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**Influence of Land Tenure System on Social Economic Development of  
Households in Kajiado North District**

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## **Influence of Land Tenure System on Social Economic Development of Households in Kajiado North District**

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### **Abstract**

***Purpose:*** The purpose of this study was to determine the effect of the land tenure system in Kajiado North District on social economic development of households in the area.

***Methodology:*** The study employed a descriptive research design. The study population was 108,538 households in Kajiado North District. The study adopted the adjusting formula of Fisher of 1998 to arrive at the sample size of 384. The sample was selected through stratified random sampling that yielded 384 respondents. A multiple linear regression model was used to analyze the data using statistical package for the social sciences (SPSS) version 20.

***Results:*** The study found that land fragmentation had a negative significant relation with the socio economic development of households in Kajiado North District. Infrastructure development on the other hand was found to have positive significant relationship with the socio economic development of households in Kajiado North District.

***Unique contribution to theory, practice and policy:*** The findings of this study are useful to the National Land Commission and County government of Kajiado in their quest to ensure proper implementation of various land reform requirements and improving the welfare of the residents.

***Keywords:*** *land fragmentation, informal settlements, infrastructure development, social economic development*

## 1.0 INTRODUCTION

Land is a finite, non-reproducible consumption resource held as a source of livelihood and a financial security transferred as wealth across generations (Ellis, 1994). In Kenya, particularly, land is tied to agriculture which is the main source of livelihood and sustenance. Land tenure system is the way in which people have access to and use land and natural resources. This study focuses on land fragmentation, change of land use, informal settlements and infrastructure developments constructs of land tenure system. Land use change refers to the transition in land-use morphology over time, and it usually corresponds to a particular socio-economic development phase (Grainger, 1995). Land-use changes, while restricted by physical conditions, are mainly driven by socio-economic factors. They can be mainly characterized by the changes of cultivated land and construction land, which are tightly inter-related with human production activities (Long, Heilig, Li, & Zhang, 2007). Changes in land use lead to destruction, alteration or fragmentation of habitats (UNEP, 1999).

The customary rules of land tenure predominate in Africa and may or may not be recognized by the state. Some African countries have made explicit efforts to capture all land rights in records, even where land remains state-owned or vested with the state in trust for the nation. This includes protecting customary land rights and providing for their registration. In Uganda, while the Land Reform Decree of 1975 made customary landholders tenants at will of the state (McAuslan, 2000), the 1995 Constitution and the 1998 Land Act, as amended, protect customary land rights. Customary rights are also protected for instance under Mozambique's Land Act 1997, Tanzania's Land Act and Village Land Act 1999, Niger's Rural Code 1993 and Namibia's Communal Land Reform Act 2002. In Niger, the Rural Code specifically recognizes customary rights as a legitimate source of land claims. Mozambique's Land Act 1997 reaffirms the principle of state ownership over land but protects "rights of use and benefit", which are acquired either on the basis of "customary law" or through good-faith occupation for at least ten years. In Mali, while post-independence legislation abrogated customary rights, the Land Codes (*Codes Domanial et Foncier*) of 1986 and 2000 (as amended in 2002) legally recognize customary land rights and grant them (some degree of) legal protection. In cases such as Ethiopia and Mozambique, the nations' land belongs to the state. In southern Africa where land is badly distributed, commercialization has tended to be taken up by large land owners and then the smallholder supplies labour, which can have a positive or negative impact on household food security.

In Kenya, there are three categories of land: public land, private land (in Predominantly urban areas), and 'trust' Land (recently Renamed 'community' Land in the 2010 Land Policy, endorsed in Kenya's New Constitution, 2011). 'Trust' Land was established under the British Colonialists who placed community common property lands 'in trust' under County Councils. Under the New Land Policy 'community land' (previously called 'trust' land) will be demarcated and its title allocated to a particular community group. The Policy seeks to recognize the rights of communities (including pastoralists) to access resources upon which they depend. Community (elected) Land Boards will be established to manage access to the land and resources. Secondary use access of land e.g. to access water, is also accounted for, and the particular role of women recognized. In the 1980s, the government established group ranches in Kajiado district. However, only a handful of the 52 group ranches established there have not been subdivided (Flyntan, 2012). Olkiramatian Group Ranch for example has zoned the ranch into grazing,

conservation and agricultural areas (fed by permanent rivers) and has sub-divided the latter into individual plots though the rest remains communal use.

