land value as this would reduce on speculative tendencies on land while generating enough revenue to finance infrastructural development. To capture this land value, various instruments/mechanisms can be used as will be discussed in the next topic.

2.3.1 Instruments of Land Value Capture

For the purpose of this thesis, property taxes will be used synonymously with property rates. Instruments of land value capture comprise sets of policies and legal instruments aimed at recouping the unearned increments which are not linked to labour or expenditure of the landowner but government regulations on land use and increase in population that create demand on property or land. As (Alterman, 2012) elaborates, there are three kinds of groups to which land value capture instruments can be categorized into: Macro Value Capture Instruments are embedded in overarching land policy regimes which provide better land development than market regimes. Direct value capture instruments seek to recoup all or some of the value rise in real property based on legal obligation of the land owners to contribute a share of the public derived wealth to public coffers. However, with direct value capture instruments there is need for public participation and acceptance where the local governments provide services to justify the legal and moral authority to recoup land value increment. The last kind is indirect value capture instruments which are financial instruments which are less visible to the residents and aim to reduce the impact of higher costs of services felt by the citizenry as well as growing reluctance to pay higher taxes.

Despite the various categories, land value capture takes the form of taxes and more especially property taxes as they are used all over the world. However, taxes have a negative connotation to the public and as such incite public reluctance to pay hence low revenue collection as advanced by (Vickrey, 1999) in his quote ‘The property tax is, economically speaking, a combination of one of the worst taxes on the part that is assessed on real estate improvements and one of the best taxes i.e. the tax on land or site value’. Further, (Vickrey, 1999) argues that property taxes should be distinguished as tax on land which is free from distortionary effects on the economy as well as excess burden as tax on land and improvements impose serious burden on the land owner hence most likely to face resistance.

In Latin America, property taxes have been neglected due to their small contribution to local revenue and this has resulted in popularization of land value capture attributed to the problematic technical and political difficulties to increase property taxes (Smolka and Amborski, 2000). It is believed that titling can contribute to an increase in land values as a result of security on land but (Payne, 2000) connotes that titling may not generate increase in tax revenues because either households find the tax threshold difficult to meet the costs and feel they will receive nothing tangible in return.

Property taxes fail as instruments of land value capture due to lack of regular re-evaluation of properties to a point where market values cannot be incorporated into taxable values or cannot be taxed at levels sufficient to raise revenue. (Walters, 2012, Smolka and Amborski, 2000) pinpoint the real causes of low revenue collection, in Latin America and in African countries where defaulting on property taxes is rampant, to out dated revaluation of properties in the urban areas to be included in the property tax system and also the fact that property taxes are implemented under old ordinances from colonial regimes and where taxes are an implication that local governments are not obligated to provide a good or service unlike a charge or fee which imply goods or services are provided. If the conditions are set in favour of property taxes together with political will and public participation into the workings of property taxes, then property taxes present a very excellent and efficient instrument to capture the value of land.

From the above discussion, it is imperative to discuss the land tenure systems on which instruments of land value capture are applied.

2.4 Land Tenure Systems

Land value mobilization can only be realized through a form of tenure system in the sense that property rights form the basis of land tenure systems where interest in land may vary to imply full ownership or development on land. Bestowing to (Dale and McLaughlin, 1999), tenure, value and use are the three main attributes that a country must manage. Whereas it is evident that use rights tend to be managed separately from ownership rights, property values are hinged on certainty of ownership and the use that can be made of it. (Payne, 2000) denotes land tenure as mode by which land is held or owned or a set of relationships among people concerning land or is a product where rights attached to tenure encompass access, use and development of the land. In other words, land tenure indicates an efficient and organized land holding that incorporates communal, contractual and legal arrangements under which people gain access to and utilize land.

On the other hand, (Payne, 2004) is of the view that while land tenure and property rights hold a central position to human rights, they are more complicated than they seem in theory. Land especially in urban areas is intertwined in a complex series of relationships between different tenure systems and sub markets and a change in government policy related to tenure tends to have unintended effects on land markets. This has overarching impacts on land values where formal and informal urban land markets reap from government policies thereby pushing the land values up.

2.4.1 Leasehold Land Tenure

Leasehold system is based on the principle of accessibility of land by all under conditions of increased competition and can either be public lease or private lease. Conferring with (Payne, 1997, Payne, 2002), leasing system entails renting out land or property for a specific period under a contract or statutory condition. In most cases, leases vary in duration ranging from nominal lease of property for life under historic common law found in the United Kingdom with 999 years lease to more “flexible” leases incorporated in national land laws as leases running between 45 – 99 years. Leaseholds provide sufficient sense of security that stimulates investments and an acceptable level of collateral necessary for development.

2.4.1.1 Public Land Leasing

The history of land leasing finds its roots from the ancient civilizations period where it was widely used by the ancient Sumerians and has been used all through to modern civilization. Modern day leasing covers practically any form of asset imaginable which is a graduation from what it was in the 1950's where it only applied for grounded to rental and real estate properties (Grenadier, 1995).

Public land leasing is an aspect of land management that is employed in many countries in attempts to mitigate on contentious social political and economic issues related to land ownership. It is hinged on the central tenets of land tenure and property rights where it has invariably been used to solve land ownership issues as well as promote equity and fairness in the ownership process. According to (Bourassa, S. and Hong, Y., 2003), land leasing is a system where government and private entities negotiate on land rights through contractual agreements and the lessee can enjoy the assigned rights for a specified duration. However, it is worth noting that the contractual agreement stipulates the rights especially accompanying the transactions, the lessee has to the land in the sense that the government who is the lessor retains the ownership of the land while the lessee is granted rights to use, develop, transfer, inherit and benefit from the land.

The theory and practice of land leasing is one that needs to be synthesized clearly. According to (Hong and Bourassa, 2003), the theory of public land leasing is a compromise where the state is the land owner which leases out development and use rights to private individuals but in practice, the control of land depends whether by government or private entities is embedded in the lease conditions which are outcomes of political processes. In some cases, this has caused antagonism between the state and private land owners or leaseholders¹ (Hong and Bourassa, 2003).

Leasing is applied because land ownership is an intractable issue where there have been disputes in over land allocation and ownership and also because there is skewed distribution of wealth resulting from increases in land ownership. With a fixed supply of land to accommodate burgeoning urban population, land prices in developed areas escalate rapidly and it's only the existing private landowners who appropriate the increase in land value thus land leasing would provide an avenue for to capture the increment in land values for the benefit of the public (Hong and Bourassa, 2003).

There is a contrasting difference managing public land lease between capitalist oriented countries and former socialist countries. In the former, property rights are the core of private land ownership and forms the cornerstone of political and social institutions. However in, this cannot be said of the former socialist countries where selling or leasing public land is viewed as depriving citizens their equal entitlement to land (Hong and Bourassa, 2003).

2.4.1.1.1 Premiums concept

Lease conditions are structured in accordance with the legal and political systems of a country where in most cases; new leases are granted and renewal of leases is allowed both of which attract a consideration. There are two systems of land leases based on the lease payments according to (Hong, 2013); Premium system is based on a lump sum payment that governments collect to modify and extend the lessee land right and forms the primary source of government revenue from land. This premium is paid by the lessee as consideration for the lease up to the expiry of the lease. On the other hand, there is the land rent system which is based on annual land rents where the lessee pays the lease for duration of lease annually. It is imperative to note that premiums and annual rents can be based on capital value or market value of land depending with the government preference and ability to capture land values on market or capital values (Hong, 2013).

Determination of premiums is based on the rights that the lessor and lessee have agreed upon in the leasing contract and as such the lessor can institute to charge percentage on the capital value or market value of the land to be leased. In principle premiums are determined by finding the present value of expected annual rentals (Wyatt, 2007). This follows that when determining the premium in a situation where there will also be annual rentals, the premium (lump sum) should be related to the annual rental. The present value of the sum of the lump sum and annual rentals may only aggregate to the present value of the market rental and cannot exceed the calculated premium (Wyatt, 2007).

In instituting a leasehold regime, the primary objective of the leasing authority needs to be defined and in most cases, the central government being the chief custodian of all lands has the objective of continuous owning the land and to control land use for future opportunities. In Sweden, the leasehold regime known as site hold was designed with the purpose of

¹ USAID document on Property Rights and resource governance in Zimbabwe. The author attempts to show the relation between politics and lease conditions as were experienced in Zimbabwe.

providing affordable social housing as well as capturing the value of land by charging a ground rent to private developers (Mattson, 2003). However, (Andelson, 2000) on the other hand makes a valid opposition of the Swedish leasing objective stating that the policy objectives of instituting a leasehold regime should be clear and compatible. If a government or leasing authority chooses an objective or a set of objectives, the choice presents an opportunity cost which prevents achieving other objectives or set of objectives which in most cases are incompatible.

Besides leasing for revenue generation, governments lease out public land for social cohesion to minimize political tensions emitted by land reforms and also failure to renew leasehold rights upon termination. These are done in hopes of meeting community desire to access public land as well as tone down reformists demand for increasing private property rights in their economies (Andelson, 2000, Hong, 2013).

2.4.1.1.2 Ground/Annual Rent Concept

From the above discussion on public land lease, it is necessary to understand the annual rent concept as it is an integral part of leasing. Rent in economics is the amount that a factor of production earns over and above what it could earn in its net best use and land rent in this case is the best price determined by demand and supply (Connellan, 2004) unlike other commodities whose supply is influenced by cost of production thereby the price determined by cost.

The economic rent of land as the periodic payment for the hire of land hence the rent of land is determined by the interaction of demand and supply (Harvey and Jowsey, 2004). In discussing about rent concept, it is necessary to elaborate the meaning of economic rent and commercial rent terminologies. Economic rent is the price the land commands when put to its highest and best use while commercial rent is the present value of land hence it is suffice to assert that land in future use charged presently earns the highest rent.

Land rent whether economic or commercial can be achieved through negotiations between the lessor and the lessee as there are no legal restrictions on the maximum rent to be charged on land. Due to the fixed nature of land supply, it attracts a price that can be regarded as economic or commercial value which arises as a result of competition for land between different users.

2.4.2 Land Value Capture through land leasing

According to (Hong, 2013) land leasing can capture land values in four (4) ways: Auction, Lease renewals, lease modifications and annual land rents. For this research, negotiation and allocation are included to include their mode of capturing land values.

2.4.2.1 Allocation

Land allocation determines the mode at which the government can generate revenues from leasing and in this light several options are open for the government to determine the right individual for leasing. For allocation, the government can allocate land to an applicant in line with the leasing objective of the government with subsequent payment of considerations. Where the terms of allocation state that an annual rent will have to be paid, this would have an impact on the ceiling of the bidding price (Hong and Bourassa 2003). On the other hand, where the terms state that no annual rents have to be paid, the author's opinion is that this will change the tenure system of the land from lease to freehold and payments of property taxes would hence commence.

2.4.2.2 Auction

Initial auction/tender which considered as the most transparent means of capturing land values than other forms since the government allocates land to the highest bidder who has to pay 10% down payment and a lump sum after 30 days failure to which the government confiscates the deposit and re-auctions the land again, through allocation, lease renewals, negotiation and lease modifications.

The terms of leasing conditions are normally structured by government with an aim of achieving public policy goals and land value capture which can generate significant revenue. Where land is leased through public auction, conditions of sale have to be made known such as location, land size and land use restrictions which are acceptable to the developers who further make bids for the land (Bourassa, S. and Hong, Y., 2003) this has an impact on the premiums and annual rents remitted depending on the auction terms as the government allocates land to the highest bidder thereby capturing the value of land.

2.4.2.3 Lease Modifications

Another way of capturing the value of land is through lease modifications where lessees aim to modify the lease conditions that impose the certain development clauses on their land. To modify lease conditions, additional premiums for adjusting lease restrictions have to be paid hence the new premium is based on the potential land value increment after adjusting the lease terms.

2.4.2.4 Negotiation

There is need for governments to set priorities straight as to what the objective of value capture from leasing is as some governments may want to capture the surplus land value as revenue to finance public infrastructure and social services yet there is hesitation that the capture process or mechanism does not impede private investors from investing in land and real estate hence a negotiation is needed on the address the government needs to capture land values as well as protecting the investors (Bourassa, S. and Hong, Y., 2003). In this case, the government can negotiate on the terms and conditions of granting the lease all of which have an impact on the considerations to be paid. Not all land is auctioned publicly depending with the objectives at hand and as such government may issue conditions of grant whereby premiums and annual rents are determined by negotiation and not by the highest bidder as it is in auction (Bourassa, S. and Hong, Y., 2003).

Governments at times attract investors by granting land at concessionary prices but this tends to loose revenues that could be collected from developers for leasing land. Government can negotiate on the conditions of lease to be structured which are pragmatic and in line with the aim of achieving policy goals. However, it is imperative to note that negotiations on lease would not attract much premiums compared to leasing through auction or allocation.

2.4.2.5 Lease Renewals

Lastly, land value can be captured through lease renewal where premiums which signify the full market value of land can be reviewed upwards upon renewal of a lease. The viability of these mechanisms to work depends on context countries practice land leasing.

(Farvacque and McAuslan, 1992) contend that government can adopt leasehold regimes which are more profitable to recapture values of land as it increases as opposed to selling land. While the four (4) mechanisms described above work well to capture the value of land, (Hong, 1998) asserts that their viability depends largely within the context of land lease contracting.

(Hong and Bourassa, 2003) give a valid reference of land value capture through land leasing in Hong Kong where the rapid increase in property values contributed significant revenue which was generated from public land leasing. The total revenue realized from land leasing between 1970 and 2000 amounted to US\$71.1 billion while adding the amount generated from rates and property taxes to the lease revenue increased to a tune US\$96.1 billion. Annual revenues realized from public land leasing between 1996 and 2000 were more than enough to defray the cost of infrastructure and land developments.

In theory, the success of land leasing in capturing land values lies in the four (4) ways as discussed above but where infrastructure is provided after leasing contracts have been agreed upon and signed, value capture then can only be done upon renewal of new leasing contracts which will have to wait for the duration of time to elapse or termination of the signed leasing contracts. This presents a legal challenge for governments where the law allows for challenging such termination as legal suits for termination of leasing agreements can tantamount to expensive compensation than what the government hopes to capture after termination and re-issuance of new leasing agreements.

2.4.3 Freehold Land Tenure

According to (Payne, 1997, Payne, 2002, Bourassa, S. and Hong, Y., 2003), freehold land tenure is a different kind of tenure from the traditional land ownership forms that existed before colonialism especially in developing countries. In freehold system, the state confers the beneficiary near absolute ownership of land with full rights to transfer, mortgage, bequeath and all use rights as permitted within the law for unlimited duration. This kind of tenure is common in urban areas but is steadily transforming the rural land ownership set up where customary land ownership is the dominant form of land ownership. Freehold land tenure prides in the knowledge that it maximizes the collateral value of the property thus granting the owner/occupant recovery of full added value of improvements.

2.4.3.1 Property Rates

Property rates are used synonymously as property taxes where countries which had been colonised by United Kingdom adopted property rates while other countries adopted taxes as this was aimed at avoiding unrest that was occasioned by imposition of taxes. Property rates are other instruments that are an integral part of land management which is as old as civilization and have been used to finance infrastructure developments such as construction of palaces and temples and also run expenditures of regimes and dynasties such as maintenance of imperial armies in ancient civilization (Dye and England, 2009). Property rates encompass those rates levied on both real and personal properties depending on the value of the property and are generally administered through the use of a uniform tax.

Economists such as Ricardo affirmed the appropriateness of land as a factor of production to be taxed where increases in population led to an increase in demand for agricultural goods where labour costs were factored in the higher prices for agricultural goods which increased the return to landowner of the more productive land (Ricardo, (1817) 2001), (Cameron, 1999) and (Connellan, 2004). This increased return can be equated to rent which represents the indestructible powers of the soil and thus surplus increment should be taxed as it did not represent a real cost of production.

Property tax/rates have been criticized due to inefficiency in collection of revenues and in countries such as Latin America, it has been neglected. The unpopularity of property taxes/rates stems from the unfair nature and its non-relational nature to the ability to pay or benefits received and most often does not provide municipal revenues to meet expenditure costs. In addition property tax/rates should be distinguished from land tax due to the principle

of efficiency where land tax is efficient and makes the economy more productive thereby creating wealth while property tax/rates discourages investments in new structures and maintenance of existing structures (Slack, 2013), (Dye and England, 2009) and (Connellan, 2004).

However, (Walters, 2012) and (Cohen and Coughlin, 2005), state that a pure land tax has its own failures where it is not easy to measure the net value of land improvements thereby making it difficult to determine the amount of tax/rates on land. To achieve success with property tax/rates there is need to structure it correctly, rectify where loopholes exist and bolster with political will hence can yield the much needed revenue to the local government. Property tax/rates works best under conditions of regular revaluation of properties and incorporation of market values increases onto taxable/rateable values. Antagonists of land value taxation stress that unearned increment in land value is usually capitalized in the purchasing price therefore imposing heavy taxes/rates on land values which have already been paid is a burden to land owners (Connellan, 2004).

Property taxes/rates have formed a reliable source of revenue for local government and in some jurisdictions such as in the United States have been split between land tax to imply tax on land and property taxes to imply improvements on land such as buildings. Property taxes bear an important significance of being visible tax unlike other taxes such as sales tax and income tax that can be manipulated from the source (Slack, 2013), (Walters, 2011) and (Cornia, 2013). However, the authors view is that the aspect of visibility is drawn to enhance decision making where tax payers are more informed of the costs of public services thereby promoting accountability and service delivery of the government. In addition, property taxes/rates are inelastic where property values respond insignificantly to changes in the economy. For a condition for inelasticity to apply, property values for taxation purposes have to be updated annually

However, this seems to elicit different views from other scholars who assert imposition of property rates as source of revenue has negative consequences. According to (Augustine, Bell, et al., 2009), reliance on property tax/rates to generate revenue coupled with soaring high prices results in erosion of property tax/rates as a source of local revenue and according to (Reschovsky, 1998), a shift from property tax/rates assessed on combined value of land and buildings to land tax will induce land owners to intensively use land by developing high value structures.

The author takes a stand that tax on land should subsidize other sources of tax such as income tax which tend to have visible distortionary effects and would help eliminate incidences of poverty so long as the tax is progressive. Furthermore the author concurs with (Walters, 2011) that property tax is hinged on tenets of land tenure and property rights which tend to address pertinent issues such as the rights held by whom will affect who bears the tax obligation and whether confiscation of property for non-payment of taxes is acceptable and its impact on design of collection efforts. To have a successful instrument in capturing land values, there is need to examine the determinants of property rates as discussed in the following topic.

2.4.3.2 Determinants for Property tax/rate revenue, enforcement and collection

Property tax/rate revenue experiences for developing and transitional countries greatly differs from those in OECD and American countries with property taxes/rates contributing a substantial percentage of GDP while the former yield insignificant revenues. Scholars such as (Kelly, 2013), (Bahl and Jorge, 2008) elucidate that the strongest pillars of property tax/rates are in collection and enforcement and introduction of policy changes can also greatly enhance

the efficiency of a property tax/rate thereby minimizing exemptions and promote a broader property tax/rate base. According to (Cohen and Coughlin, 2005) and (Kelly, 2013), the United States and Canada introduced a two rate property tax system which yielded higher and sufficient revenue which were attributed to updated cadastral information systems and tax/rate collection system.

However, there is a contrasting difference in revenues from property tax/rates between the Americas and developing countries as not only attributed to property valuations as the major administrative constraint but also obstacles in developing a list of properties for fiscal cadastre especially in billing, collecting and enforcing payment of property tax/rates (Kelly, 2013). Moreover, there lacks a culture of paying taxes/rates in developing countries which create challenges in implementing successful tax/rates collection. In line with this, the poor performance of property tax/rates is hinged on the perception of tax payers towards the tax/rate system hence its poor performance ((Bahl and Jorge, 2008).

To make the property tax/rates meet the objective of revenue collection, governments have to opt for policy options related to tax base definitions, collection and enforcement provisions and dispute resolution mechanisms (Kelly, 2013).

2.4.3.3 Property tax as a land value capture instrument

Scholars (Dye and England, 2009); (Franzsen and McCluskey, 2013) and (Walters, 2011) have argued in favour of property tax/rate as a valid instrument for land value capture based on its quality of not distorting the market. However, (Walters, 2012) and (Cohen and Coughlin, 2005), point that there is need to have the market values of properties regularly updated and on cadastre match the taxing system. If this is not adhered to, the overall objective of capturing land value from property tax cannot be achieved. In addition absence of accurate land value data would make it difficult to realize sufficient revenues.

Property tax/rates on improvements is a cost recovery tool than it is as a land value capture instrument and taxing improvements only would finance the cost of public good or service provision to such improvements (Walters, 2011) and (Dye and England, 2009). However, the author's opinion of this assertion is that property tax/rates on improvements cannot be done without establishing the value of land and it is more efficient to establish the value two properties than just one.

Secondly, property tax/rates on improvements would give the wrong estimations where the developer would limit developing land potentially simply to avoid tax or bearing the full tax implication of development and property tax as such as a cost recovery tool would hamper provision of service since it is unsustainable. A tax on land would be both a cost recovery and value capture instrument since land is visible and no matter the improvements or developments that take place, it is an efficient tool for both objectives.

Property taxes/rates stand to capture land values effectively than leasing since the tax is based on a percentage of the value of land. However, this would only apply where frequent updating of cadastres is done to match with the rates to be collected and the level of municipal coverage to be applied. Where municipalities impose high penalties and measures for property rates defaulters such as confiscation of property and auctioning signifies the potency or success of the instrument to capture the value land.

2.5 Financing Municipal infrastructure through land value capture

Scholars such as (Medda, 2012, Fensham and Gleeson, 2003, Walters and Cornia, 2008) have discussed the direct impacts on land values as a result of investments on physical

infrastructure and other public actions. Besides infrastructure, urban areas create positive externalities for land owners where more traffic or better visibility improves the potential of parcels to attract commercial interest while better amenities make residential areas more attractive. There are suitable taxes methods that can recoup any increase in land values from positive externalities and public investments. The capitalised land value due to accessibility is due to access to natural amenities, infrastructure and highway systems.

A well implemented tax is the betterment tax or levy which is a one-time levy imposed as a result of change in land use, improved accessibility, reduced congestion or pollution or other public improvements that benefit the land owner. Betterment levies are effective in capturing the incremental value generated by transferring specific development rights where decision makers and administrators have the will to collect levies. Moreover, betterment levies are considered equitable as it seeks to recover part of the added value on private land that is as a result of transport investment. A case in point is Hong Kong and Singapore which has financed their metro systems through betterment taxes which was the principle revenue source (Medda, 2011). While betterment taxes/levies are instrumental in financing infrastructure, it is worth noting that betterment taxes can induce displacements from an urban area affected by transport projects as some residents may be asset rich but cash poor and thus may prefer to be financially compensated but give up their right to land in that particular place. In addition, betterment taxes may be used to perpetuate inequality in infrastructure provision where municipal authorities focus infrastructure development and service delivery in areas where land owners ability to pay the tax/levy is greater.

Another approach to capture the windfall value is through a land tax such as the split rate property tax which taxes both property and land (Cohen and Coughlin, 2005). This system has been used in Pennsylvania State in the United States and has been used to finance not only infrastructure but also social programs.

(Medda, 2012) and (Doherty, 2004) have discussed about Accessibility Increment Contribution (AIC) which is an embodiment of all the fiscal contributions for increment in land values as a result of accessibility. This tool is premised on the ideal that public expenditures to improve on accessibility induce growth in urban areas with low levels of accessibility. (Doherty, 2004, Doherty, 2004) notes that a significant part of capital costs are in land acquisition and by capturing the incremental value of land through property tax or special levies, revenue sufficient to finance infrastructural development can be realized from the land holdings on corridors that stand to benefit from infrastructure development.

2.5.1 Infrastructure as a public good

Public infrastructure is a public good as it is provided by the government and has the two (2) distinguishing characteristics of a public good i.e. non-rivalrous in consumption and are non-excludable. However, major highways can be excluded with imposition of tolls whereby it is meant to raise revenue to recoup the costs of construction and or finance maintenance. The cost of neglecting an infrastructure is as high as the cost of major reconstruction of the same. In the United States of America for example \$13 billion dollars' worth of roads built in the 1970s and 1980s had eroded due to deficient maintenance (Rioja, 2013).

In most developing countries, new infrastructure construction is financed by foreign aid or borrowed loans thereby the home government finds it optimal to reduce its maintenance expenditures for the existing infrastructure which is raised through taxation (Rioja, 2013). The economic rate of return for maintenance of roads is very high, however financing the maintenance always presents challenges and various approaches have been employed such as the budget approach and establishment of agencies such as fuel levy funds which have proved

difficult to manage. In light with this, the author strongly believes that governments can obtain enough revenue for the construction and maintenance of road infrastructure through land value capture as long as government priorities are well defined and revenues properly earmarked for specific activities.

2.6 Effectiveness of land leasing and property rates in infrastructural development

Effectiveness is the extent to which stated objectives are met which can range from achieving a specific output to general outcomes. Generally, effectiveness is measured by the changes in outcomes that reflect on the objectives of the program. To measure these changes in the outcomes, it is imperative to set targets and operationalizing them which would in turn make an improvement in the outcome (Commonwealth of Australia., 2013).

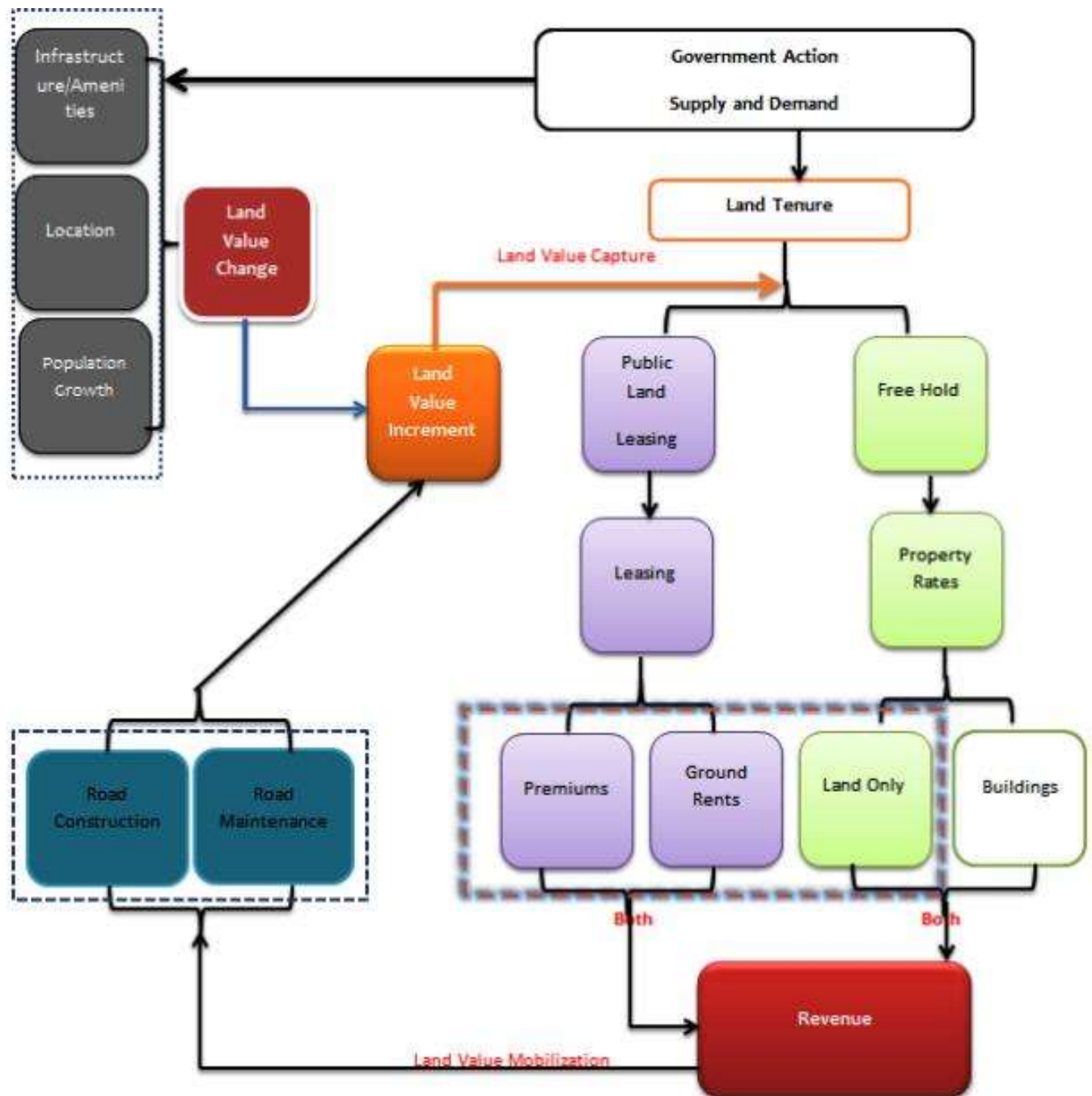
Effectiveness can be attained by means of cost or programme effectiveness whereas for cost effectiveness indicators estimate the unit cost of producing a well-defined outcome, program effectiveness highlights on the agreed measures of appropriateness and quality with the aim of reflecting the extent to which objectives are achieved (Commonwealth of Australia., 2013).

2.7 Conceptual Framework

The conceptual framework is based on the theoretical framework of the author as discussed above. The value of land is influenced by factors such as population increase which creates demand for land and also provision of infrastructure (coloured in black). To capture the value of land, government has to put in place tenure systems that facilitate value capturing and in this thesis, public land leasing and freehold tenures are focused, where land leasing and property rates as land value capture instruments can be exploited to capture the incremental value of land in Nairobi. With the revenues from annual rents and taxation, the government can mobilise the value captured to provide a social good which in the author's case is a road infrastructure. The public good provided through mobilization of land values facilitates further increase in land values.

This is outlined in the framework below:

Figure 2: Conceptual Framework



Chapter 3: Research Design and Methods

This chapter focuses and delves on the research methods, strategies and techniques used to conduct the research and the procedure for data collection and preparation.

3.1. Introduction

Land value capture is a new concept in Kenya which is undertaken without the consciousness of capturing land values. This is attested by collection of premiums and annual rents from land leasing and property rates from freehold properties which in theory have been implemented effectively and efficiently to capture land values in other countries. In this regard, this research is an explanatory research which specifies the nature and direction of the relationships between or among variables being studied in addition to connecting ideas to understand the cause and effect of an existing phenomenon. Therefore, from the conceptual framework, various theories on LVC have been discussed on which explanatory research probes to explain the components of and application of land value capture and mobilization in Kenya and in Nairobi for that matter.

3.2 Research Area

Nairobi is a rapidly growing city in East and Central Africa and being the social and economic hub of the region, many infrastructural investments have been undertaken by the government to boost investor confidence to invest not only in Nairobi but set up shop in Kenya for the country and the region as a whole. This however, tends to have an impact on the land values as more and more land owners situated within the fringes of the city and where development is targeted to occur are converting their land uses from agricultural to commercial and residential land use. This resonates to high land values and the most notable avenue for increment in land values is through construction of road infrastructure. Both the central and local government have been leasing public land and collecting property rates, however, this has been done without the knowledge of benefits the unearned increments private land owners pocket could finance development objectives of the nation.

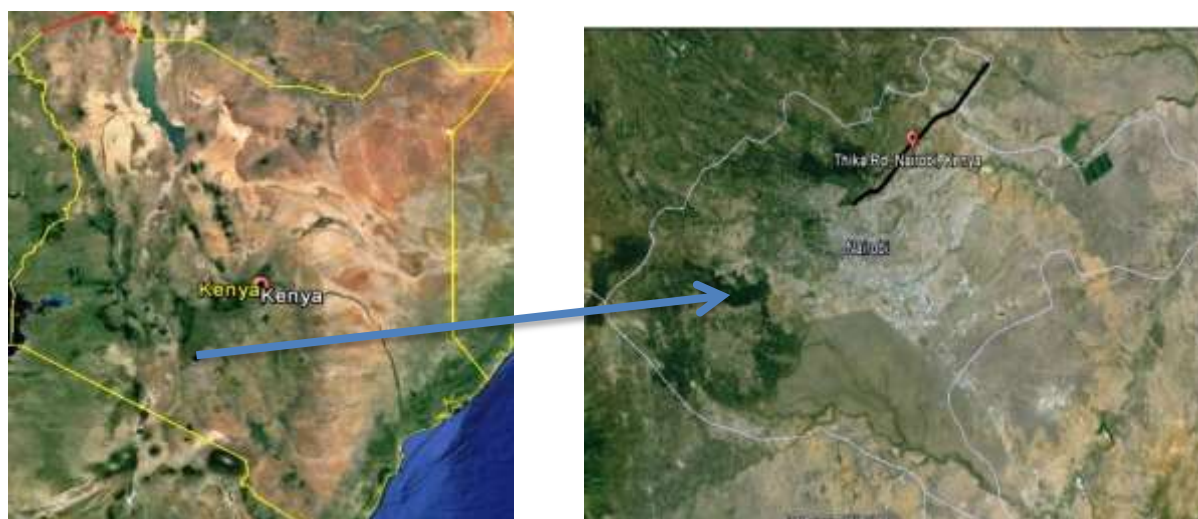


Figure 3: Location of research focus within Nairobi Boundary

(Source: Google Earth, 2014)

3.3. Research Questions

In order to acquaint the reader with the research, it was vital to include the research questions which guided the researcher in conducting the research. The main research question is: How effective is public land leasing and property rates as land value mobilization instruments to finance the construction and maintenance of public road infrastructure? The aim was to establish whether public land leasing and property rates are viable financial land based instruments to capture increments in land values. If the revenue generated from leasing or property rates was enough to finance road infrastructure construction or maintenance then it is suffice to deduce the rapid increase in land values are capable of financing infrastructure development.

Main research question

How effective is public land leasing and property rates as land value mobilization instruments to finance the construction and maintenance of public road infrastructure?

Sub questions

The sub-questions from the main objective include:

1. What are the legal framework and institutional setup that enable the collection of property rates, ground rents and premiums that can be used to finance road infrastructure?
2. How successful is land leasing or property rates in financing road construction?
3. How successful is land leasing or property rates in financing road maintenance?
4. What were the increments in land value along Thika Road before and after construction?

3.3.1 Operationalization: Variables, Indicators

Table 1: Operationalization matrix

Main Research Question	To identify how land lease and property rates/taxes could be used to capture land values where increments in value of land can be used to finance construction and maintenance road infrastructure						
Main Research Question	How effective is public land leasing and property rates as land value mobilization instruments to finance the construction and maintenance of public road infrastructure?						
Sub Question	Independent Variable	Indicators	Data Source	Data Collection	Data Method	Data Type	
What were the increments in land values along Thika Road before and after road construction?	Increments in land values before road construction	Land price before road construction (2006 - 2007) per M ²	· Real Estate Agents	Semi Structured Interviews	Primary Data	Qualitative and Quantitative data	
		Land price after announcement of road construction (2008) per M ²	· Valuation/ Surveyors				
		Land price during construction (2009 - 2011) per M ²	· Valuation Roll				
	Increments in land values after road construction	Land price after construction (2012) per M ²					
What are the legal framework and institutional setup that enable the collection of property rates, annual rents	Property rights of leasehold owners	Property rights of leasehold owners (lessee)	· Kenya Constitution 2010	Semi Structured Interview	Primary and secondary data	Qualitative data	
			· Kenya Lands Act				
			· Legal Expert				
			Rights of government to set up premiums and annual rents				
			Rights of government to collect premiums and				

and premiums that can be used to finance road infrastructure?	annual rents					
	Property rights of freehold owners	Property rights of freehold owners	<ul style="list-style-type: none"> · Kenya Constitution 2010 · Kenya Lands Act · Legal Expert · Lands Expert 	Semi structured Interview	Primary and secondary data	Qualitative data
		Rights of government/local government to set up property rates				
		Rights of government/local government to collect property rates				
	Legal framework of Land lease	Public land lease administration	<ul style="list-style-type: none"> · Kenya Lands Act · Kenya Constitution 2010 · Lands Expert · Ministry of lands · National Land Commission 	Semi Structured Interview	Primary and secondary data	Qualitative data
		Laws governing public land lease	<ul style="list-style-type: none"> · Legal Expert 			
	Legal framework on property rates	Property rates administration	<ul style="list-style-type: none"> · Local Council rates 			
	Legal authority to structure public land lease	Structure of leasing contracts	<ul style="list-style-type: none"> · Kenya Lands Act · Kenya Constitution 2010 	Semi Structured Interviews	Primary and Secondary data	Qualitative data

			<ul style="list-style-type: none"> · Lands Expert · Legal Expert 			
		Law enabling the government to enforce premiums and annual rents				
	Legal authority to structure property rates	Law provisions that determine the percentage of property value to be paid as rates Law enabling the determination of the amount to be paid as rates Legal right of government to collect property rates	<ul style="list-style-type: none"> · Legal Expert 			
	Institutional setup to collect premiums and annual rents	Institution that collects premiums and annual rents	National Land Commission	Semi structured interviews	Primary and secondary data	Qualitative data
		Mechanisms of administering public land	National Land Commission			

	Institutional setup to collect Property rates	leasing Institution that collects property rates Mechanisms of administering Property rates Cadastre coverage of property rates	Local Council				
	Body responsible for road provision	Construction and maintenance of road infrastructure	KeNHA	Semi structured interviews	Primary and secondary data	Qualitative and quantitative data	
How successful is land leasing and property rates in financing road construction?	Revenue generated through premiums and annual rents	Structure of premiums and annual rent payments	Ministry of Lands	Semi structured Interviews	Primary and secondary data	Qualitative and quantitative data	
	Revenue generated through property rates (2007 - 2012)	Rate/tax base	Local Council				
	Cost of road construction between 2007 - 2012	Amounts spent in road constructions	KeNHA				
How successful is land leasing and property rates in financing road maintenance?	Revenue generated through premiums and annual rents (2007 - 2012)	Structure of premiums and annual rent payments	Ministry of Lands	Semi Structured Interviews	Primary and secondary data	Qualitative and quantitative data	
	Revenue generated from property rates (2002-2012)	Rate/tax base	Local Council				
	Cost of road maintenance between 2007 - 2012	Amounts spent in road maintenance	KeNHA				

3.4 Research Approach and Technique

A case study research was used in reconnoitring the effectiveness of public land leasing and property rates to finance road infrastructure. The case study adopted a single embedded case design where the researcher focused on multiple units narrowed down to Thika Superhighway and the analysis results confirm the effectiveness of the instruments to capture land values and finance infrastructure.

The researchers' choice for case study was driven by the uniqueness of the Thika superhighway which is of a kind in Kenya and possibly in East Africa and therefore aimed at establishing its influence on land values on an area which had been characterised by dwindling land values, inaccessibility and frequent traffic accidents. In addition, the case study was vital as it explored the contemporary phenomenon of the road within the real life context using multiple sources of evidence where the boundaries between phenomenon and context were not clearly evident. There is little known information about the land value capture in Kenya to warrant usage of any other technique for this kind of research therefore case study presented the right approach to evaluate processes and their outcomes. Case study was a good source of ideas for the researcher to learn about increase in land values with focus on Thika Superhighway though it can pose a challenge in drawing definite cause effects conclusions and in future open channels for further studies.

3.4.1 Data Collection Process and Methods

Data collection for this research entailed interviewing professionals in the legal and land administration field, finance experts as well as real estate valuers and agents. The researcher intended to obtain land values from real estate agents from 2002 to 2012 but this was not possible as the real estate agents only had records from 2006 due to the poor record keeping. To establish the land values, a total number of 14 plots of equal measure (2023 m²) representing 7 leasehold and 7 freehold land parcels were obtained from 14 locations all along Thika Superhighway and the distance of these plots from the superhighway range from 0.5 meters to 2 kilometers. The essence of obtaining an equal measure of plot size is to ascertain the influence of the road in land price for both lease and freehold land parcels to establish any change in land prices per square meter before during and after Thika Road construction.

To acquire data on effectiveness of land leasing and property rates as land value capture and mobilization instruments, a number of data collection methods and types were used where primary data and secondary data methods, qualitative and quantitative data types were gathered. The entire research was a case study research, however, the researcher analysed the research strategy and data collection methods per question basis for clarity. These sub questions will assist in answering the main research question on effectiveness of land leasing and property rates to finance infrastructure development.

Sub question 1: What are the legal framework and institutional setup that enable the collection of property rates, annual rents and premiums that can be used to finance road infrastructure?

Land leasing and property rates are governed by laws for their administration and to answer this question, indicators of property rights by government and property owners is essential to answer this question. Establishing the legal basis is fundamental to ascertain if the revenues generated from the instruments are backed by law that would make it a fundamental right of government to generate revenues from the instruments and if so, what are the provisions that

govern collection of the revenue. This was also aimed at establishing the link between property rights of lease and freehold owners and payment of rates, premiums and annual rents.

The research strategy used to answer this question was case study which the researcher saw as effective in understanding the legal framework and institutional setup that enable and facilitate mechanisms of land leasing and property rates to capture land values. For this question, purposive sampling was used where the researcher interviewed legal experts of department in ministry of land and the NLC in line with land law and land administration to establish the legality and mechanisms of land leasing and property rates in Kenya.

Data collection method used was semi structured interviews for the researcher to acquaint himself with the legal operations of the land agencies and for triangulation of information, secondary data was collected to correlate the information from the interviews. The collected data was primary and secondary in nature and mainly comprised qualitative information.

Sub question 2: How successful is land leasing and property rates in financing road construction?

This sub-question aims at establishing the successfulness of the instruments in financing road construction by analysing the revenues generated from premiums, annual rents and property rates versus the costs of Thika Road construction. Analysing the revenues against the costs of Thika road construction would prove the effectiveness of the instruments in financing the construction or not. The researcher intended to collect revenues on premiums and annual rents from the instruments for a duration of 10 years but this proved a challenge due to lack of properly kept records and hence managed to obtain revenues collected from 2007 to 2012.

In determining the success of land leasing and property rates in financing road construction, semi structured interview used to establish how the land lease and property rates are structured to generate revenue. It is from this revenue and the calculations behind the two (2) instruments that establish success of the individual instrument to finance either construction of road infrastructure.