## **1.2 Problem Statement**

The issue of land rights is highly contested in Kenyan politics (Mbote & Kindiki, 2008). Land ownership, use and management was one of the issues addressed by Kenya's new Constitution. Chapter 5 of the Constitution of 2010 Article 62 states that "all land in Kenya belongs to the people of Kenya collectively as a nation, as communities and as individuals". In a bid to solve long standing land issues, the National Land Commission was constituted pursuant to the National Land Policy of 2009, Constitution of Kenya 2010, National Land Commission Act, 2012, the Land Act 2012 and the Land Registration Act of 2012.

The issues of land in Kajiado North District, however, started in the 1960s with the demarcation of group and commercial ranches. Over the years, there has been tension over the security of the existing land tenure; this has led to subdivision of the original ranches. Subdivision of group ranches defeats the original objective of group ranches that was initially meant to safeguard the Maasai against land alienation by non Maasai immigrants.

A few studies have been undertaken on land tenure and its effect on social economic development of individuals. Ntiati (2002) carried a study on the socio economic effects of group ranches subdivision in Kajiado and Lokititik Districts and found that sub division led to the marginalization of communities in political, social and economic terms. Waiganjo and Ngugi (2001) investigated the effect of the existing land tenure system on land use in Kenya. They found that land tenure types and policies had a direct influence on land use practices. Kioko and Okello (2010) undertook a study on land use cover and environmental changes in semi-arid rangelands of Southern Kenya and found that changing socio economic circumstances and increased dependency on agriculture are the main factors behind land use changes. It is evident that besides these studies being outdated, so far none of the studies has focused on the effect of land tenure system on the social economic development of households in Kajiado North District.

## **1.3 Study Objectives**

- i. To determine the effect of land fragmentation on social economic developments of households in Kajiado North District
- ii. To investigate the influence of change of use of land on social economic developments of households in Kajiado North District
- iii. To establish the effect of informal settlements on social economic developments of households in Kajiado North District
- iv. To examine the influence of infrastructure development on social economic developments of households in Kajiado North District

## **2.0 LITERATURE REVIEW**

### **2.1 Theoretical Literature Review**

#### **Neoclassical Economic Theory**

Neoclassical economic theory examines the issue of land tenure from a methodological individualist point of view. Johnson (1972) evaluated whether or not different land tenure

systems resulted in wealth maximization. According to Johnson, for a particular land tenure system to result in wealth maximization there must be definition and allocation of property rights; a method of distributing the income generated from using land, such that it creates incentives for economic agents to use land in its most-valued uses (net of transaction costs), and minimal restrictions on the sale of land so as to increase the equilibrium level of investment in and attached to land. Johnson (1972) argued that, when rights to land are not clearly defined, transaction costs increase. High transaction costs reduce the marginal productivity of land. Neo classical, therefore, argue that the sale of land should involve minimal transaction costs and that this objective can be achieved by clearly defining property rights to the land in order to maximize its returns. The Neo classical argue that costs and rewards costs and rewards must be internalized at the individual level for efficient use of land. This is so that decision-making unit will ultimately try to maximize his rewards and minimize his costs. When costs and rewards are not internalized there are no incentives for agents to properly combine it with other factors of production to ensure that the marginal benefits are being maximized.

The Neo classicals assert that the creation of free-hold titles reduces the transaction costs associated with land transfers. Absence of sale of land restrictions ensure that private gains from exchange are greater than the costs of transfer. Thus contracts in the land market will allow for the realization of these gains which will then lead to a higher marginal value product and bid land away from less productive uses. Those who can most efficiently use the land are those who will engage in the bidding process and eventually use it in conjunction with other factors of production in order to create the greatest benefit (Christenson *et al.*, 2007). Given the points above, the individualization of land tenure is a more efficient form of land tenure because it increases tenure security, thus, reducing costs such as litigation over land disputes and thereby allowing for maximization of the benefits to the users of the land. This theory helps informing on the reasons behind land fragmentation and land use change. In most cases, other than for inheritance, land fragmentation and land use changes are prompted by perceptions of efficiency and monetary gain.