The data to answer this question was primary and secondary in nature where establishing the operations of land leasing and property rates entailed collection of secondary data while revenues generated from the instruments and costs of road construction was primary data. This data was both qualitative and quantitative in nature.

Sub question 3: How successful is land leasing and property rates in financing road maintenance?

Similarly to the above sub question, in determining the success of land leasing and property rates in financing road maintenance, semi structured interview was used to establish how the land lease and property rates are structured to generate revenue. It is from this revenue and the calculations behind the two (2) instruments that establish the success of the individual instrument to finance either maintenance of road infrastructure.

The data for this question was primary and secondary where establishing the operations of land leasing and property rates entailed collection of secondary data while revenues generated from the instruments and costs of road maintenance were primary data. This data is both qualitative and quantitative in nature.

Primary data was collected for a specific research problem at hand using various procedures that best fit the research problem and in this research, interviews gave first-hand information about land value capture in Kenya. Primary data entailed obtaining first-hand information

from land and legal experts, real estate agents and property owners which was necessary to establish the effectiveness of land leasing and property rates to finance road infrastructure.

On interviews, an in-depth semi structured interview was used targeting experts in the line ministries and agencies responsible for public land leasing and property rates administration that have the required qualitative and quantitative data. This was necessary as the researcher needed to acquaint with the workings of land administration agencies as this was a new line of profession being researched on and therefore needed to correlate theories in literature with practical applications. This ensured the researcher obtained more data and information relevant to this study.

Secondary data sources for this research included government documents, text books, journals and scholarly literature related to the topic of research in order to obtain relevant information. Secondary data entailed records and information on public land leasing, property rates and records of expenditure on road construction and maintenance. In addition, other sources of secondary data included the Kenya Constitution 2010, Lands Act, National Land Policy and records of revenues from public land leasing (premiums and annual rents) and property rates starting period of 2007 to 2012.

Sub question 4: What were the increments in land values along Thika Road before and after road construction?

To assess the increments in land values along Thika superhighway, indicators of land prices before road construction, during and after the construction were gathered for different locations along Thika superhighway with distances of up to 2 kilometres from the highway to analyse the trend in land prices over the years. This would assist in ascertaining the impact of the road on land values over the years at different locations. This would confirm with the conceptual framework the impact of amenity provision on land values.

The data collection method used for this research was semi structured interview where interviews aimed at establishing to assert the theories discussed behind increment in land values in the field and exploring more factors as to the causes of increment in land values. Interviews were held with real estate agents involved in the land and property transactions.

The data obtained was primary data as a compilation of transaction records over the years was collected and analysed to ascertain increment in land values. In addition, the type of data obtained was qualitative and quantitative in nature.

3.4.2 Sample size and selection

The main type of sampling used for this research was purposive sampling which is a non-probability sampling technique where certain units/cases are selected based on specific purposes rather than random selection. The resolution to use purposive sampling for this research was to achieve representation and comparability where the researcher interviewed the heads of department in the ministry of lands and local council as well as departmental staff on the administration of public land leasing and property rates. To be able to draw out the samples for purposive sampling, it was necessary for the researcher to know the structure of the organization in order to obtain knowledgeable and reliable informants efficiently. It was the intention of the researcher to interview 30 professionals; 5 individuals from each category (KeNHA, Ministry of land and NLC, Legal experts, Real estate agents and land experts) however, there were challenges such as some of the individuals were on leave, had busy schedules as it was closing the financial books of government and thus had no time for research interviews. Eventually the researcher managed to interview 20 professionals across the line of professions. This information is also contained in the annex.

Moreover, the researcher interviewed real estate agencies situated along Thika Superhighway with the intention to collect information on land values and sales for land on residential use situated approximately 2 kilometres from the highway and to ascertain the changes in land values which will triangulate the information as secondary data. The researcher settled on finding information on land for residential use as people had migrated from locations along Thika road before construction of the superhighway due to traffic congestion, inaccessibility and frequent accidents along the road due to its poor state.

Nairobi is approximated but unconfirmed to have 350 thousand registered land parcels with 80% being on leasehold and 20% on freehold. Since this number of land parcels is approximated and unconfirmed, the researcher collected information on 14 land parcels 7 of which were on lease and the other 7 on freehold from different locations along Thika superhighway to compare the land values between leasehold properties and freehold properties and their subsequent impact on land prices. This number is not representative of the entire land parcels in Nairobi considering the time frame of doing the research and lack of GIS based information on land parcels in Nairobi County, it is aimed at demonstrating increase in land values and the subsequent increase in land prices for leasehold and freehold properties.

3.5 Validity and Reliability

Validity of research determines whether the research truly measures that which it was intended to measure to ascertain the truthfulness of research results. The validity of this research is hinged on the utilization of different data collection methods such as in depth interviews and the primary and secondary data obtained. For this research, purposive sampling was used which targeted knowledgeable individuals in different professional arenas related to the research.

(Joppe 2000: pg 1) as quoted in Golafshani (2003) and (Kirk and Miller, 1986) describe reliability as the extent to which results are consistent over time and an accurate representation of the total population under study and the same research instrument can yield the same results. Reliability of research relates to three (3) dimensions; degree to which measurement remains consistent upon repetition, stability of measurement overtime and similarities of measurements within a given time frame.

The researcher ensured validity and reliability through triangulation of data from interviews with office officials, secondary data and academic literature. For this research, the privacy nature of land sales by the real estate agents, the researcher was able to acquire land sales from two (2) real estate agents who were willing to share their quantitative data on land prices and sales in the different locations obtained. Reliability of this research is guaranteed where land sales from two (2) real estate agents are obtained and the same analysis of land sales along Thika Superhighway over the years (before, during and after construction) is conducted just as the researcher conducted the analysis. Validity of this research is ensured from the interviews obtained are from professionals on land, legal, local authority and real estate agents where a conducting the interview questions can answer the sub questions at hand.

Secondary Data Sources

The secondary sources of data used were obtained from the National Land Commission, Ministry of Lands Housing and Urban Development and from the legal experts especially the land laws.

Desktop review was undertaken for both published and unpublished information concerning the total number of land parcels within Nairobi County, and the percentages of leased land vis a vis freehold land in Nairobi. However, the researcher resorted to phone call interviews to obtain this information.

3.6 Data Analysis Method

Data was analysed in relation to the research problem for the purpose of generating information that will help answer the research question. A distinction is to be made between qualitative and quantitative analysis which both use different techniques for analysis where quantitative data uses syntax of mathematical operations to investigate the properties of data. In the data collected, it involved capitalizing on the figures by factoring the inflation rate per year obtained from IMF website and converting the figure to the current dollar rate which was obtained from a financial website (www.oanda.com) that gives the averages of the dollar versus the local currency and in his case is Kenya shilling. Qualitative analysis entailed looking at patterns and inconsistencies in the information collected to generate correlate and generate new concepts and theory which may uncover further instances than those already in existence.

3.6.1 Calculation of inflated values

To obtain the land values from 2006 to 2012 in 2014 real values, the researcher had to obtain the rate of inflation in Kenya per year from International Monetary Fund online webpage which is as presented in the table below:

Table 2: Rate of inflation 2006 - 2012

Year	2006	2007	2008	2009	2010	2011	2012
Rate of Inflation	14.5	9.8	26.2	10.1	3.88	14	9.65

From the above inflation rate, the researcher inflated the land sale price of the individual years (2006 – 2012) to current price of 2014 which was then divided by the 2014 dollar exchange rate to the Kenya shilling.

The following formula was used:

$$PV = \text{Principle Sum} (1+r)^n$$

Where:

PV = Present Value of the sale in 2014

Principle Sum = the selling price of land

R = inflation rate of individual year

N = Number of years from 2014

The same formula was used to establish the current values of stand premiums, annual rents, property rates as well as establishing the cost of road construction and maintenance which was as follows:

$$PV = \text{Principle sum} (1+r)^n$$

Where:

PV = Present value of in 2014

Principle sum = Stand premium, annual rent, property rate or cost of road construction or maintenance

R = Inflation rate of the individual year

N = Number of years from 2014

3.7 Limitations of the study

- One of the limitations to this research is the assumption that land values along Thika road are attributed to the construction of the superhighway. There could be other factors or utilities which contributed to the increase in land values.
- Another limitation is the poor record keeping. From one source, it was informed that the policy is not to store records more than 7 years old and this had an impact on the research in establishing the revenues over the years.
- Secrecy: there was an aura of secrecy from real estate agents and government ministry with regards to the revenues generated from land leasing. They were extremely reluctant and uncooperative in providing this information. In the ministry of land, it involved the researcher personally going through logs which document the revenues received from premiums and annual rents. Upon inquiring whether the revenues are for the entire country or Nairobi County alone, the officer in charge responded the revenues are for Nairobi alone.
- In addition to poor record keeping is missing information especially in registering the revenue collection from property rates which are riddled with defaulters. With missing information, the consistency of analysis will be jeopardized making it difficult to draw informed conclusions.
- Deriving samples especially for institutional interviews for this research is a limitation as the number of institutions compared to commercial and residential properties is few hence will affect the sample size hence the for uniformity and consistency, the researcher decided to sample residential plot sales. Moreover, the information on the number of land parcels in Nairobi could not be relied upon to provide a representative sample size.
- Lack of GIS digitized map of Nairobi County depicting land distribution would have confirmed the number of land parcels in Nairobi under leasehold and freehold. The land registry in Nairobi had been undertaking an exercise of cleaning up the registry which also entailed digitizing the land parcels but the exercise had just commenced and hence not accessible to anyone other than lands officials.
- The researcher obtained the inflation rates of individual years instead of obtaining the average inflation rate as Kenya has had fluctuating inflation rates with the highest being 26.2% and the lowest being 3.88%. As such, obtaining an average figure would have distorted the averages which would have given the wrong values. The impact of the individual inflation rates per year reflects on the land sales where it is seen as land sales were high in one particular year but low in the following year.
- Similarly, considering the inflation rate of individual year, the researcher opted to use a uniform exchange rate since inflation rates factor exchange rates and hence 2014 USD to Kenya Shilling was adopted.

Chapter 4: Research Findings

4.1 Preamble

This chapter presents the research findings of land leasing and property rates management gathered in Nairobi in order to address the effectiveness of land leasing and property rates to finance infrastructure development. The researcher discusses the analyses as obtained from interviews with experts and triangulated with information from secondary data. The discussion on the findings will highlight aspects that make it possible to capture land value in Kenya where the Kenya constitution and secondary laws dictate on land tenure system, property rights, stand premiums and annual rents. At the end of each topic finding, a reflection of the discussion is done followed by a summary of the entire sub question.

The constitution of Kenya and the National Land Policy provide for fundamental principles of property rights to the Kenya citizens where secondary laws for management and administration of land are drawn and adhered to. The various secondary laws governing administration and management of land including land leasing are; The Land Act, Land Registration Act, and National Land Commission Act while property rates (tax) is governed by the local government act chapter 265, Valuation for Rating Act chapter 266 and the Rating Act chapter 267 which form the secondary data for this research. According to the National Land Policy, it is the prerogative of the government to ensure all land is put into productive use on sustainable basis by facilitating the implementation of key land policy principles on conservation of land quality, environmental audit and assessment, productivity targets and guidelines, land sizes and land use planning.

To facilitate efficient utilization of land, the government set up a land taxation regime that facilitates efficiency in revenue collection, utilization and servicing of land as well as providing incentives for appropriate land uses and improving the capacity of public institutions to assess and collect taxes.

Information from the interview with the legal expert, informed that the administration of land is clearly defined in law and as such there is consistency between practice in land administration and what the law stipulates on administration of land.

In order to tackle the sub question on legal framework and institutional set up that enables the collection of premiums, annual rents and property rates, it is imperative to describe how land tenure systems works in the Kenyan context.

4.2 Land Tenure

Secondary data revealed that land in Kenya is a core principal source of livelihood and material wealth which also has cultural significance attached to it. It is enshrined in the constitution under chapter five (5) of the constitution section 60 which stipulates that land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable in accordance with land rights and national land policy. From the constitution, the land act was enacted to further manage and to provide for the sustainable administration of land and land based resources, and for connected purposes.

According to the Kenya constitution Chapter 5, section 61 to 63, land is categorized into 3 groups⁷ i.e. public land, private land and community land. In distinguishing the categories, public land comprises all land that is not private land or community land and any other land declared to be public land by an Act of Parliament. In describing public land, a distinction is made between public spaces such as parks and green spaces which cannot be allocated to anyone and government land which is zoned out for occupation and use and therefore can be leased out. Safeguarding the management and administration of this land is undertaken by the National Land commission as stipulated in the National Land Commission act. Community land is land lawfully held by communities identified on the basis of ethnicity, culture or similar community interest but not including any public land held in trust by the county government. Community land cannot be sold unless the community consents to converting part or all of their land to a different tenure to allow sale of such land. Private land on the other hand consists of registered land held by any person under any freehold tenure, leasehold tenure or any other land declared private under an act of parliament. Private land has no restrictions on terms and conditions of sale or transfer and thereby many land transactions occur on private land.

Tenure systems comprise of a continuum of land rights principles guide the acquisition, use and disposal of land and in the case of Kenya, the principle rights of ownership are rights to use, right to transfer, right to dispose of and the right to exclude others from the land owned. However, the definition and scope of these rights to land vary from one tenure system to another where policy considerations such as the need to ensure equity in access to land is put into focus thereby necessitating the restriction of rights of ownership to facilitate sustainable resource mobilization.

4.3 Legal framework and Institutional setup: Public land Leasing

From interviews with the land experts, it was established that land in Kenya can be allocated on different lease periods where leases on 99 years are given on government land, 66 and 33 year leases land within municipalities and 50 years for renewal of leases. This therefore means that premiums are paid at different times depending with the lease an individual has been allocated.

Public Land Leasing			
Tenure of lease	Period	Body responsible	Reason
	99 years	Government land	All land
	66 years	Local authority	Trust land ²
	33 years	Local authority	Trust land
	50 years	Government land	Renewal of all lease

Table 3: Leasing Periods in Kenya

In addition, the land laws provide an itemization of all issues pertaining to land and term allocation of land as the legal process of granting rights to land to define land leasing. This is

² Trust Lands are lands that have been vested upon local authorities by the central government to manage

triangulated by the two secondary laws on land i.e. the National Land Commission Act and the Lands Act which guide on the administration of land. In this light, land in the constitution and the subsequent secondary laws is defined as including not just the soil, but also water, sea, and natural resources above and below the land, even the air.

The secondary laws provide a fundamental principle of the constitution which proclaims that land in Kenya belongs to the Kenyan people collectively as a nation, as communities and as individuals and protected by the constitution and managed by the NLC³ under the National Land Commission Act thereby giving the government rights to full ownership of land. This declaration is a critical principle in describing management of land allocation which empowers the NLC to manage the public land whereas the right to develop, use and dispose land is inherently granted to leaseholders. In essence, all rights to land are guaranteed upon allocation of land so long as the land use does not contravene environmental laws

4.3.1 Legal Right of Government under Law to institute Leasing

According to interviews with the land and legal experts it was established that the rights of government within the law to set up leases are provided by the fact that the government is the chief custodian/land owner in the entire state and it is this right that the government has the power to expropriate land for public use and compensate the private individual being expropriated as stipulated in the constitution and land act. However, the right to determine the premium and annual rents are considered by the location and size of the land.

The government being the custodian of the land acknowledges the need to apportion particular parcels of land to individuals and where the land falls within the municipality then leases are done. It is up to the government to decide which properties are to be leased and which ones to be freehold properties.

Collection of premiums and annual rents are remitted to the central government and are also determined by the fact that the lease is an agreement with terms of agreement to pay a certain fee upfront and a fraction annually till the expiry of the lease dictated by the land owner (the government). Since the government owns the land, people apply for leases which come with conditions such as payments of premiums and annual rents and hence individuals are obliged to abide by the conditions of the agreement as set by the government. Upon renewal of a lease, the value of land is recalculated to reflect the current capital value which in essence triangulates with literature review which points that land lease can capture land values upon renewal of a lease by revising the premiums and rents after a specified duration of time (Hong and Bourassa, 2003)

Land Allocation Process:

According to interviews with land experts and secondary literature on land laws of Kenya, before land is allocated, it must be planned, surveyed, valued then allocated upon which registration and legal fees have to be paid. The law on leasing stipulates that regulations have to be in place such as the lessee has to personally occupy and reside on land for the lease

³ NLC is an abbreviation for National Land Commission, a constitutional body mandated to manage all land on behalf of the government and Kenyan people

duration unless transfer/sale of land is done to another individual and all improvements on land whether permanent or temporary will be undertaken and payments made for by the lessee. In principle, leases in Kenya attract two (2) considerations; Stand premiums⁴ and annual rent whereby stand premiums are paid once as a contractual agreement to occupy and use land while annual/ground rents are annual payments paid to the government for the usage of that land leased for the duration leased which signifies the tenant and land lord relations between the government and the leaseholder.

4.3.2 Legal Rights of Leaseholders under the Law

Interview information from legal experts reveal that possessing a lease does not curtail right to transact with the land as the law grants the leaseholder bundles of rights and as such, there are different ways of transferring land from one person to another i.e. either through transmission where land is transferred from a deceased individual to living individual, gifts interval i.e. land given as a gift with no considerations and in this case, the annual rents have to be paid annually and premiums upon expiry of the lease. In essence, as a lease holder, the right to transfer, inherit sell and develop is granted without changes to premiums and annual rents until expiry of lease term. Upon expiry of the lease, the lessee or immediate past holder of the lease has pre-emptive rights prior to renewal of a lease which are taken into account by the land commission and the stand premium and the annual rents have to be paid in consideration of extension of the lease.

It was also established that property rights are not a determining factor in the payment of premiums and annual rents to be paid as the premiums and annual rents are paid depending on each property's location and size e.g. land within the CBD will not attract the same amount of premium as a land within the suburbs or environs of the CBD.

4.3.3 Institutional set up to manage leasing

With the formation of a two (2) tier government system and adoption of a devolved system of governance, District Land Boards (DLB) and Community Land Boards (CLB) were recognized as agents of the NLC under the supervision of and are accountable for their functions and performance to the NLC. The current constitution relegates the land administration and management to the NLC which is the constitutional body mandated to oversee land administration and management while the Ministry of lands has the mandate of giving policy directions to the NLC.

⁴ Stand premium is used interchangeably with Premiums while annual rents used interchangeably with ground rents as they are the professional term used by the NLC and Ministry of Land, Housing and Urban Development

The distinguished functions of the land administration and management agencies are as outlined in the table below:

Table 4: Division of roles between the land administration agencies

Agency	Functions	Head Officer
Ministry of Lands	a. Giving policy direction to the NLC;	Cabinet Secretary
	b. Making policies on land and coordinating their implementation;	
	c. Facilitating implementation of the land policy reforms;	
National Land Commission (NLC)	a. Hold title to and manage public land on behalf of the State;	Chairman of the NLC
	b. Establish and maintain a register of all public, private and community land in the country	
	c. Ensure the realization of the multiple values of land; economic productivity, equity, environmental sustainability and conservation of national heritage	
	d. Levy, collect and manage all land tax revenues except rates which shall be collected by local authorities or governments	
	e. Ensure the development and operation of effective digital Land Information Management Systems at all levels	
District Land Boards (DLB)	a. Facilitating the efficient operation of land markets at the district level	Chairman of the NLC
	b. Determining area of jurisdiction of CLBs	
	c. Monitoring and evaluating land reform programs at the district level.	
Community Land Boards (CLB)	a. Holding and managing community land;	Chairman of the NLC
	b. Documenting all community land	
	c. Regulating all transactions relating to community land; and	

4.3.4 Conclusion on the legal framework and institutional set up of Leasehold

From the research findings above, we can elucidate that public land leasing is provided for by the constitution and secondary laws which gives the government rights manage land tenure and to institute land leasing and subsequently collect revenue from the lease.

The legal rights of government over land to set up leasing regime is informed by the fact that the government is the chief custodian of all land and acknowledges the need to apportion land particular land parcels for development and revenue generation. In light of this, in principle the leaseholders also have rights to land which can be limited by discovery of new resources and as such leasing is a contractual agreement that attracts considerations to be paid over land. Land leasing in Kenya conforms to the international practices of managing land leasing.

Leases in Kenya are issued on different periods with the longest being 99 years and the shortest being 33 years. Moreover, land leasing is managed by a constitutionally mandated body to oversee all land matters in Kenya with the Ministry of Land, Housing and Urban development left with the roles of formulating policy for the NLC on land administration and management. This therefore informs that it is the central government which collects revenues from leasing in form of stand premiums and annual rents.

Lease holders enjoy the rights and benefits like any other individual with a different tenure. This therefore gives the leaseholder rights to transfer part of the lease by sale which must be under the consent of transfer issued by the head lessor who is the government through a commissioner of lands and a stamp duty⁵ is paid.

It is also imperative to note at this point that the execution of law on administration of land is as practiced and this aids in averting malpractice in administration of land. Before land is allocated, it must be planned, surveyed, valued then allocated/leased upon payment of premium followed by payment of annual rents as stipulated by the Lands Act and the National Lands Commission Act.

The institutional set up for managing leasing is devolved to community level with bodies formed to manage land administration at both district and community levels. These boards created have roles to play within the institutional framework of managing land which are supervised by the NLC.

The above findings concur with (Hong, 2013) as indicated in the literature review that lease conditions of a country are formulated depending on the legal and political institutions available which also stipulate on the considerations to be paid on land.

4.4 Legal framework and Institutional setup: Property Rates

From Interviews with the legal expert and local authority officials, the legal basis for instituting property rates is contained in the Local Government Act Chapter 265, The Valuation for Rating act chapter 266 and the Rating act chapter 267. This is triangulated with the secondary laws on land administration. According to Local Government Act chapter 265,

⁵ Stamp duty is a charge levied for any transaction carried out on land, building or any form of capital asset

a local authority can institute property rates, once it has attained administrative status of a township authority. However, despite replacing local governments with County⁶ governments, local authority is still translated to mean county council, town council or municipal council constituted by or under any law and as such can impose rating of properties and collection of revenue from property rates.

The interviews further elaborated that the local authority is empowered to administer property rates to meet all liabilities falling to be discharged out of the general rate fund, county fund or town rate fund in addition to establishing a general reserve fund⁷ which is as stipulated according to the Rating Act cap 267. To facilitate collection of property rates, the local authority has to value properties to ascertain the amount to be generated and this is provided for according to the Valuation for Rating Act chapter 266 sections 3 specifies that local authorities have to value properties in respect of which a rate on the value of land is to be imposed.

From the interview with the chief valuer of Nairobi City County and the Valuation for Rating Act, the value of land is defined as the sum of the freehold in possession free from encumbrances might be expected to realize at the time of valuation if offered for sale by a willing seller to a willing buyer at agreed terms and conditions. This is the definition that is contained in Section 8 of the Valuation for Rating Act which validates the valuation process and gives guidelines as to what should be regarded as the value of land. To determine the value of land, local authorities have adopted the value of unimproved land or the Unimproved Site Value as the rateable value which is the value imposed on land without any improvements and if any therein, thereon or thereunder are not regarded during valuation.

4.4.1 Rights of Freehold Owners

Furthermore it was established from the legal expert interview that freehold owners enjoy the same rights as lease holders only that they do not apply to the commissioner for consent to transfer land. This triangulated with the Kenya constitution as well as with the rights of leaseholders which stipulates that land owners have all rights to land so long as environment is not contravened. The rights of county government to collect property rates is hinged on the fact that the county government has to collect revenue and this is stipulated in the property tax law where property owners have to pay rates by fact they are within a municipality and the fact that a service is provided or not but fall within the jurisdiction of a municipality.

4.4.2 Institutional set up to administer Property Rates

The institutional setup for administration of property rates is organized in such a way that the rating department of the local authority obtains information from the chief valuer who provides the values of properties based on Unimproved Site Value (USV) of properties within Nairobi and which is processed with search documents from the lands office to assist

⁶ A County is a unit enshrined in the Kenyan Constitution 2010 as a unit of devolved government. A County government is an elevation of former district headquarters.

⁷ General Reserve Fund is a fund where at least a percentage of the Authority's annual profits are transferred at the end of each financial year after clearing allowances, expenses for operations and such other contingencies he authority deems appropriate.

in determining the value of the properties. Upon valuation of the properties, valuation books are opened with information of the land owner with the rates determined to be paid.

According to interviews with the officials in the planning department of the Nairobi City County Authority, collection of property rates is facilitated by cadaster coverage of all properties within the County/municipality; the extent of coverage of plots in the cadasters is 694 km² which represents the entire Nairobi City County and the cadasters are updated annually as soon as subdivisions are noted.

With the coverage of all plots in the cadasters, the method used to determine the amount to be paid as rates is the percentage method where residential commercial and industrial properties are charged a different rate, however, currently all properties are charged the same rate as in the years before while the different rates apply for different categories. There are also exempted properties which are owned by religious bodies such as churches and mosques which don't pay rates and flat rated properties which pay a flat rate for their land parcels. Properties under rating are properties which are registered from the Ministry of Lands office.

According to an interview with an official in the rating department, freehold ownership of land may or may not attract land rates depending on the location whereby land owners in agricultural zoned areas do not pay land rates unless such areas are converted to municipal plots hence pay a flat rate charge.

4.4.3 Forms of Rating

There are various forms of rating that maybe adopted by the local authority for the purposes of levying rates. These include; an area rate which can be a flat rate upon the area of land or graduated rate upon the area of land, an agricultural rental value rate or site value rate. Where any one of the rating forms has been adopted in respect of any rating area, no other form of rating can be adopted.

The table below outlines the responsibilities of the main line departments of the Nairobi County Council that facilitate administration of property rates:

Table 5: Institutional setup of Local Authority

Department	Responsibility
Valuation Department	Valuation of properties within the Nairobi County mainly for rating purposes and payment of revenues
	Advice on the values to use and provide with details of accounts to bill for rates and classes of properties for billing purposes
	Preparation of valuation roll
Rating Department	Collect rates revenue, bill the rate payers
	Provide management reports regarding collections and performance of rates
	Open new records for new rate payers
Planning Department	Updating cadasters
	Land surveying and mapping
	City planning

It was established from interview with official from the rating department that the determination of percentage rates to be paid is informed by the budgetary needs of the local authority sufficient to meet liabilities of the council and this is triangulated with information in the Rating Act section 13 which authorizes the council set the percentage rate to meet its expenses. This rate is also informed by the values in the valuation roll and is a uniform rate applied for all land parcels only excluding improvements on land and this rate is charged on the capital value of unimproved land or the USV. The information on the valuation roll informs on the fiscal cadasters which establishes the base to levy the property rates.

Property rates are administered in such a way that after every 5 years, the rates are reviewed with entry of a new government into power. Currently the rates stand at 34% which are informed by the financial budgetary needs of the local authority/county government. In principle, the county government evaluates its projected expenses and incomes and it is from this analysis that they set the percentage rates to be levied on land parcels within Nairobi. Once this rate is determined, demand notes are issued to property owners to pay up upon which failure to pay the rates, attracts an accumulating 3% interest every month.

4.4.4 Conclusion on legal framework and institutional setup of property rates

From the above findings we can deduce that the freehold owners enjoy the same rights to land as leasehold owners and the only difference is that while lease owners pay a premium as a contractual sum for the land, the freehold on the other hand is devoid of such payment. However, both ownerships attract an annual payment to the land which is an annual rent for leasing and property rates for freehold. In addition, the rates paid for freehold properties are based on land only and not on land and improvements.

We can also deduce that the percentage for payment of property rates is based on the financial need of the local authority and failure to pay the rates attracts an interest of 3% every month. To avoid accumulation of interest rate and subsequent placement under

receivership of the local authority or auction, land owners pay promptly hence efficient generation of revenue.

4.5 Summary of Legal framework and Institutional setup for Public land

Leasing and property rates

In summary, the administration of public land leasing and property rates is permitted by law and is enshrined in the National Land Commission Act and Rating Act respectively which empowers the NLC and the local authority to generate revenue as stand premiums and annual rents for leasing and property rates for freehold properties.

The commission has commissioners and directorates who are in charge of various aspects of land management followed by county land management boards which manage the activities of the commission at the county level (decentralization of the commission) and secretariat of professionals who advise the commissioners and county land management boards.

The government has the inherent right to institute land leasing since it is the chief custodian of all land and therefore recognizes the need to apportion part of the land for development. This right of government further empowers the government to generate and collect revenues from leased land.

Valuation of property is essential for the purposes of leasing and payment of annual rents, rating and subsequent collection of property rates. The law on land and valuation for rating stipulates that NLC and the local authorities respectively can value ratable properties within the jurisdiction of the county and local authority from time to time but once in five (5) years in respect of which a rate on the value of land is imposed and the values recorded in valuation roll.

For rating purposes, the value of property used for determining the property rates to be paid is the value of unimproved site value (USV) or unimproved land. The valuation roll prepared by the local authority chief valuer includes information of the unimproved site value and where the value of improvements and value of land are both captured; the law dictates the value of improvements shall not exceed the amount obtained after deducting the value of the unimproved land from the value of land.

The property rights of land owners is guaranteed in the constitution which gives all rights to land owners except where minerals are discovered which will prompt the government to acquire the property compulsorily. This implies that property rights are not a determinant factor in paying the considerations on leased and freehold land and by law, land owners are required to pay premiums and annual rents for leased properties and property rates for freehold properties. Where land owners default in paying, the properties can be attached and auctioned and lease revoked where the expiry of the lease is still far or non-renewal of lease upon expiry of the lease.

With the rights to land guaranteed in law, which do not determine the considerations to be paid, land owners can engage in any form of land transaction therefore leaseholders with long lease periods can sell the land at a market value thereby recouping more than what was paid

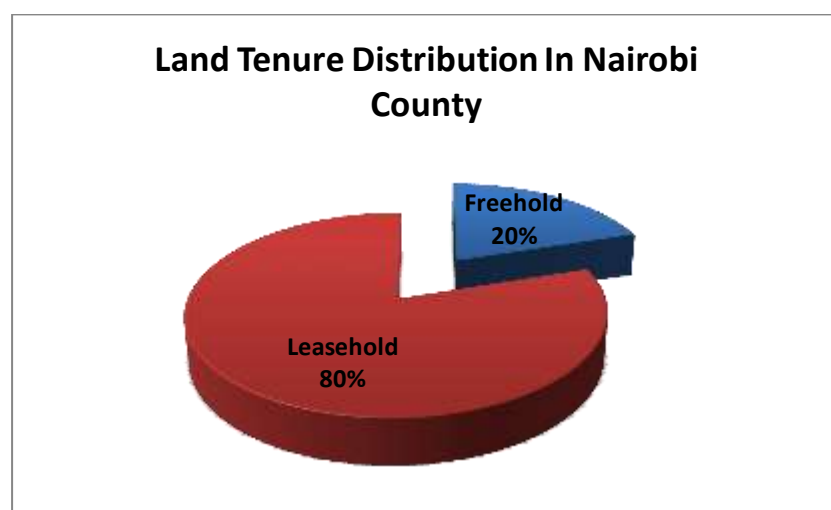
as premiums and/or annual rents. (Ingram and Hong, 2011)states that a tax on land can discourage speculation hence lowering the market value of land but for the case of Nairobi, the there is no land tax to check on speculation on land therefore the amounts paid are minimal compared to what is derived from the market value.

Since the premiums, annual rents and property rates are considered in law and the institutional set up of the NLC and the local authority is structured to administer the instruments it is necessary to look at the revenues generated by the instruments in order to answer the second and third sub question which is ‘How successful is land leasing or property rates in financing road construction and road maintenance.

4.6 Success of land leasing and property rates in revenue generation

To establish the effectiveness of land leasing and property rates to finance road construction or maintenance, it is imperative to discuss how the 2 instruments are structured to capture land values which would yield revenues to finance infrastructure development. From the interviews with the MoLHUD⁸, NLC officials and Local Council authorities land in Nairobi County comprises of 80% leased land and 20% freehold land. Furthermore, it was established from the interviews that from the colonial setting, all land in Nairobi belongs to the central government with trust lands vested to the local authority which form part of the freehold parcels. In this light, stand premiums and annual rents are collected by central government while property rates are collected by local authorities. However, it was also established that an approximated but unconfirmed 350 thousand land parcels are located in Nairobi County which informs that 280 thousand parcels are on leasehold while 70 thousand are on freehold.

Figure 4: Land tenure distribution in Nairobi



4.6.1 Structuring of Stand Premiums and Annual Rents and revenue generated

From the interviews with the land experts, it was revealed that the stand premiums and annual rents are a preserve of the NLC which determines the value of land before imposing the considerations to be made. In addition, according to the land act 2012 section 28 states that

⁸ MoLHUD is an abbreviation for Ministry of Lands, Housing and Urban Development in Kenya

the rent and payments of any lease shall be owed to the commission and the annual rents for any lease shall be paid at the beginning of the year for the term. (Syagga, 1994) highlights that the payments of stand premiums and annual rents are made possible through proper structuring of leasing contracts which have provisions for the parties; durations of the lease and payment of premiums and annual rents to be made, conditions and warranties governing the lease.

One of the limitations was obtaining data for stand premiums and annual rents from 2002 to 2012 and as such the data was only obtained from 2006 to 2012 through a template that is affixed in the annex. Upon establishing the capital value of undeveloped land, 20% of the unimproved site value of the land is charged as stand premium and 5% of the stand premium as annual rent:

Table 6: Stand Premium and Annual rent formula

Stand Premium	20% of capital value of the land
Annual Rent	5% of the stand premium

Capital value can be charged on the site value rating or improvements on the site where adopting a capital value is hinged on tenure regulations securing for long lease of occupancy. Comparing the capital value to market value in calculation of the premiums and annual rents, imposition of market value can affect the maximum ability to pay of leaseholders to own and develop land as the market value is very high compared to the capital value and as such, the capital value is aimed at attracting individuals to own and develop land since it ensures the maximum ability to pay of individuals is not affected.

For example: a plot measuring 4046.86m² in an upmarket estate in Nairobi has been identified for allocation and the value of a similar plot in a similar location is US\$ 390 per m².

The stand premium and annual rent to be paid will be determined as follows:

Table 7: Stand premium and annual rent calculation

Area of Plot in M²	4046.86
Comparable value at 390 per m²	4046.86*390 =USD 1,578,275
Value of plot	1,578,275
Stand Premium @20%	0.20*1578275 = USD 315,655
Annual rent @5% stand premium	0.05*315655 =USD 15,782.75 p.a

With the above formula the NLC has been collecting revenues from leasing as per the financial year and this is categorized in the table below:

Table 8: Stand Premium and Annual Rent revenues

Year	Revenue from Stand Premiums (USD)	Revenue from Annual rents (USD)	Rate of inflation per year
2007	528,449.74	7,067,763.25	9.8
2008	3,007,226.47	70,435,581.49	26.2
2009	1,649,835.58	21,202,495.20	10.1
2010	863,878.84	15,046,156.72	3.88
2011	2,542,939.90	18,516,917.29	14
2012	1,886,532.25	5,698,202.49	9.65
Total	10,478,862.78	137,967,116.44	

(SOURCE: MoLHUD, Nairobi)

The above table presents revenues over the years that have been adjusted by the inflation per year and factored to 2014 current values as described in chapter 3. From the premiums and annual rents generated over the years, the researcher sort to establish the increment in premiums and annual rents over the years to ascertain between which of the two (2) sources of revenue has been increasing over the years and from the aggregate revenues generated over the years, it was evident that annual rents generate more revenue compared to stand premiums and to establish the percentage increase per year, the following table and graph describe the percentage comparison between the stand premiums and annual rents:

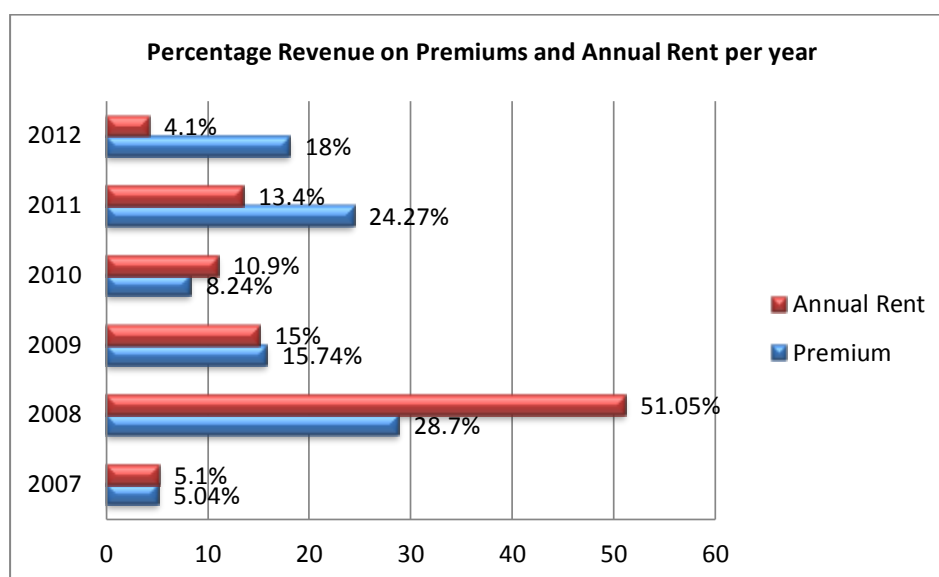
Table 9: Percentage revenues for Premiums and Annual Rents

Percentage revenues	2007	2008	2009	2010	2011	2012
Premium	5.04%	28.7%	15.74%	8.24%	24.27%	18%
Annual Rent	5.1%	51.05%	15%	10.9%	13.4%	4.1%

The percentage increase of stand premiums and annual rents is derived by multiplying the revenues generated per year by a hundred divided by the aggregate to obtain the percentage increase in the revenues per year.

A graphical presentation of the percentage increase is described below:

Figure 5: Percentage revenues for Premiums and Annual Rents



From the above graph, the annual rents have been exceeding the stand premiums generated and where premiums have exceeded annual rents, it can be accounted for by renewals of leases where new premiums had to be paid. In principle, the premium should be determined at market value as it is done in Hong Kong, China and where the premium is below the market value, the land rent will be paid for the portion which is not paid. However, for the case of Nairobi, the premium is determined by the capital value of land of which a percentage is paid as annual rent which forms the value of the land as determined by government compared to the best use value of land at open market.

With the premium set at 20% capital value of land which is below the market value of land, the maximum ability to pay of new land buyers is favored. This implies that the premiums in Nairobi captures a small portion of land values as the capital value is below the market value and neither does it reflect the best use value of land yet even after paying the capital value, the leaseholder can sell the land at market value and recoup the premium with profit. With low premiums paid, the annual rents are even lower as they are structured on 5% of stand premium. But what makes annual rents generate more revenue than premiums? Premiums are paid once while the annual rents are paid annually of which the amounts are low compared to best use value or market value and such it does not affect the maximum ability to pay of new land owners who buy land from lease owners. Practically, where land is located in CBD would attract the highest price due to its location and the returns it is bound to bring return when put to good use. The highest price is the best use value of land which if adopted for determination of premiums and annual rents would influence the maximum ability to pay of land owners to pay the premiums as a one off payment and annual rents.

It was also discovered from interviews that leasing is structured in manner that upon renewal of an expired lease, the land had to be re-valued at capital value and the necessary considerations updated and paid for. The capital value is preferred so as to attract land use development efficiently and is considered as the sum expected to be raised when land is

offered for sale on such reasonable terms and conditions as a seller in good faith would require assuming other improvements other than site improvements on land had not been made.

The determination and collection of stand premiums and annual rents used to be a preserve of the Ministry of Lands, Housing and Urban Development (MoLHUD) but this mandate was transferred to the NLC who have been given the fiscal discretion to determine, set and collect stand premiums as well as annual rents which is further remitted to the Kenya Revenue Authority.

4.6.2 Conclusions on structure of premiums and annual rents

From the findings above, it can be concluded that land value is determined prior to imposition of considerations for payments as premiums and annual rents. The premiums and annual rents are based on capital value of land which is calculated as 20% capital value of the USV of land as the stand premiums and 5% of the stand premiums as the annual rents which is also on capital value. From the interview with the chief valuer, the capital value of land is based on the premise that a buyer purchases a piece of land at a price that is commensurate to the benefits to be enjoyed and as such it is not based on the expected future value of land. This information is triangulated by literature on valuation by (Syagga, 1994)

The usage of capital value for the premiums and annual rents is aimed at promoting land use development but also considers the maximum ability to pay of individual to access and own land if not the land would be owned by only a few who are able to pay the maximum value to utilize the land and this would have a repercussion on equitable distribution of land and land use development. Adoption of capital value as the base value of the USV for levying the stand premium and annual rents in Kenya confirms with literature review by (Hong and Bourassa, 2003) where not all leasehold systems collect the lease premiums and land rents at market value. But even with the capital value and maximum ability to pay considerations, premiums generate low revenue compared to annual rents.

On analyzing the revenues obtained from leasing, it was discovered that annual rents perform better, however, at some point, the premiums generated more revenues and this was occasioned by payment of new premiums as a result of lease renewals.

4.7 Structuring of Property Rates and Revenue generated

For successful generation of revenues from property rates, it is imperative to establish the rateable value which in the case of Nairobi is based on the USV as stipulated in the Valuation for Rating Act section 8. From interviews with the planning department, it was revealed that identification of rate base in Nairobi involves legislation, planning, survey and registration of records into fiscal cadasters which facilitates the information on values of properties and the amounts expected as property rates and the rating department calculates the percentage rate to be levied on the properties as property rates. This is triangulated by literature from (Walters, 2011) that cadasters can be used as a single set of property records that support legal transfers of rights, land use planning and taxation, as well as other potential uses.

4.7.1 Establishing Rateable values

Interviews with the chief valuer revealed that upon identification of rateable land, valuation is done to establish rateable values which are based on the capital value of land without considering any improvements on land. This confirms (Walters, 2011) explanation for rateable values being based on capital value of land. Section 19 of the Rating Act states that any rate due together with interest rate calculated shall be charged against the land on which the rate was levied.