### **The Lockean Property theory**

John Locke's property theory (1960) employs unilateral appropriation to argue that property rights entail morally binding restrictions on others in advance of – and perhaps with greater authority than – any social agreement. Locke argued that individuals can acquire full property rights over moveable and non moveable parts of the earth in a state of nature, absent government. Our natural rights include the right legitimately to acquire property, and any government must respect natural rights including rights to property.

Locke begins in a state of nature with abundant natural resources but no government, money, or trade. In a state of nature, individuals have equal claim, or equal lack of claim, to unused natural resources (particularly land), meaning that resources are unowned, owned in common (for use of everyone but property of no one) or collectively owned (as if by corporation in which everyone owns a share). The first person to mix his or her labor with land needs no one else's consent to appropriate it. A farmer (who alters the land through labor) appropriates it; a hunter-gatherer (who labors on land without significantly altering it) does not. This theory explains the complex issue of squatters and whether they have any claim to the land they occupy. By virtue of their active possession of a particular piece of land along with tending it; does this entitle them some sort of ownership?

## 2.2 Empirical Review

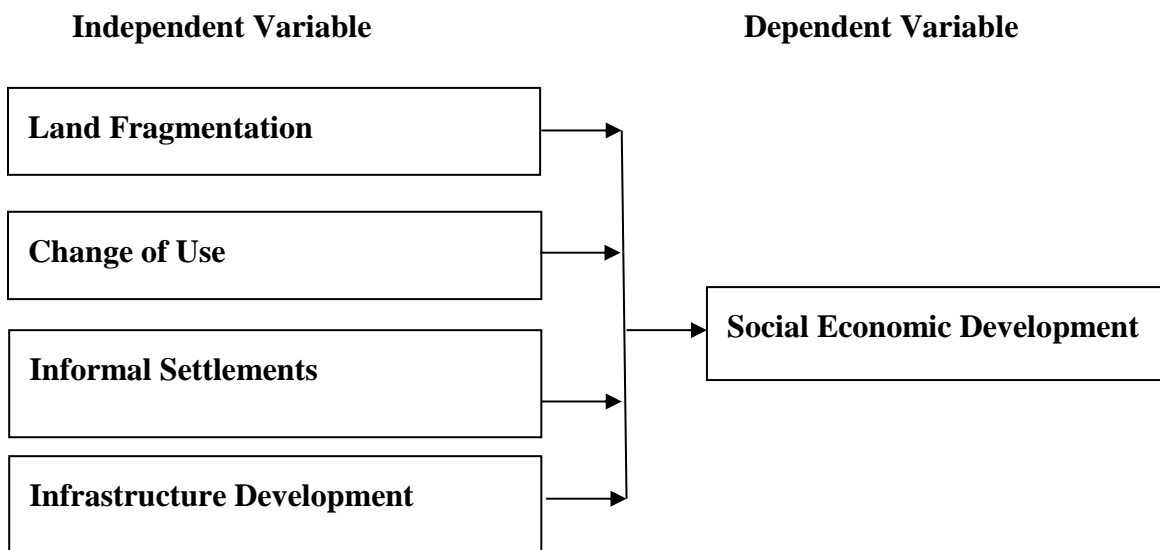
Sundqvist and Andersson (2006) studied the effect of land fragmentation on agricultural productivity in Northern Vietnam. Using data from the Vietnam Household Living Standard Survey 2004, the study found a weak correlation between land fragmentation and agricultural productivity. According to the study, fragmented land holdings increase transport costs. The study also mentioned hindering of economies of scale and farm mechanization as a disadvantage of land fragmentation. Nguyen, Cheng and Findlay (1996) examined the effect of land fragmentation on farm productivity in China on the 1990s. Using a household survey, they found that land fragmentation had a negative economic cost on the Chinese economy. They recommended land consolidation with minimal government intervention.

Bizimana, Nieuwoudt and Ferrer (2003) examined the effect of land fragmentation on economic efficiency in Butare, Rwanda. Results from a block-recursive regression analysis indicated that the level of net farm income per hectare, (indicating greater economic efficiency), was determined by the area operated, use of farm information, field extension staff visits, formal education of a farm operator, and the fragmentation of land holdings. The study recommended consolidating land, allocating land to more proficient farmers, and enabling proficient farmers to access relatively larger land holdings.