The rating authority notifies the rateable owners of the charge on land and the expected amount. Setting of the percentage rates to be paid is set in a council meeting which determines the financial budget of the council hence with different areas paying different amounts as rates due to the difference in valuation of properties, the revenue generated from rates is not uniform and in some cases riddled with defaults in payment. When an individual (defaulter) pays rates, the council deducts the interest on the payment to clear the arrears. Failure to pay on time, simple interest accrues.

Calculation of property rates uses a percentage of the USV and the current rate stands at 34% of the USV for all the properties under percentage rating. Flat rated properties are based on the area of land whereby fees are pegged on the size of the plot hence pay different rates. The determination of the percentage rate to be paid as property rates does not put into consideration the ability to pay by property owners and this is evidenced by a great number of property defaulters who wait to take advantage of waivers to settle rate debts.

Property Rates formula:

Revenue = Rate x Base (Valued at capital value of the USV)

Table 10: Property Rate Calculation example

Property Rates Calculation	
Area of Plot in M ²	4046.86
Comparable value at 400 per M ² USV	4046.86*400 =USD 1,618,744
Value of plot at USV	=USD 1,618,744
Property Rates @34%	0.34*1,618,744 =USD 550,373 p.a

The revenues generated from property rates within the Nairobi City County are as shown in the table below:

Table 11: Revenues from Property Rates

Year	Revenue generated from Property Rates (USD)	Inflation per year
2007	53,009,703.46	9.8
2008	80,862,831.27	26.2
2009	39,704,863.92	10.1
2010	21,000,091.92	3.88
2011	44,864,269.23	14
2012	38,717,670.89	9.65
Total	278,159,430.69	

(Source of Inflation Rate per Year – IMF)

4.7.2 Conclusion on structure of Property Rates

From the above findings, the property rates are based on USV of land which then is levied a percentage determined by the budgetary needs of the local authority. In addition to the establishment of rateable values on USV, the capital value of land informs on the USV without considering any improvements on land.

The local authority has the mandate to collect the revenues from property rates levied on freehold properties within the municipality which currently stands at 34% of the USV of any land parcel.

Determination of the percentage rate to be paid does not consider the ability to pay by property owners thereby it was reported in the interviews that a great number of property owners default from paying the rates.

4.8 Road Construction and Maintenance

According to secondary literature and interviews with engineers from KeNHA, road construction in Kenya is undertaken by the Kenya National Highways Authority (KeNHA), a state corporation charged with constructing, upgrading, rehabilitating and maintaining national roads as well as ensuring that the quality of roads is in accordance with standards. Urban arterial roads on the other hand are undertaken by a Kenya Urban Roads Authority (KURA), a separate agency from KeNHA. The primary classifications of roads that fall under KeNHA are three (3) namely: Class A roads which are International trunk roads connecting Kenya to its neighbors, Class B roads which are national trunk roads connecting between counties and Class C roads which are primary roads leading to county headquarters. Thika Superhighway is a Class A road which falls under KeNHA as it connects Kenya to Ethiopia to North with its origin in Nairobi.

The table below illustrates classification of road system undertaken by KeNHA:

Table 12: Roads Classification under by KeNHA

Classification	Surface Type (Kms)		
	Paved	Unpaved Gravel/Earth	Total
International trunk Roads - A	2,892	697	3,589
National Trunk Roads - B	1,568	1,106	2,674
Primary Roads - C	3,291	4,566	7,857
Total (km)	7,751	6,369	14,120

(Source: KeNHA)

Furthermore, it was established from the interviews that the construction of a new road depends on the type of road being constructed whereby costs of construction may vary from changing an unpaved road to a paved road which costs USD 1.1 million per kilometer. In addition, road maintenance is done throughout annually whereby routine maintenance for paved road costs USD 5,000 per kilometer for unpaved roads translating to USD 1700 per km while periodic maintenance can take USD 227 thousand per kilometer for paved road and USD 34 thousand per kilometer for unpaved roads.

Financing road construction is a costly venture where funds are predominantly raised from fuel levy where any machine that consumes fuel pays a fuel levy set at USD 0.102 per liter which is used for road maintenance while development funds are used for construction. Besides the fuel levy, loans and grants from development partners are other sources of finance where grants are used for road rehabilitation and reconstruction while loans are used for new road construction. The operations of KeNHA are countrywide and such undertake in various parts of the country for instance, road rehabilitation in western Kenya, Road improvement in Nairobi and new road construction projects.



Figure 6: Unpaved road

(Source: KeNHA)

It was established from the interviews and secondary data that maintenance of road infrastructure is an integral part of ensuring that the lifespan of the infrastructure is extended and hence save costs in constructing a new road. In comparison, maintenance works are cheaper in the long run compared to the main costs of constructing a new road altogether and comprises of several activities such maintaining the weighbridges, axle load controls and emergency road works. This information from the interviews and secondary data is triangulated with literature review which points that maintenance expenditures are aimed at ensuring that infrastructure functions optimally and lasts for the intended duration (Rioja, 2013)

From interviews with the engineers at KeNHA, and KeNHA report of 2013, when a new road is upgraded or constructed, maintenance works can be done periodically which is done on need basis and routinely which is done annually through performance based contracting which is an efficient way of carrying out maintenance works as the contractor has to monitor the state road infrastructure on a daily basis to ensure components of the road are maintained such as road furniture, sign posts etc. The contractors tender for maintenance works on any road for a period time and get payments on a monthly basis upon inspection by KeNHA engineers and satisfactorily approving maintenance is up to the required standards. This considerably brings down the cost of maintenance which unlike in the past maintenance would be carried out after a period of time, performance based contracting presents a cheaper option to maintaining infrastructure.

The table below describes the road maintenance expenses undertaken by KeNHA between 2012 and 2013:

Table 13: Road Maintenance Components

Road Maintenance	2012	2013
	USD	USD
Road maintenance works	109,749,997.27	87,618,448.76
Axle Load control expenses	4,954,748.17	4,546,716.28
Emergency road works	482,823.69	623,912.23
Total	115,187,569.13	92,789,077.27

(Source: KeNHA)

From the table above, KeNHA had budgeted USD 115 million and USD 92 million for 2012 – 2013 respectively for works pertaining to road maintenance nationally.

Allocation of road maintenance funds is based on the road maintenance levy fund which is used for maintenance and the fund has been increasing over the years currently standing at US\$ 284,252,416 for the whole country.

Figure 7: Thika Road works



(Source: KeNHA)

Thika Superhighway is an infrastructural brainchild of the Kenya government that is under KeNHA financed by the African Development Bank (AfDB) and the Kenya Government whereby construction work for the superhighway began in 2008 and completed in 2012 comprising a total length of 50km with considerations of the link roads to the superhighway. This infrastructural development was undertaken at a cost of USD 539 million with each construction per kilometer consuming USD 11 million.

The table below is a breakdown of construction costs of Thika Superhighway

Table 14: Thika Superhighway Construction Costs

Name of Project	Contract Sum (2014 value (USD))	Road Length (KM)
Nairobi-Thika Highway		
Nairobi – Thika (A2) (Lot 1)	162,362,024.90	12.4
Nairobi – Thika (A2) (Lot 2)	175,709,884	14
Nairobi – Thika (A2) (Lot 3)	200,942,865	23.9
Total cost	539,014,773.9	50.3

The construction and upgrading of the road was necessary for a number of reasons; the road is an international trunk road that connects Kenya and Ethiopia to the North, it is a vision 2030 blueprint of the government and thirdly, it was to rid of the menace of traffic congestion and road accidents that were common.

Figure 8: Complete Thika Superhighway



(Source: KeNHA)

Maintenance of Thika Superhighway has been budgeted to cost USD 12 million for FY 2014/2015 which will be done through performance based maintenance which has been recently tendered. Generations of tolls that can be used to self-finance the maintenance of the road are in the process whereby initial studies indicated that the road is viable for tolling and that projected revenues would supersede maintenance and operational costs. The preparatory studies including feasibility studies for the privatization of the road are being reviewed and the financial projections will follow to indicate the revenue forecasts.

4.9 Summary of structure of land instruments (Premiums, annual rents and property rates) and Road construction and maintenance

It is worth noting that premiums and annual rents in Nairobi are collected on daily basis where there are different lease periods which have expired and the payments are done for the lease renewals and all these leases have different periods for payment of annual rents. In addition, the NLC collects stamp duty which is a charge on every transaction on land and the revenues generated from stamp duty are equally high.

The USV used in rating is adopted to encourage development, however the rating authority has in its discretion to use any form of rating it deems fit to levy charges. The success of property rates to capture the value of land is determined by the ability of the local authority to enforce the fiscal cadaster values and reduce the number of default payments experienced.

Kenya National Highways Authority has the mandate to construct and maintain all roads under class A, B and C and Thika Superhighway falls under class A which is an international trunk road. Funding for road construction is sourced from fuel levy whereby with every liter of fuel purchased, USD 0.102 is contributed towards the fuel levy fund. Other sources of funding include foreign funding in form of loans and government allocations towards infrastructural development.

The Superhighway has had a significant impact on land since its conception whereby before its conception, land values and rental properties deteriorated in terms of pricing and rental

income respectively since the travel time. Thika Superhighway is an international trunk line that extends up to the Kenya Ethiopia border and within Nairobi County where it has passed; land values have appreciated which warrant the values to be captured. The other counties where the superhighway passes can capture the increased values which can be remitted to KeNHA for the maintenance of the road.

4.10 Road construction and Maintenance Analysis – Premiums and Annual Rents

To establish the effectiveness of premiums, annual rents and property rates in financing road construction, an analysis is made of the revenues generated from the land value capture instruments compared to the cost of road construction. In the following tables, stand premiums, annual rents are compared to the contract sum of constructing 1 kilometer of another road similar to Thika Superhighway.

This can help in determining how effectiveness of land leasing in infrastructure construction:

Table 15: Stand Premiums analysis against road construction

Year	Revenue generated from Stand premiums (2014 values (USD))	Inflation rate per year	Cost of Thika Road construction per Km (USD)
2007	528,449.74	9.8	10,780,295.00
2008	3,007,226.47	26.2	-
2009	1,649,835.58	10.1	-
2010	863,878.84	3.88	-
2011	2,542,939.90	14	-
2012	1,886,532.25	9.65	-
Total	10,478,862.78		

(Source of Inflation rate per year – IMF)

The cost of constructing 1 kilometer of road the class of Thika Superhighway costs USD 10.78 million while combined revenues of premiums over the years accumulates to USD 10.47 million. It can therefore be deduced that revenues generated from stand premiums for a period of 6 years can be used to finance construction of 0.97 km of a road which is the standard of Thika Superhighway.

Stand premiums in financing road construction

Revenue from Stand premiums =	10,478,862.78	= 0.97 kilometers
Cost of constructing 1 km Thika Superhighway =	10,780,295.00	

This derives information about stand premiums in Nairobi that the annual collection of stand premiums in as much as it is paid once, it is insufficient for undertaking construction of such

a road as Thika superhighway and as such, revenues have to be accumulated for a number of years to undertake construction of a road of such standard.

However, while premiums are one off payments which have structural shortcomings to revenue collection, an analysis of the annual rents is done to explore the possibility of constructing a road as tabled below:

Table 16: Annual Rents Analysis against road construction

Year	Revenue generated from Annual Rents (USD)	Inflation rate per year	Cost of Thika Road construction per Km (USD)
2007	7,067,763.25	9.8	10,780,295.00
2008	70,435,581.49	26.2	-
2009	21,202,495.20	10.1	-
2010	15,046,156.72	3.88	-
2011	18,516,917.00	14	-
2012	5,698,202.49	9.65	-
Total	137,967,116.15		

(Source of Inflation rate per year – IMF)

Similarly like in the above analysis, the cost of constructing 1 kilometer of Thika superhighway costs USD 10.78 million and the revenues generated for period of 6 years from annual rents amount to USD 137.96 million From the analysis on annual rents, it is apparent that annual rent revenues for a period of 6 years were sufficient to finance construction of a 13 kilometer road of Thika superhighway class.

Revenue from annual rents =	137,967,116.15	= 12.7 kilometers
Cost of constructing 1 km Thika Superhighway =	10,780,295.00	

What can be deduced from this information is that annual rents are effective and better than premiums in revenue generation which can subsequently finance road construction. This can be attributed by a number of factors which do not apply for premiums; annual rents are paid regularly compared to the premiums which take long durations.

Even with the sale of land leased on a 99 year period, the annual rent has to be paid annually which makes it generate more revenue in totality compared to premiums which is paid once. In addition, annual rents must be paid when any land transfer is paid whereby to facilitate transaction on land, either the land owner selling the land or the buyer willing to buy the land has to ensure the rent is settled ensuring the rates are paid.

From the analysis on road construction we can extrapolate that construction of a kilometer of a new infrastructure similar to Thika Superhighway elsewhere in Nairobi with revenues from annual rents can be sufficient to accomplish the task.

On maintenance, Thika Superhighway is budgeted to consume USD 12 million for the entire 50 kilometers stretch of which a kilometer would cost USD 250 thousand.

With the revenues generated from premiums and annual rents and dividing with the budgeted cost of Thika road maintenance costs, the analysis is as presented in the table below:

Table 17: Stand Premiums analysis against road maintenance per Kilometre

Year	Revenue generated from Stand premiums (2014 values (USD))	Inflation rate per year	Cost of Thika Road maintenance per Km (USD)	Number of Kilometer to be maintained
2007	528,449.74	9.8	249,716.00	2km
2008	3,007,226.47	26.2	-	12km
2009	1,649,835.58	10.1	-	7km
2010	863,878.84	3.88	-	3km
2011	2,542,939.90	14	-	10km
2012	1,886,532.25	9.65	-	8km
Total	10,478,862.78			

The cost of maintaining a kilometer of Thika Superhighway costs USD 250 thousand while revenues generated from stand premiums over a period of 6 years accumulates to USD 10.47 million. From the analysis above, the revenues on stand premiums collected per year are able to finance a substantial number of kilometers of a similar class of road as Thika Superhighway while combining the revenues for the 6 year period would maintain 42km of Thika Superhighway.

Revenue from stand premiums =	10,478,862.78	= 41.9 kilometers
Cost of maintaining 1 km Thika Superhighway =	249,716.00	

According to the interviews with the KeNHA engineers, road maintenance is rather cheap compared to road construction whereby maintenance is undertaken through performance contracting hence it is not costly compared to the conventional maintenance undertaken periodically. From the analysis, stand premiums are a suitable source of revenue for infrastructure maintenance, however, while they are a suitable source of revenue for maintenance, the structure of leasing in terms of number of years is a limiting factor whereby even with the shortest lease of 33 years for trust lands, the infrastructure maintenance cannot with stand such duration of neglect waiting for payment of stand premiums as maintenance is normally scheduled for every 5 years for periodic maintenance.

On the other hand, lease renewals can be relied on provide the funds for maintenance or construction of more roads but this can only be informed by the number of expiring leases Nairobi County has to renew while putting into consideration the current best use value of land. This can therefore conclude that the current structure of payment of premiums is

enough to capture land values to finance for maintenance of a road similar to Thika Superhighway.

Table 18: Annual Rents analysis against road maintained per kilometre

Year	Revenue generated from Annual Rents (USD)	Inflation rate per year	Cost of Thika Road maintenance per Km (USD)
2007	7,067,763.25	9.8	249,716.00
2008	70,435,581.49	26.2	-
2009	21,202,495.20	10.1	-
2010	15,046,156.72	3.88	-
2011	18,516,917.00	14	-
2012	5,698,202.49	9.65	-
Total	137,967,116.15		

Following the trend of the other analysis above, the cost of Thika superhighway maintenance is USD 250 thousand while revenue generated from annual rates is USD 137 million. An analysis of the annual rents to finance road maintenance exposed that annual rents are more than sufficient to maintain more than a kilometer Thika Road.

Revenue from annual rents =	137,967,116.15	= 552 kilometers
Cost of maintaining 1 km Thika Superhighway =	249,716.00	

What this implies is that while annual rents were sufficient to construct a 13 kilometer road, the revenues are able to maintain more than 13 kilometers of a road the standard of Thika superhighway and possibly put to other infrastructural uses.

4.10.1 Summary of Premium and annual rents analysis to construct and maintain roads

From the analysis on road construction and maintenance using premiums and annual rents several aspects of stand premiums annual rents can be deduced. Premiums alone are not sufficient in financing road construction but are sufficient for road maintenance. The plausible grounds of low stand premiums to finance road construction is that payment is done after a long duration of time and contrary to international practice as highlighted by Hong (2013) on ability of leasing to capture land values, the case of Nairobi depicts that stand premiums capture a little land values but can be used to undertake infrastructure development even after a renewing long lease conditions.

Low revenue on stand premiums can be attributed to the structure of leasing agreements whereby the considerations made do not match with the market value of land thereby exposing a disjoint between the market value of land the capital value of land on which premium is based on.

Premiums ought to be the most efficient means of capturing land values as there are no defaulters who can default on payments thereby prompt payment should capture the value of land, however, there is little information on the benefits that the government can harness from land values and as such, no policy initiatives have been undertaken to investigate and ensure that the even with leaseholders who renew their lease, a different mode of re-valuing the land can be used which considers the market value of land or a higher percentage is charged for the renewal. This can conclude that the premiums alone can finance road construction but are not effective for financing road construction based on Thika Superhighway standards.

While premiums alone are not effective to finance road construction the standard of Thika Superhighway, annual rents tend to perform better in terms of revenue generated and this can be attributed to several factors: annual rents are paid annually and since they are based on 5% of the stand premiums, the charge seems to be affordable hence has few defaulters if any. In addition, annual rents generate more revenue as they have to be paid when any land transfer is made. This ensures that either the seller or the buyer has to settle the rents in order for the transaction to take effect hence the annual rents are effective in financing road construction based on Thika Superhighway standards.

Premiums and annual rents in this context can mobilize land values enough to maintain a road similar to Thika Superhighway in future however, some aspects about land leasing in Kenya and Nairobi in particular are evident that do not make it possible to capture the real land values. The political and economic context within which leasing is practiced shows that the government compromises with leaseholders on the ability to demand payments for leases thereby not effective in enforcing revenue collection. In addition, the structure of lease of leasing confers all rights to the leaseholder regardless of the land use so long as it does not conflict with environmental laws. This is one channel for capturing more land values where with every land use, the lessee or the government can impose a fee which is in tandem with the land use of the area hence capture the land value and mobilize it for infrastructural development.

4.11 Road Construction and Maintenance Analysis - Property Rates

As described in the beginning, property rates constitute 20% of all land parcels in Nairobi that are on freehold and the rates are administered and collected by the Nairobi City County. This represents a total of 70,000 land parcels in the entire Nairobi County. To analyze the revenues to finance road construction, the revenue generated per year is divided by the cost of road construction per kilometer to ascertain the ability of property rates to construct another road the class of Thika Superhighway.

This is outlined in the table below:

Table 19: Property Rates analysis against road construction per 1 kilometre

Year	Revenue generated from Property Rates (USD)	Inflation per year	Road construction per Kilometer (USD)	Road per kilometer to construct
2007	53,009,703.46	9.8	10,780,295.48	4.9km
2008	80,862,831.27	26.2		7.5km
2009	39,704,863.92	10.1		3.6km
2010	21,000,091.92	3.88		1.9km
2011	44,864,269.23	14		4.1km
2012	38,717,670.89	9.65		3.5km
Total	278,159,430.69			

From the interview with the official from the rating department, the local authority is very efficient in collection of property rates despite there being a greater number of defaulters who time for waivers on defaulted payments to clear their debts. From the table above, annual collection of property rates is very sufficient to construct more than 3 kilometers of a road of Thika superhighway standard and accumulation of revenues generated for 6 years would be able to construct 25.8 kilometers.

Revenue from property rates =	278,159,430.69	= 25.8 kilometers
Cost of constructing 1 km Thika Superhighway =	10,780,295.48	

Table 20: Property rates analysis per 1 kilometre maintained

Year	Revenue generated from Property Rates (USD)	Inflation Rate per year	Road maintenance per Kilometer (USD)	Road per kilometer to maintain
2007	53,009,703.46	9.8	12,485,811.00	4.2km
2008	80,862,831.27	26.2		6.4km
2009	39,704,863.92	10.1		3.1km
2010	21,000,091.92	3.88		1.7km
2011	44,864,269.23	14		3.6km
2012	38,717,670.89	9.65		3.1km
Total	278,159,430.69			

On road maintenance, property rates are equally able to finance maintenance with the revenues generated annually and a combination of revenues generated for 6 years would finance maintenance of Thika Road for 22 kilometers.

Revenue from property rates =	278,159,430.69	= 22.2 kilometers
Cost of maintenance 1 km Thika Superhighway =	12,485,811.00	

On construction and maintenance of Thika Superhighway, we can elucidate several aspects of property rates that make it successful hence efficient.

The revenue collection regime of property rates by the local authority is aggressive whereby those who default in payment of the rates normally have their properties legally put on notice for auction or under management of the local authority until the local authority can recover outstanding owed to the council. Either way the local authority is able to recover the sum owed by property owners. Another fact for better revenues and success of the property rates is the percentage rate levied by the council which is a determinant of the revenues generated.

The local authority considers its budgetary needs in any financial year thereby setting the rate at which to raise revenue for example the percentage rate for 2013/2014 financial year was 17% while this figure doubled to 34% for the financial year 2014/2015 and this rate is not regressive as it applies cross board for all properties that are not under special rating thereby the revenue are just for all properties in Nairobi under freehold.

4.11.1 Reflection on analysis of property rates to finance road construction and maintenance

Property rates generate revenues which are sufficient to construct and maintain a road of Thika Superhighway standard which elucidate that the property rates are efficient in undertaking such a venture as the revenues are able to undertake construction and maintenance of 25.8 kilometers and 22 kilometers respectively. The success of property rates is based on the revenue collection regime of the local authority which is aggressive and is also owed to the percentage rates fixed by the local authorities.

Valuation of properties in Nairobi is done regularly and enables the local authority identify the valuation ratios of the different properties within their jurisdiction that they can levy different rates. This knowledge of information is contained in the cadasters that facilitate the development of a fiscal cadaster that helps in making the valuation roll.

The collection success of the property rates is ensured by the administrative practices as well as the political will in the local authority since the revenues are used for service provision which the political representatives of different wards agitate for service delivery in their wards. This supports Walters (2011) argument of collection of property rates that rates can be said to be effective in collection when the people know what the rates are used for thus making it successful to raise revenues that can finance road construction and maintenance.

4.12 Summary of Stand premiums, annual rents and property rates in road construction and maintenance

Leasing and property rates have the potential to capture land values and from the case of Nairobi, property rates seem to be doing well compared to leasing. The background on which leasing is done in Kenya is based on promotion of land use and development irrespective of

the gains that can be achieved on land. Hong (2003) argues that land value can be captured through land leasing through lease modification, lease renewal, collection of annual rents and initial public auction or tender of land sale.

Putting this information into context of leasing in Kenya and Nairobi in particular, leasing does not capture the value of land as it is done internationally and therefore capture a very small portion of it. Initial public auction of land would generate sufficient monies but just as one off payment of which that land is automatically converted into freehold since land sold by tender does not attract annual rents but rather property rates hence this can explain the success of property rates to finance infrastructure compared to premiums and annual rents.

Secondly, lease renewals ought to factor the full market value of land through premiums either at the expiry of the lease or date of application for extension. In the case of Nairobi, lease renewals do not factor the full market value of land but rather the capital value of land which is less than market value. This tends to promote speculation tendencies in land market where a land owner has a lease of 99 years passed down to him, he can capitalize on land values after paying a simple premium upon renewal of lease by selling the land to another individual at the highest market value so long as the new land owner continues to pay annual rents which are a fraction of the stand premiums.

Thirdly, lease in Nairobi does not factor lease modifications as the lessor is granted all the rights to the land and the only power that revoke these rights is the compulsory acquisition and development control power of the government. In this case it is evident that the terms of lease modification for the case of Nairobi cannot capture the land values substantially as there are few or no modifications made and the charges levied are very little.

4.13 Land Value Increments

4.13.1 Increments in land values along Thika Road before, during and after road construction

This sub-question aims at exploring the impact of road infrastructure on land values with the aim of establishing how revenue from land can finance infrastructure development. Increase in land values have been argued to be as a result of factors such as location, population and availability of amenities. However, a review of international literature points that soaring land prices is also attributed to general crowd being too ignorant to obtain reliable estimates of present land values and as a result the ignorance leads to speculation which in the long run causes instability in land prices and bubble in land market.

From interviews with real estate agents, it was revealed that some of the causes for increase in land prices can be explained by theories such as the greater fools philosophy which states that over optimistic land agents (fools) buy over valued assets of whose prices do not reflect the fundamental value of the asset with the aim of selling them to other individuals (the greater fools) who have even higher expectations on the property price and are willing to speculate with them hence pushing the land prices higher. This is triangulated by literature on understanding economic bubbles by Jimenez (2011).

Another philosophy explaining increase on land prices is the herding model which advances that individuals mimic the actions of a larger group usually investors who crowd buying and selling towards the direction of the market thereby push the land prices. In addition, extrapolation theory is projecting historical data into the future on the same basis, with the belief that what has happened under certain conditions is going to repeat in a future under the same context. Land investors tend to associate past returns with future returns with the consequence of over pricing the assets in order to maintain and achieve the same past rates of return.

Land values in Nairobi have increased at an average rate of 400 times since the 1982 valuation roll as shown in some the following table:

Table 21: Average Increase in Land Values

Area	Type of plot	1982 Valuation Roll	Current Valuation
Dandora	High density	25,000	5,000,000
Karen	Medium density	60,000	30,000,000
Lavington	Low density	304,000	100,000,000
Upperhill	Low density	430,000	300,000,000

(Source: Nairobi County Finance Bill)

Generally, land prices and especially along Thika Superhighway have increased occasioned by the expansion of the city and as a result, population increase migrating to Nairobi for employment. Improved infrastructure has also contributed immensely to the increase in land values whereby previously inaccessible areas have been made accessible and travel time has greatly been reduced. To analyze the trends in increase in land price, the researcher highlighted land mark years before Thika superhighway, after announcement of construction of the highway, during construction and after construction to assess the increase behavior of land prices as the Thika superhighway was made to come to reality.

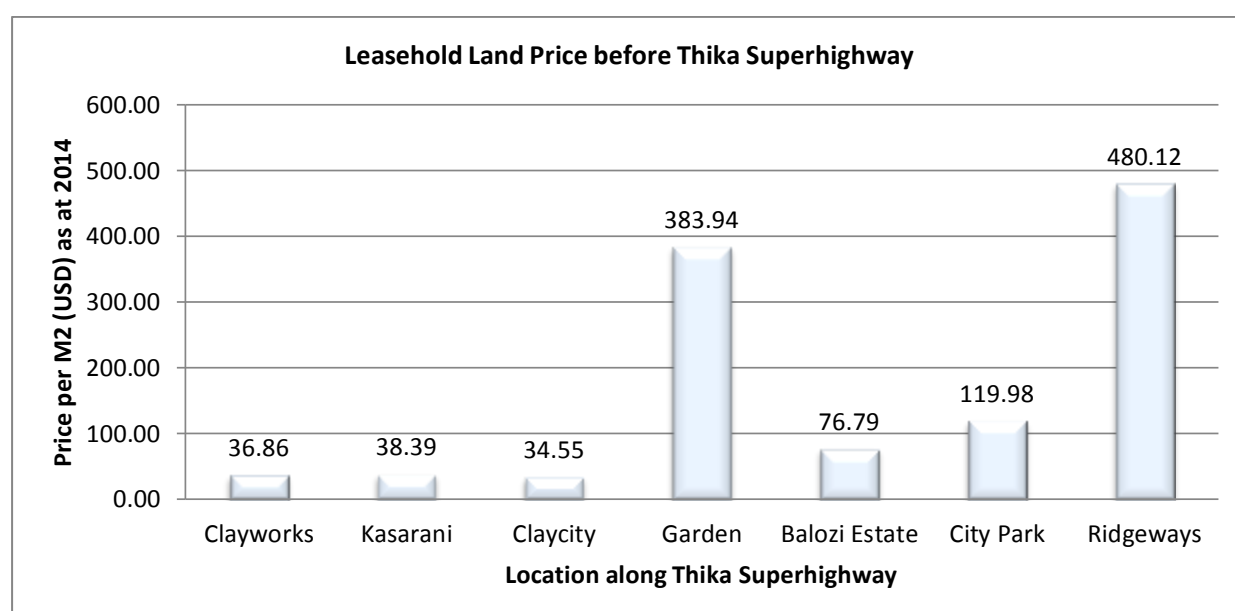
4.13.1.1 Land Prices before Thika Superhighway Construction

To establish the increment of land values along Thika road before road construction the researcher obtained land values from 2006 to 2012 for 2023 m² of residential properties of both freehold and leasehold in tenure along Thika Superhighway and the distance of these plots from the superhighway ranged from 0.5 meters to 2 kilometers.

Table 22: Leasehold land Price before Thika Superhighway

Leasehold Land Price before Thika Superhighway				
Locality	Plot area in M2	Plot market Price (2014)	Year of sale	Price per m2 (2014 price in USD)
Clayworks	2023	74,559	2006	36.86
Kasarani	2023	77,659	2006	38.39
Claycity	2023	69,898	2006	34.55
Garden	2023	776,708	2006	383.94
Balozi Estate	2023	155,342	2006	76.79
City Park	2023	242,714	2006	119.98
Ridgeways	2023	971,293	2006	480.12
Average Land price per M2				167.23

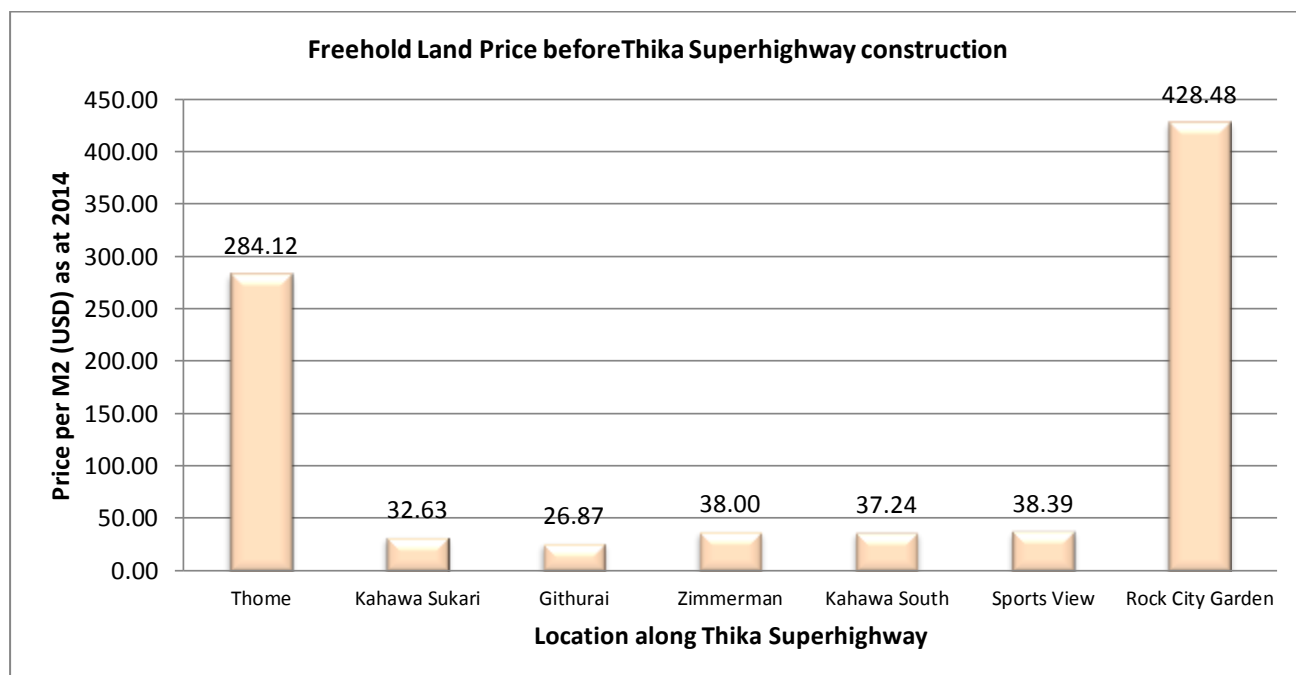
Figure 9: Leasehold land price before Thika Superhighway



From the above table and graph, the average land price per m² for leasehold land parcels was USD 167.23 and this was skewed by 3 locations which sold land at more than USD 100 per m². While land is always on constant demand, the average price of leasehold land elucidates that more people bought land parcels from lease owners for several reasons such as low annual rents compared to the property rates yet the residents of this area did not get services from the rates paid and also some of the lease owners speculated on land development and waited for opportune moments to sell the land.

Table 23: Freehold Land Price before Thika Superhighway

Freehold Land Price Before Thika Superhighway construction				
Locality	Plot area in M2	Plot market Price (2014)	Year of sale	Price per m2 (2014 price in USD)
Thome	2023	574,775	2006	284.12
Kahawa Sukari	2023	66,017	2006	32.63
Githurai	2023	54,352	2006	26.87
Zimmerman	2023	76,879	2006	38.00
Kahawa South	2023	75,340	2006	37.24
Sports View	2023	77,659	2006	38.39
Rock City Garden	2023	866,813	2006	428.48
Average Land price per M2				127

Figure 10: Freehold Land Price before Thika Superhighway

As for freehold properties, the average land price per m2 was USD 127 with skewed prices for upmarket places selling at over USD 200 while the lowest price selling at 26 per M2. The land prices were low during this time due to the poor road transport and as a result few individuals were willing to buy land along Thika road and majority of the land owners started to sell their land prices at throw away prices to invest in other areas.

4.13.1.2 Land Prices after Announcement of Thika Superhighway

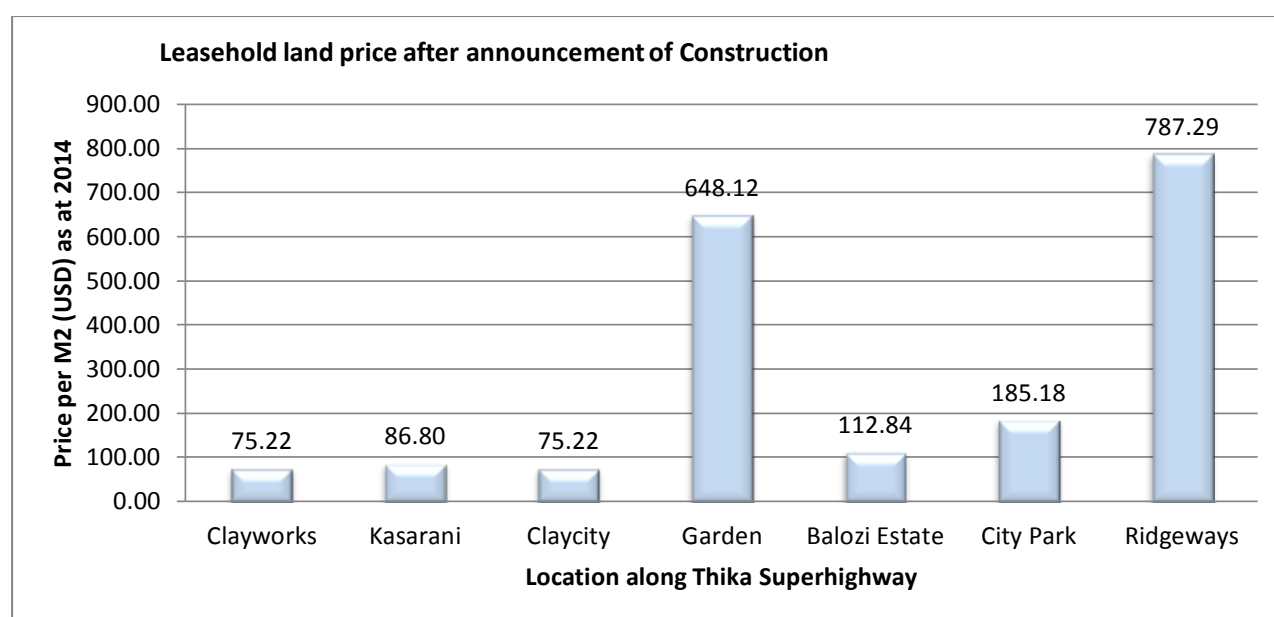
Upon announcement of Thika Superhighway, land prices started appreciating and this is evidenced by the average land prices for both leasehold and freehold land parcels. However, it is worth noting that while prices started appreciating, prospective land owners were

skeptical about the construction of the road and the duration it would take to finish the road but still went ahead and bought land.

Table 24: Leasehold prices after announcement of construction

Leasehold Land Price after Announcement of Thika Superhighway construction				
Locality	Plot area in M2	Plot market Price (2014)	Year of sale	Price per m2 (2014 price in USD)
Clayworks	2023	152,173	2008	75.22
Kasarani	2023	175,595	2008	86.80
Claycity	2023	152,173	2008	75.22
Garden	2023	1,311,138	2008	648.12
Balozi Estate	2023	228,271	2008	112.84
City Park	2023	374,611	2008	185.18
Ridgeways	2023	1,592,682	2008	787.29
Average Land price per M2				281.58

Figure 11: Leasehold price after announcement of construction



After the announcement of construction of Thika Superhighway, land prices for leasehold land parcels increased as individuals cashed in hopes of the highway being constructed in time which would see an increase in land prices which would improve the values of their properties and most probably speculate and sell to other individuals at a higher price.

This is evidenced by the average land prices per m2 from USD 167.23 to USD 281.58. This shows a percentage increase of 68.3% in land values with 2006 average price as base year after announcement of the construction of the highway as shown in the calculation below:

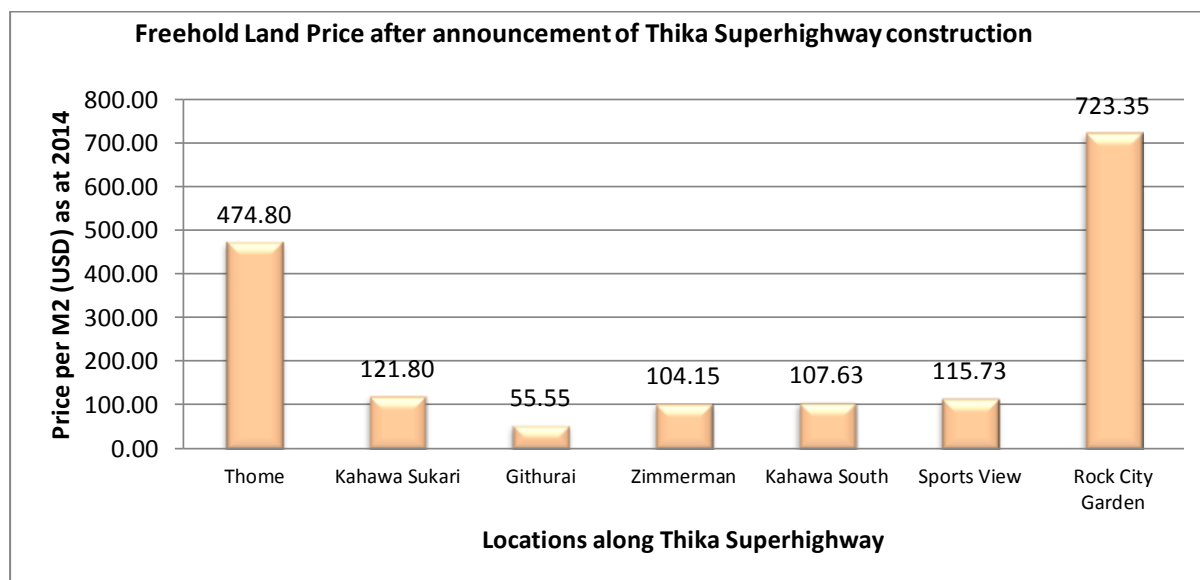
$$(281.58-167.23)/167.23 \times 100 = 68.3\%$$

This therefore ascertains that announcement of infrastructure construction leads to an increase in land values.

Table 25: Freehold land price after announcement of construction

Freehold Land Price after announcement of Thika Superhighway construction				
Locality	Plot area in M2	Plot market Price (2014)	Year of sale	Price per m2 (2014 price in USD)
Thome	2023	960,523	2008	474.80
Kahawa Sukari	2023	246,411	2008	121.80
Githurai	2023	112,379	2008	55.55
Zimmerman	2023	210,704	2008	104.15
Kahawa South	2023	217,731	2008	107.63
Sports View	2023	234,126	2008	115.73
Rock City Garden	2023	1,463,334	2008	723.35
Average Land price per m2				243

Figure 12: Freehold Land price after announcement of construction



As stated in the limitations, inflation rates per individual year inflated the land prices especially for the year 2008 which experienced the highest inflation of 26.2% and this is reflected in the land prices of the year 2008. Using 2006 as the base year to record land values before Thika road construction, freehold properties recorded a 143% increase in land prices from average price of USD 127 per m² to USD 243. This is shown in the calculation below:

$$(243-127)/127 \times 100 = 143\%$$

Speculation in hopes of the benefits that the superhighway would bring, freehold land parcels appreciated in values as they demanded a 143% higher price influenced by inflation of the year than what was being sold in 2006 just for mentioning the construction of the highway therefore this ascertains that the announcement of the road construction contributed in increased land prices.