Kimani and Plackard (1999) investigated the trends and implications of land sub-division and fragmentation of land in the then Kajiado district. They argued that after the Kenyan Government introduced group ranches in Kajiado District in the 1960s to address the problem of overgrazing and land degradation, said to be occurring in the pastoral arid and semi-arid areas, by converting communal to group tenure; they secured the Maasai's traditional land against alienation by non-Maasai. Thereafter, the Maasai continued using their land along traditional lines, which was increasingly recognized as the most efficient and sustainable use. Group ranch sub-division into individual plots in Kajiado began in the 1980s with government support. They found that further fragmentation of plots and sale, in many cases to non-Maasai, followed sub-division. Average plot sizes decreased, while the number of fenced properties and the levels of cultivation increased. Due to sub-division, the Maasai gradually lost their best land and were pushed into the drier areas. They warned that further fragmentation would curtail continued extensive nomadic livestock production by decreasing mobility and the carrying capacity of group ranch land, increase the potential for land degradation and crop failures, and interfere with traditional wildlife migration patterns.

Mule (2010) examined the socio-economic impacts of the subdivision on the pastoral households in Kimana Group Ranch in Loitokitok District. The study administered questionnaires to 86 respondents. The study found that land use had not changed much from pastoral use despite the land subdivision. Lease was the most preferred land tenure arrangement in the area and most of the land portions had been put under commercial uses and urban settlement. The study concluded that household incomes had decreased with the onset of land subdivision. The study recommended mitigation measures geared to new land use planning and management styles to retain the grasslands unopened with a view to fostering sustainable development.

## 2.4 Conceptual framework



**Figure 1: Conceptual framework**

## 3.0 RESEARCH METHODOLOGY

This study employed descriptive research design. This study population comprises of 108, 538 households in Kajiado North District that own land in the area. The study adopted stratified random sampling. This study used primary data which was collected through use of a questionnaire. Statistical Package for Social Sciences (SPSS) software for analysis (SPSS) was used to produce descriptive and inferential statistics. A linear multiple regression model was used to measure the relationship between the independent variables and the dependent variable which are explained in the model.

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where:

Y = Social economic development

X<sub>1</sub> = Land fragmentation

X<sub>2</sub> = Change of use

X<sub>3</sub> = Informal settlements

X<sub>4</sub> = Infrastructure development

In the model *a* is the constant term while the coefficient  $\beta_1$  to  $\beta_4$  are used to measure the sensitivity of the dependent variable (Y) to unit change in the explanatory variable (X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub>).  $\epsilon$  is the error term which captures the unexplained variations in the model. The results are presented in form of tables, pie charts and graphs.

## 4.0 RESULTS AND DISCUSSIONS

### 4.1 Response Rate

The number of questionnaires, administered to all the respondents, was 384. A total of 287 questionnaires were properly filled and returned from the households in Kajiado North District. This represented an overall successful response rate of 75%.

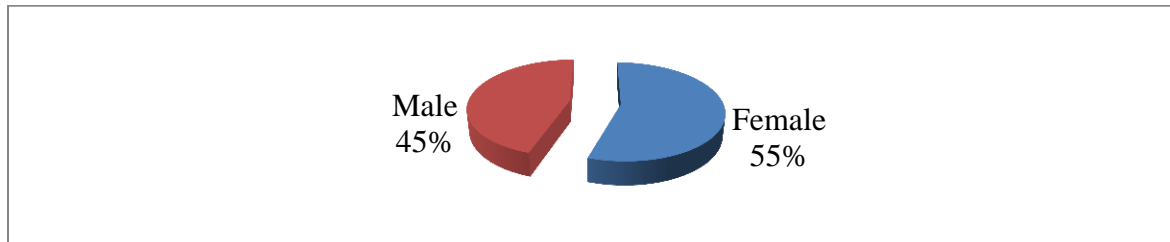
**Table 1: Response Rate**

Response Rate	Frequency	Percent
Returned	287	75%
Unreturned	97	25%
<b>Total</b>	<b>384</b>	<b>100%</b>

### 4.2 Demographic information

#### 4.2.1 Gender of the Respondents

The respondents were asked to indicate their gender. Figure 2 that majority (55%) of the respondents was female and 45% were male. These results disagree with the findings of the 2009 National Census (ROK, 2009) that found that the male population was higher (51%) compared to the female population(49%) in Kajiado County. A probable reason for this could be the lapse of time between 2009 and 2015 as well as differences in demographic characteristics in different areas of Kajiado County