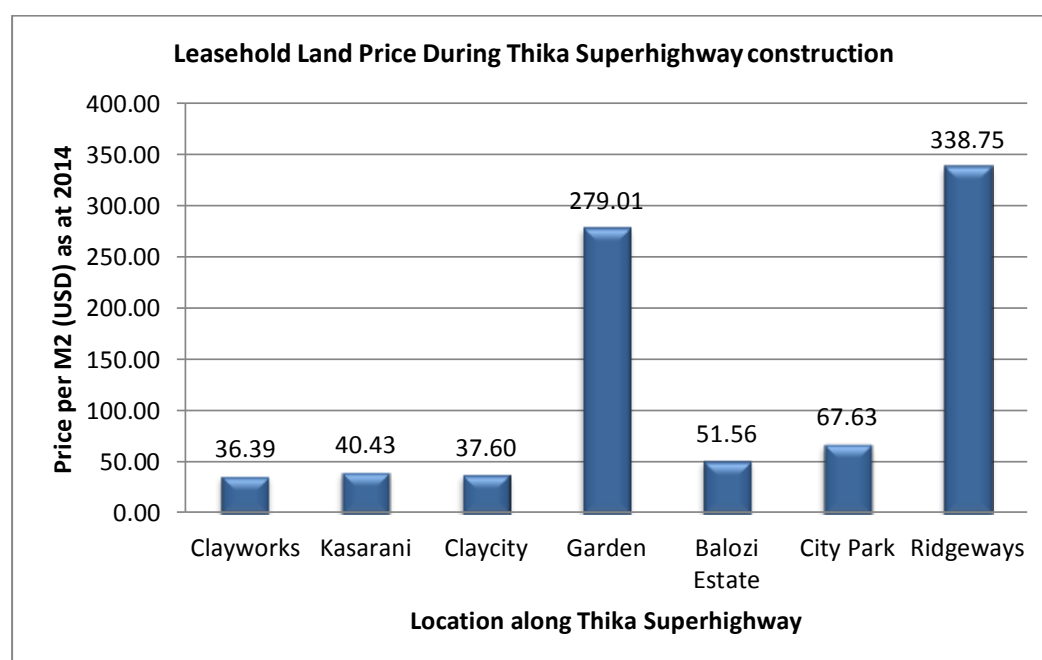
4.13.1.3 Land Prices during Thika Superhighway Construction

Construction of Thika Superhighway did not delay in commencement as the government had obtained funding from AfDB and the Chinese Government for the construction of the various segments of the road. This increased the impact on land prices as shown in the tables and graphs below:

Table 26: Leasehold land price during Thika Highway construction

Leasehold Land Price During Thika Superhighway construction				
Locality	Plot area in M2	Plot market Price (2014)	Year of sale	Price per m2 (2014 price)
Clayworks	2023	73,618	2009	36.39
Kasarani	2023	81,793	2009	40.43
Claycity	2023	76,075	2009	37.60
Garden	2023	564,442	2009	279.01
Balozi Estate	2023	104,296	2009	51.56
City Park	2023	136,811	2009	67.63
Ridgeways	2023	685,294	2009	338.75
Average Land price per M2				121

Figure 13: Leasehold land price during Thika highway construction

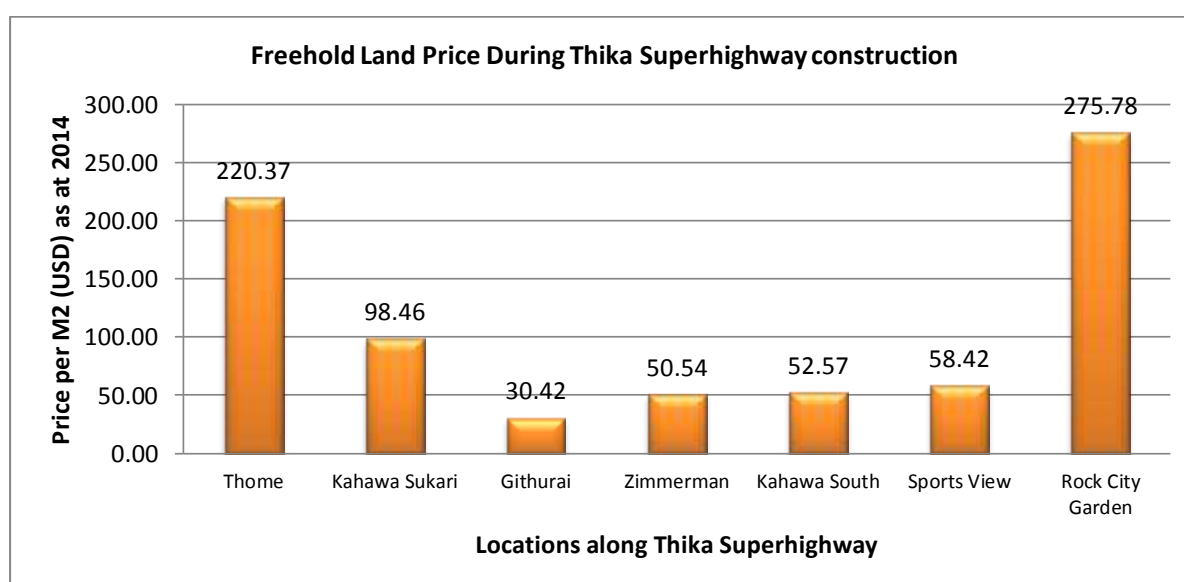


As stated in the limitations, the land price during construction seemed to dwindle but this is due to the effect of the inflation rate of the year which was the lowest standing at 3.88% compared to the previous year. As such, leasehold prices recorded a 27.5% increase in land values during the construction period of the Thika superhighway which as stated is affected by the inflation as shown in the calculation below:

$$(121-167)/167 \times 100 = 27.5\%$$

Table 27: Freehold land price during highway construction

Freehold Land Price During Thika Superhighway construction				
Locality	Plot area in M2	Plot market Price (2014)	Year of sale	Price per m2 (2014 price in USD)
Thome	2023	445,818	2009	220.37
Kahawa Sukari	2023	199,177	2009	98.46
Githurai	2023	61,540	2009	30.42
Zimmerman	2023	102,252	2009	50.54
Kahawa South	2023	106,340	2009	52.57
Sports View	2023	118,188	2009	58.42
Rock City Garden	2023	557,898	2009	275.78
Average Land price per M2				112

Figure 14: Freehold land price during highway construction

As for freehold properties, land values appreciated by 11.8% from the point before the road was constructed. As mentioned above and in the limitations, the inflation rate affected the values which translate to be low. This is described in the calculation below:

$$(112-127)/127 \times 100 = 11.8\%$$

Land sales in 2009 stagnated coupled with pessimism of when the road would be complete. However, this did not deter land buyers from buying land.

4.13.1.4 Land Prices after completion of Thika Superhighway

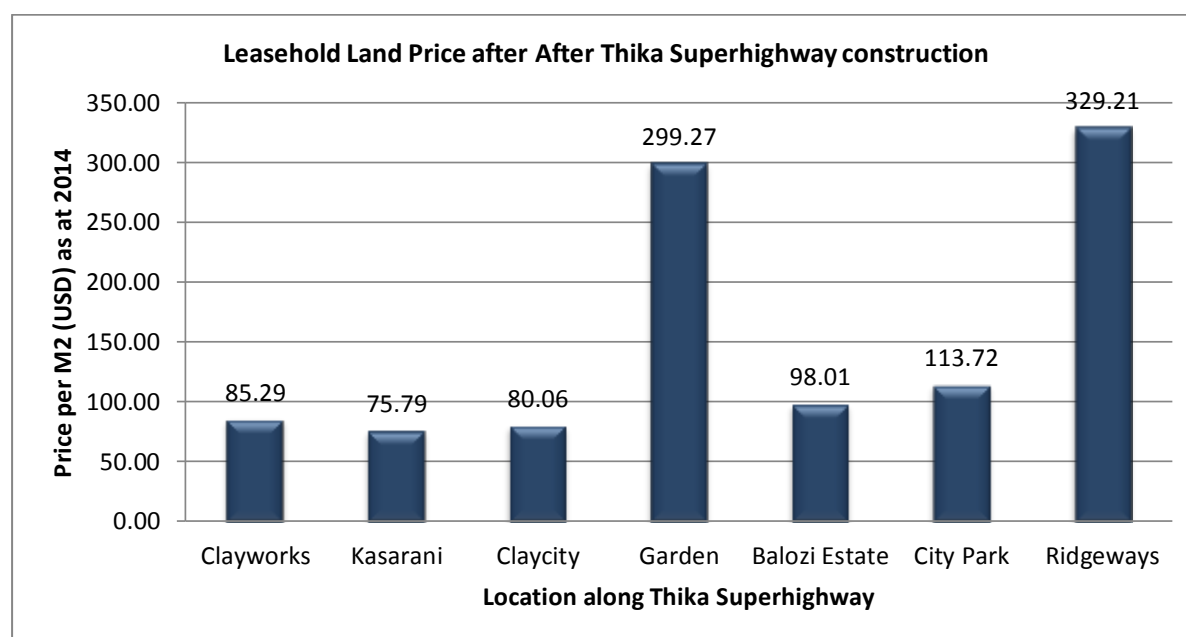
The construction of Thika Superhighway was completed in 2011 and greatly reduced the time travel to the CBD that was occasioned by long traffic congestion and eventually attracted people to this part of Nairobi. This was as a result of new developments in the real estate sector that were favored by the construction of the road and more people were still cashing in on the new road by buying land for speculative purposes or development.

The increase in land price is as described in the table and graph below for both lease and freehold properties

Table 28: Leasehold land price after completion

Leasehold Land Price after After Thika Superhighway construction				
Locality	Plot area in M2	Plot market Price (2014)	Year of sale	Price per m2 (2014 price)
Clayworks	2023	172,541	2012	85.29
Kasarani	2023	153,321	2012	75.79
Claycity	2023	161,955	2012	80.06
Garden	2023	605,430	2012	299.27
Balozi Estate	2023	198,282	2012	98.01
City Park	2023	230,062	2012	113.72
Ridgeways	2023	665,983	2012	329.21
Average Land price per m2				154.48

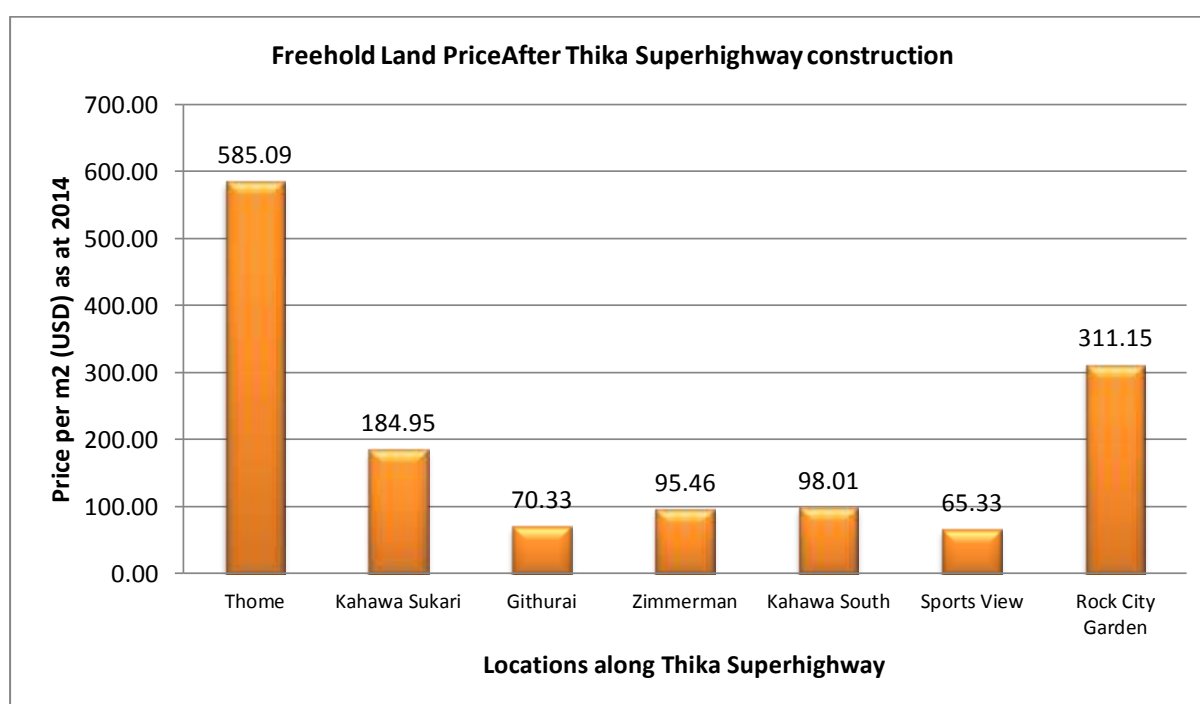
Figure 15: Leasehold land price after completion



Leasehold land parcels after construction of the superhighway had appreciated from the time before the construction of the superhighway and had also appreciated further by 68% after announcement of construction of the superhighway.

Table 29: Freehold land price after completion

Freehold Land PriceAfter Thika Superhighway construction				
Locality	Plot area in M2	Plot market Price (2014)	Year of sale	Price per m2 (2014 price)
Thome	2023	1183627.22	2012	585.09
Kahawa Sukari	2023	374151.67	2012	184.95
Githurai	2023	142275.91	2012	70.33
Zimmerman	2023	193114.98	2012	95.46
Kahawa South	2023	198281.56	2012	98.01
Sports View	2023	132172.40	2012	65.33
Rock City Garden	2023	629449.22	2012	311.15
Average Land price per M2				201

Figure 16: Freehold land price after completion of highway

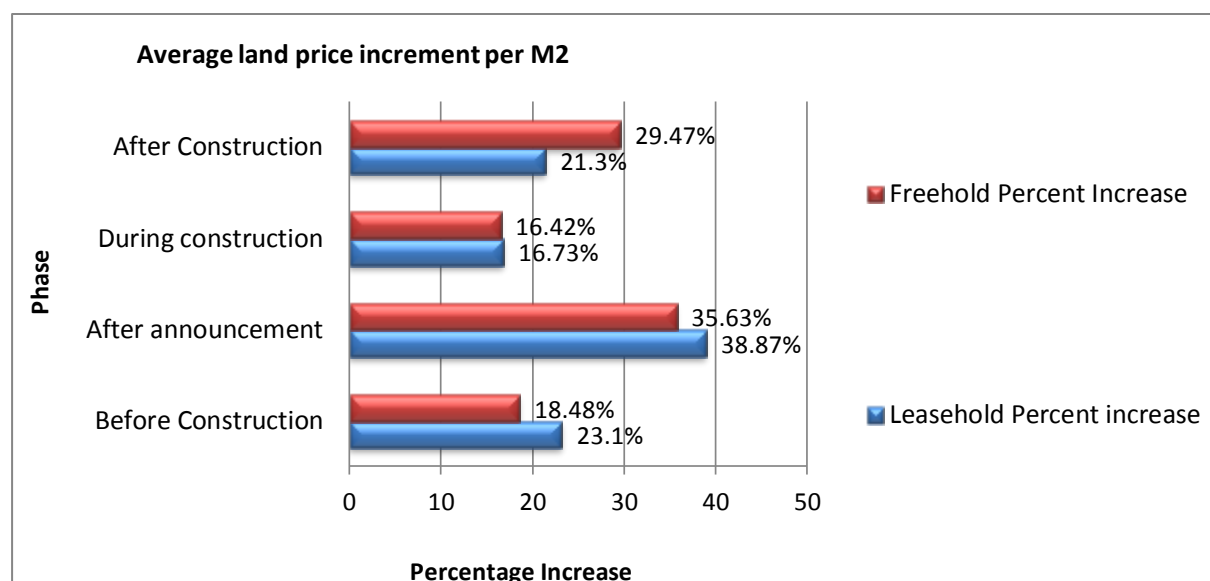
On the other hand, freehold properties land values increased from the base year before construction of the superhighway and by 143% after announcement of construction of the superhighway.

The construction of the highway brought with it other amenities such as water and sanitation services as these were laid while road works were in progress. In essence, the provision of these other amenities which resulted from the road construction impacted more on the land values thereby pushing values upwards. Besides the amenities and the road construction, other factors that led to the increase in land prices were improved economy which translated to people having money to buy land and also Kenyans in diaspora who invested back home in real estate thereby pushing the land prices up.

4.13.2 Summary on land values before during and after road construction and maintenance

From the analyzed land sales information, land on lease has been selling off more compared to the land on freehold and this can be pegged on structuring of the land lease and freehold systems in Nairobi and Kenya as a whole. As discussed above, land lease attracts 20% of the capital value of land with 5% of the capital value forming the annual rents while freehold land parcels are levied at rate that has been increasing over time to currently stand at 34%.

Figure 17: Percentage average increase in and prices (Leasehold and freehold)



4.13.2.1 Impact of land value increase on ability to pay for both Leasehold and Freehold Land

From the graph above, leasehold parcels have been sold more compared to freehold properties and this can be explained by the fact that the leases offered in Nairobi for residential properties on government land is 99 years and this gives a leeway for lease owners to sell their land at market rate. Some of the lease owners inherited and renewed leases that was passed down to them and since the annual rent is so low, it does not affect the ability to pay of a new land owner who just bought from a lease holder since the market price would be high but the annual rent would be low.

In addition, the land price would stagger where there is information of expiry of lease and such a buyer would pay less by factoring in the premium to be paid upon renewal of the lease hence buy the land at a lower price than the expected price by the land owner hence increasing the ability to pay by the buyer. Therefore leases which are about to expire command a less market price so long as there is information about the expiry compared to land price where the lease is new or far from expiry. When transfer is done/sale of lease at market price, the amount the lease owner charges translates to the premium paid upon lease renewal or application of lease hence lease properties command a high price.

On the other hand, freehold properties have to pay rates which are meant to provide services, however, with the aggressive rates imposed by the authority some land owners default in

payments hence the authority puts up the properties up for auction to recover the amounts due. What this means is that auctioning of properties affects the ability to pay of prospective land owners whereby a parcel of land may cost more than the market value is offering therefore few individuals would be willing to pay for the land and more would be willing to settle the rates and avoid accumulation of rates due hence the high revenue from rates.

With the development of Thika Superhighway, the once low residual value of land due to the inaccessibility of Thika superhighway changes to a higher one where the costs of transport and production/business costs are reduced hence the increase in land prices. However, where the land tax is aimed at reducing the high market price, the tax is so low that it does not impact on the high market price of land.

4.13.2.2 Land Values and payment of considerations

The considerations paid for leased and freehold properties reflects a small portion of the value of land for both parcels on lease and freehold and with the properties attracting high market values, what is captured is below the real values of the land.

The determination of the considerations to be paid is not driven by the need to capture land values in as much as what is collected is sufficient to undertake infrastructural development. The capital value used to derive the leasing percentages and property rates USV is based on the premise that a buyer purchases a piece of land at a price that is commensurate to the benefits to be enjoyed and as such it is not based on the expected future value of land (Syagga, 1994).

For this purpose the capital value has been used to promote development of land but on the other hand the land sales have been based on the market value of land. There is need for revision of the terms at which the premiums, annual rents and property rates value considerations are determined that will ensure the real value of land is captured.

Chapter 5: Conclusions and recommendations

5.1 Introduction

This chapter is a presentation of summaries of the key findings from the research and relating them to the theoretical and conceptual framework discussed in the previous chapters which will help in drawing conclusions and provide recommendations for further research on the same line of topic and for policy adoption.

5.2 Summary: Key Research Findings

From the research, it was discovered that there is a clear distinction in the roles undertaken by the ministry of lands and the NLC which is a constitutional body mandated to oversee land administration and management thereby is in charge of allocating land and managing leases. The leases in Kenya are divided into various categories: 99 years for government land, 66 and 33 year leases for trust lands and 50 years for renewal of leases. The number of year per lease has a determining effect on structuring of the land payments and eventual sale of land on lease whereby land on short lease would have a low selling price compared to land on long lease. This is well argued out by (Dale and McLaughlin, 1999) that tenure, value and use are the three attributes that a country must manage. For the case of Nairobi, the shortest lease is 33 years which means that it has no impact on the price the land will command since 33 years is a long period to wait for lease to expire to negotiate a sale on land.

Another discovery was that land in Nairobi is government land on leasehold for 99 years whereby on average 80% is land on lease and 20% freehold. This structure of land distribution has its roots in the colonial era where the colonial regimes set up the leases considering the settler population in Nairobi and aimed at collecting revenues in form of premiums and annual rents. Since then, the post-colonial regimes have not changed the land distribution structure thus maintain the same goal of obtaining revenues from leased properties. However, while 80% of land in Nairobi is on lease, the revenues generated from leasing are much less compared to the revenues generated from freehold properties paying rates.

In the analysis, it was discovered that, much of the land transactions between land parcels on leasehold and freehold are at par in terms of sales. This can be attributed to the fact that the lease offered is on 99 year basis and 50 year upon renewal. In essence, these are still long durations where a new land buyer can buy land knowing it would take long periods before he/she has to pay premiums on the land and therefore willing to pay the annual rents.

From the data collected it was discovered that in addition to the stand premiums and annual rents, the government collects stamp duty which is a charge for stamp of approval levied on transaction of land building or any capital asset. This stamp duty generated more revenues compared to the premiums and annual rents signifying that there is an active land market regardless of the tenure held and this could form a basis for capturing land value in the future where the structure of premiums and annual rents cannot be altered to capture the current land values.

5.3 Effectiveness of land leasing and property rates in infrastructural development

As discussed in chapter 2, effectiveness can be attained by highlighting two (2) of its components i.e. cost effectiveness and program effectiveness. As a recap, cost effectiveness indicators estimate the unit cost of producing a well-defined outcome, while program effectiveness highlights on the agreed measures of appropriateness and quality with the aim

of reflecting the extent to which objectives are achieved (Commonwealth of Australia., 2013).

In examining the land value capture instruments, effectiveness component is achieved upon establishing if the instruments adequately capture the value of land and if the intended output of financing road construction and maintenance is achieved. To facilitate the effectiveness, a clear fiscal framework for land management ought to generate sufficient public revenue, provide a stable fund for acquisition of land for banking, servicing land and facilitating efficient utilization of land while discouraging speculation in land. Therefore the leasing instruments and property rates have been assessed according to these parameters to establish their effectiveness.

5.4 Research Conclusion

From the data obtained during research and the subsequent analysis done and presented in the previous chapter, conclusions can be reached that aim to answer the main research question which is “How effective is Public land leasing and property rates as land value mobilization instruments to finance the construction and maintenance of public road transport infrastructure?” Basing on the main research question, the conclusion highlights responses to the research objectives and questions.

5.4.1 What are the legal framework and institutional setup that enable the collection of property rates, annual rent and premiums?

From the research, it was established that land in Kenya is enshrined in the constitution which stipulates that land shall be owned collectively by the Kenyan people and management of land on behalf of the Kenyan people is undertaken by the NLC which is a constitutionally mandated body to oversee all land administration matters. Land in Kenya is managed by 3 pieces of legislations which form the legal framework for land administration. These are: The Land Act, The National Land Commission Act and The Land Registration Act. These acts provide directives on administration of land leasing and the terms at which land leasing can be undertaken. The institutional set up of the commission is designed in such a way that, with the devolved new system of governance, the commission has District land boards and community land boards which performs the same functions as the NLC at district and community level.

The right of government to establish leasing is legally enshrined in the constitution and it was a policy passed down from the colonial regime to have 80% of all land in Nairobi under leasehold in order to generate revenues from premiums and annual rents. This formed the first precedent for government to levy charges on land. While the government had the right establish the premiums and annual rents, the leaseholders have been granted all bundles of rights to land except for minerals on land.

The payment of the considerations is not determined by the rights to the land. The revelation on government right to institute public land leasing conforms to the literature review that governments use land taxes to recoup the public share of increase in land value and therefore it is a legal right as argued by (Hong and Bourassa, 2003). In addition, a form of tenure has to be in place which distinguishes further the rights of land owners to land. For the case of Nairobi, the rights to land are not considered in payment of premiums and annual rents unlike what is done in Hong Kong where rights to land are limited and to have more rights, would translate capturing the value of land in by payments of considerations brought about by the developments on the land.

On the part of Property rates, there are three (3) pieces of legislation governing the administration of Property rates. These are the local Government Act 265, the Valuation for

Rating Act 266 and the Rating Act 267. The local government act stipulates that for any authority to institute property rates it must attain a township status and this legislation alone forms the basis for local authorities to levy rates on land parcels within their jurisdiction. The valuation for Rating empowers the local authority to value properties and develop a valuation roll which contains the value of all properties in Nairobi thereby it is easy to establish approximately the revenues that can be generated from the property rates.

The institutional set up of the local authority to collect property rates is grouped into 3 main department's i.e. the valuation, rating and planning department and the roles undertaken in each department. The procedure of levying rates by the local authority in Nairobi consists of the rate base which is based on land alone, tax rates is set autonomously as each local authority in Kenya sets its own tax rate, coverage ratio of the properties where the fiscal cadastre includes all properties that are subject to rates and the valuation and the collection ratio. This is the cause of high property rate revenues generated by the Nairobi City County authority.

The rights of land owners are protected by law but a clear distinction is made whereby, these rights are not pegged on the payments on land made whether lump sum or annually as rent. However, the payments are made possible by the location of the land and the size of the land which are critical in establishing the value of land.

The structuring of the instruments to capture land values has an impact on the maximum ability to pay by prospective land owners. For the case of leasing, it is structured in such a way that a capital value of land is used to determine the value of the land upon which a 20% stand premium is charged. If the premiums and annual rents are structured on best use value, this would capture the true increment in land value as it is at that moment the land is put into use.

5.4.2 How successful is land leasing or property rates in financing road construction?

The success of land leasing and property rates to finance road construction is hinged on the calculations arrived at to determine the amounts to be paid as premiums, annual rents for leasing and property rates for freehold.

For leasing, the premiums and annual rents are arrived at by adopting the USV of land of which is 20% of the capital value of the USV is imposed as the stand premium and the annual rent is charged at 5% of the stand premium. In essence, the usage of capital value for the premiums and annual rents is aimed at promoting land use development but also considers the maximum ability to pay of individual if not the land would be owned by only a few who are able to pay the maximum value to utilize the land and this would have a repercussion on equitable distribution of land and land use development.

From the research, premiums were paid daily but generated low revenues annually compared to annual rents despite being structured to factor the maximum ability to pay of individuals and to promote land use development. This can be explained by the fact that premiums were paid for lease renewals. However, evaluating the effectiveness of premiums to finance road construction, premiums are not effective in financing road construction and the basis for this is that, while they generate enough revenue to finance construction of 1 kilometre of Thika Superhighway, the consistency with which revenue is generated is not reliable and therefore cannot be relied upon to meet the objectives of road construction. Structuring the stand premiums to meet set objectives and targets would ensure the effectiveness of the premiums is attained.

On the other hand, annual rents raise substantial amount of revenue to finance construction of a kilometre of road. However, while the revenues from annual rents seem sufficient, this cannot be relied to imply they capture sufficient land values and this is based on the fact that the annual rents are a small percentage of the stand premiums. However, the annual rents meet program effectiveness considering that they generate more revenue to undertake set objectives and aims hence are effective. (Hong and Bourassa, 2003) states that for leasing to capture land values, the leasing contract can be structured to capture a percentage of the best use value of land for premiums since it is paid once and the annual rents can be reviewed from time to time. This is bound to capture land values that can fully support the objectives of financing road construction and hence can be said to be effective.

On property rates, development of valuation roll and fiscal cadastres are vital in establishing the values of land parcels which would inform on the rates collection support legal transfers of rights, land use planning and taxation, as well as other potential uses (Walters, 2011).

For the case of Nairobi, rateable values are based on the capital values of land which is also based on USV, however, the percentage of rate to be paid is determined by the budgetary need of the local authority and so does not put into consideration the maximum ability to pay or ability to pay off the rates. For example, the current percentage determined for property rates is 34% which it was reported from the interviews with the chief valuer and officials in the rating department is bound to attract defaulters as it is the highest percentage that has been levied on rates.

In addition, (Walters, 2011) as stated in the literature review points that so long as residents are not getting the services for which they are paying the rates for, the rate of defaulting would be high and this is synonymous with Nairobi where default rate is high not only because the percentage rate is unbearable but also the service is not provided.

The property rates generate sufficient revenues and this is as a result of efficient institutional set up and mechanisms adopted by the local authority to recover defaulted revenues. The property rates despite levying a high percentage which impacts on the ability to pay of land owners meets the effectiveness criteria where the revenue generated is sufficient to meet the objectives and target of constructing and maintaining a road of similar standard as Thika Superhighway, however, earmarking of infrastructure to be financed by the stream of revenue would rubberstamp the effectiveness of the instrument.

Annual rents generate more revenues compared to stand premiums and this can be explained by the fact that for any transfer of land to be made, all land payments have to be made promptly compared to stand premiums which have to be paid at the renewal of lease after a long duration of time. The government has not been aggressive in the enforcement of collection of leasing considerations or any dues on land which impacts on the effectiveness of the leasing instruments to capture land values to finance infrastructural development and this can supplement on to factors as to why revenues generated from stand premiums and annual rents are low compared to the property rates.

In overall element, the instruments are able to capture land values but are capturing a small portion of the land values that can be used to finance road construction. A combination of stand premiums and annual rents are more effective to undertake an infrastructural development venture compared to stand premiums alone which are not effective in financing a kilometre of road where in this research, a kilometre of road of Thika Superhighway standard was the benchmark for analysis. On the other hand, annual rents and property rates are effective in financing a kilometre of road hence can be relied on to undertake infrastructural development.

5.4.3 How successful is land leasing or property rates in financing road maintenance?

Maintenance of road infrastructure presents a much cheaper option than constructing it anew after dilapidation. KeNHA which is the national agency mandated to construct and maintain all road networks within their jurisdiction, rely on funding from fuel levy and donor funding to construct and maintain. This poses a debt challenge for the country as it struggles to increase its infrastructural footprint.

From the analysis obtained from stand premiums, annual rents and property rates, the instruments are sufficient to generate revenues that can maintain the road the class of Thika Superhighway hence are effective in maintenance of infrastructural development. Stand premiums are effective as they are able to finance maintenance of more than a kilometre of road while the annual rents supersede the threshold of Thika Superhighway maintenance and thus can be put to finance other infrastructural developments. On the other hand, property rates have been consistent from financing construction and can as well be relied on to undertake maintenance of a road the standard of Thika Superhighway.

5.4.4 What were the increments in land values along Thika road before and after construction?

Land values in Nairobi generally have appreciated and along Thika Superhighway, land values have increased as a result of population increase, availability of amenities and advantages of location and this confirms the literature review and conceptual framework explaining the causes of increase in land value and this is supported by literature from (Jaegar, 2006). However, other factors explain the increase in land values such as greater fools' theory which is witnessed in land speculation.

Thika Superhighway has witnessed exponential increase in land values which can be explained as maximum ability to pay of land owners as land/properties in the CBD are very expensive commanding a high price or rent for rentals. Before the road was constructed, the accessibility factor which was poor lowered the land prices and as such transactions on lease and freehold land were low. For leased properties, this did not affect the premiums and annual rents to be paid as the premiums were paid in advance and where information of expiry of the lease was availed attracted a lower land price.

The increments in land values are on market values and as such do not match with the capital value that is used by the government for payment of premiums and annual rents. To capture the land values along Thika Superhighway, a review of the annual rents would undertake to capture the best use value of land at its current percentage hence conforming to (Harvey and Jowsey, 2004) theory of land rent and (Hong and Bourassa, 2003). In addition, with increment in land values as a result of accessibility, the maximum ability to pay of prospective land owners starts to diminish as the value of land appreciates and the once far away distances are made closer to the CBD and hence the values increase as supported Von Thunen theory of land use.

But even with the value of land along Thika superhighway appreciating, the land tax imposed in terms of premiums, annual rents and property rates is low and do not reflect the real land values thereby the land prices are not affected as the market value of land takes precedence.

5.5 Recommendations

5.5.1 Area of further study

From the findings and experience from the field, the following areas are recommended for further research:

1. Viability and effectiveness of stamp duties to capture land values to finance infrastructure development
2. Explore generation of revenues from stand premiums and annual rents at market value
3. Research on possible revision of leasing contracts annually for annual rents and upon lease renewals to capture the market value of land
4. Explore on calculation benchmarks for both leasing and property rates
5. Explore the context at which stand premiums, annual rents and property rates are defined in the overall context of other sources of income and expenditure account.

5.5.2 Policy and administrative recommendations

The following recommendations are suggested to harness financial benefits from land:

1. The NLC should consider revising the leasing agreements to capture the best use value of land when determining the premiums and annual rents. Revising the annual rents after every period of 5 years would not only capture the value of land at the best value but would also reduce on speculative tendencies on land.
2. The government can set a percentage of stand premiums, annual rents and property rates to be committed to infrastructural development which can be combined with the fuel levy fund to undertake road construction and maintenance. This is in hopes of reducing reliance on external debt to finance infrastructural development.
3. Digitizing the distribution of land per county level can greatly enhance the availability of information on the revenues generated on as per different land tenure systems. Local authorities could provide a GIS update of the number of parcels per county in tandem with the rating values to enhance transparency in the generation of property rates.
4. Sensitization of the general public on the new discourse of financing infrastructure development through premiums, annual rents and property rates.
5. Systematic monitoring of land market prices and adjusting the structure of leasing and property rates to capture the values as per market value.

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Annex 1: Interview Guide

Erasmus University Rotterdam, The Netherlands

Institute of Housing and Development Studies (IHS)

MSc. Urban Management and Development

My names are Danson G. Maina pursuing a Masters Course in urban management and development in the above institution. I am in the process of doing my thesis research for fulfilment of a Master of Science award. I would like to interview you on a number of topics related to my thesis and your cooperation will be highly appreciated. Confidentiality of the respondent is guaranteed.

Kenya National Highways Authority (KeNHA)

1. What are the major roles and responsibilities of KeNHA
2. Which kinds of roads fall under KeNHA?
3. Where do the funds for financing road infrastructure come from?
4. Does Thika Superhighway fall within your docket? If yes, when was Thika road constructed?
5. What is the total length in Kilometers of Thika Superhighway?
6. What has been the cost of road construction between 2002 – 2012?
7. How frequent is road maintenance done?
8. Would you furnish me with costs of road maintenance between 2002 – 2012?
9. How is the allocation of maintenance funds allocated to ensure longevity of the infrastructure?
10. What is the intended budget for the maintenance of Thika Superhighway?
11. How much is to be generated from tolls on the superhighway? Is it sufficient for the maintenance?
12. Would you like to make any further additional comments?

Real Estate Agents/Valuation surveyors

1. How long has your company been in the business of land and property markets?
2. What is the price of land per M² for residential, commercial and industrial use?
3. What are the factors (major) responsible for the increase in land values/prices especially along Thika Superhighway?
4. If Thika superhighway had not been constructed, would the land prices be high? Why?
5. What was the cost per M² of land before the construction of Thika Superhighway between 2002 - 2007?
6. What was the cost per M² of land after announcement of construction of Thika Superhighway in 2008?

7. What was the cost per M² of land during the construction of Thika Superhighway between 2009 - 2012?
8. What was the cost per M² of land after the construction of Thika Superhighway?
9. Can you provide me with the available records on the sales of land along Thika Superhighway between 2002 – 2012)
10. Would you like to make any further additional comments?

Local Authority/Council – Property Rates Department

1. What are the major roles and responsibilities of the department?
2. How is the property rates administered?
3. Is there a law that empowers the local authority to administer property rates? If yes, kindly state the law.
4. What is the extent of coverage of plots in the cadasters under the department?
5. How frequent are the cadasters updated?
6. What are the (institutional) mechanisms of administering property rates?
7. How is property rates calculated?
8. How are the payments of property (rate base) structured?
9. How is the percentage of property rates to be paid determined?
10. How much was the intended collection?
11. How much was actually generated /collected?
12. Kindly furnish me with records of revenues from property rates as from 2002 – 2012.
13. What are the challenges of administering property rates? Why the occasional default rates?
14. What services are provided with the revenue generated from property rates?
15. Would you like to make any additional comments?

Ministry of Lands/ National Land Commission

1. What are the major roles and responsibilities of the ministry/commission as far as Public land leasing is concerned?
2. How is public land leasing administered?
3. What are the (institutional) mechanisms of administering public land leasing?
4. How does the Ministry/Commission establish the value of government land for leasing?
5. How are the payments of premiums and annual rents structured?
6. How the payments of premiums and annual rents determined? (Are they determined on land value?)
7. How much was the intended collection from premiums and annual rents?
8. How much was actually generated from premiums and annual rents?
9. Kindly furnish me with records of revenues generated from premiums and annual rents as from 2002 – 2012.
10. How is the premium calculated?
11. How are the annual rents calculated?
12. What kind of alterations are made upon renewal of lease?

Legal Expert/ Land Expert

1. (a) What are the property rights of lease holders (Lessees)?
(b) Are the property rights a determinant on the premiums and annual rates to be paid?
(c) What are the rights of government within the law to set up leases?
(d) What are the rights of government within the law to collect premiums?
2. (a) What are the property rights of freehold owners?
(b) Are the property rights a determining factor on the rates to be paid?
(c) What are the rights of government within the law to set up property rates?
(d) What are the rights of government to collect property rates?
3. (a) How are property rates administered?
(b) What are the law(s) governing the administration of property rates?
4. (a) How is Public land leasing administered?
(b) What are the law(s) governing the administration of public land leasing?
5. (a) How are the leasing contracts structured?
(b) What enables the government to enforce premiums and annual rents?
(c) What law(s) enables the government to collect premiums and annual rents?
6. (a) Which law provisions enable the determination of percentage of property value to be charged as rates?
(b) Which laws empowers the amount to be paid as rates?
(c) What legal right does the government have to collect property rates (Law backing on imposition of property rates)?

Annex 2: Quantitative data Templates

Template for land values(Leasehold and freehold) based on land transactions (Real Estate agents)

Leasehold Land		2006	2007	2008	2009	2010	2011	2012
Location	Area of land in M2	Amount Sold per M2 (USD)						
Clayworks	2023							
Kasarani	2023							
Claycity	2023							
Garden	2023							
Balozi Estate	2023							
City Park	2023							
Ridgeways	2023							

Freehold Land		2006	2007	2008	2009	2010	2011	2012
Location	Area of land in M2	Amount Sold per M2 (USD)						
Thome	2023							
Kahawa Sukari	2023							
Githurai	2023							
Zimmerman	2023							
Kahawa South	2023							
Sports View	2023							
Rock City Garden	2023							

Template for cost of road construction (KeNHA)

Year	Kilometres of Road Constructed	Cost of road construction per kilometre (US\$)	Total amount spent on road construction (US\$)
2006			
2007			
2008			
2009			
2010			
2011			
2012			

Template for cost of road Maintenance (KeNHA)

Year	kilometres of Road Maintained	Cost of road maintenance per Kilometre (US\$)	Total amount spent on road maintenance (US\$)
2006			
2007			
2008			
2009			
2010			
2011			
2012			

Template for revenue generated from property rates (Local Council)

Year	Intended amount of revenue generated from Property rates (US\$)	Actual amount of revenue generated from Property rates (US\$)	Number of plots defaulted payments	Total amount lost through default payments (US\$)	Number of plots on Cadastre
2006					
2007					
2008					
2009					
2010					
2011					
2012					

Template for revenue generated from Land leasing (Ministry of Lands/National Land Commission)

Year	Amount of revenue generated from Premiums	Intended amount of revenue generated from annual rents	Actual amount of revenue generated from annual rents	Number of plots allocated
2006				
2007				
2008				
2009				
2010				
2011				
2012				

Annex 3: Supporting tables

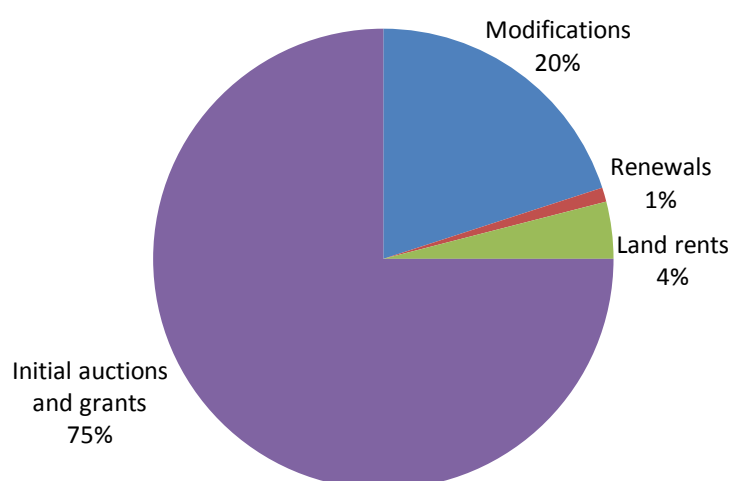
The table below is a representation of the revenues realized through land leasing in Hong Kong:

Table 30.1 Lease revenue in Hong Kong in relation to total revenue from the year 1996 to 2000 (Hong Kong \$)

Item	1996	1997	1998	1999	2000	Average
Lease revenues	29,508	65,931	25,686	39,111	32,183	16
% of total revenues	14	23	12	17	14	18
% of total expenditures	16	34	11	18	14	130
% of expenditure on public works	101	229	82	133	105	
Total revenues	208,358	281,226	216,115	232,995	225,060	
Total expenditures	182,680	194,360	239,356	223,043	232,893	
Total expenditures on public works	29,168	28,772	31,267	29,490	30,577	

Source: Hong (2003)

Figure 18: Lease revenue for Hong Kong from 1970-1995. Total Revenue US\$ 67,147 (1995US\$ in Millions)



Source: Hong (2003)

Interviews held

Office	No. of interviews
KeNHA	5
Ministry of Land, Housing and Urban Development	2
National Land Commission	2
Local Authority/Council	2
Legal Experts	2
Real Estate Agents	5
Lands Experts	2
Total	20

Formula and calculation of inflated land price

Leasehold Land		2006	2007	2008	2009	2010	2011	2012
Location	Area of land in M2	Amount Sold per M2						
Clayworks	2023	960	1,000	1,300	1,800	2,500	3,500	5,700
Kasarani	2023	1,000	1,000	1,500	2,000	2,890	4,600	5,065
Claycity	2023	900	970	1,300	1,860	2,600	4,570	5,350
Garden	2023	10,000	10,000	11,200	13,800	16,000	17,650	20,000
Balozi Estate	2023	2,000	1,950	1,950	2,550	3,850	4,990	6,550
City Park	2023	3,125	3,100	3,200	3,345	4,677	4,955	7,600
Ridgeways	2023	12,505	12,100	13,605	16,755	18,978	19,101	22,000

Formula for inflated land price to 2014 values:

$$PV = P (1+r)^n$$

2006 inflation rate = 14.5

USD Rate to Ksh = 88.1

$$960(1+14.5)^9$$

$$=960(3.382)$$

$$=Ksh. 3247$$

$$3247/88.1$$

$$=USD 36.8 \text{ per } M^2$$