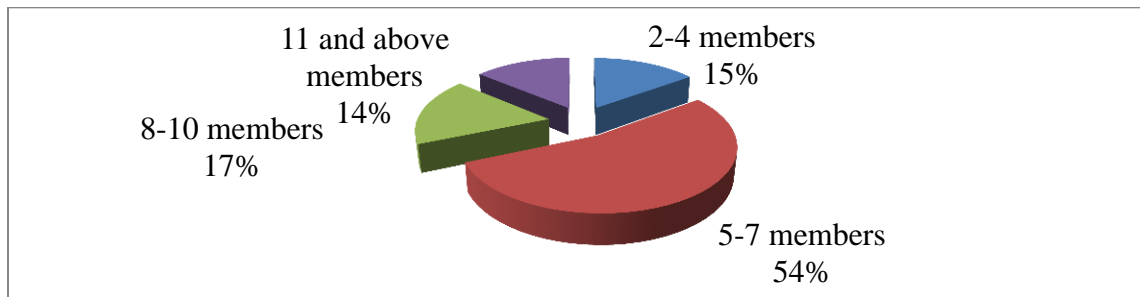


**Figure 2: Gender of respondents**

#### 4.2.2 Family size

The respondents were asked to indicate their family size. Majority of respondents had families of between 5 and 7 members as presented in figure 3. These findings disagree with those of (Nganga, 2013) which found that family sizes in Kajiado North District were of between 6 and 17 members. A probable reason for this could be variation in the definition of the family unit inclusion criteria.

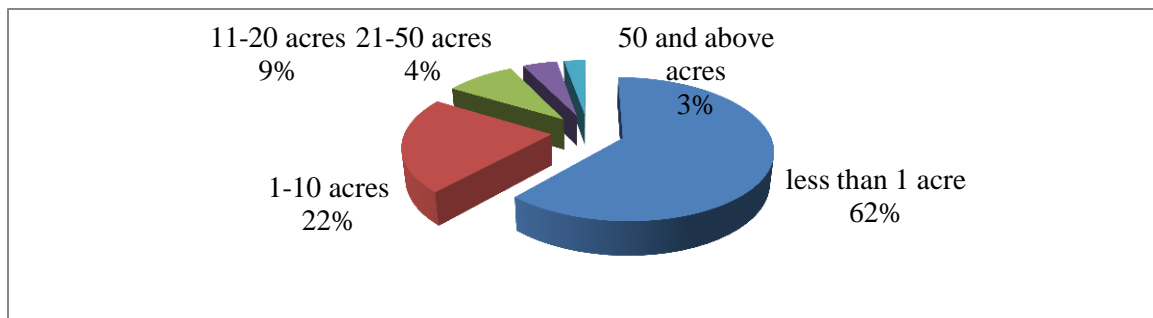




**Figure 3: Family size of Respondents**

#### 4.2.3 Land ownership

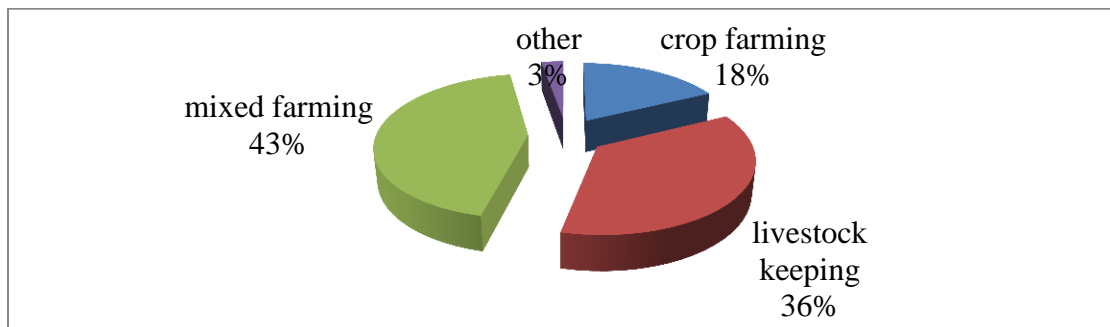
The respondents were asked to indicate the size of land they owned. 62% of the respondents indicated that they owned less than one acre of land. The results are presented in figure 4. These findings are similar to those of ASDSP (2014) that most farmers in Kajiado County undertake small scale farming of about 9 acres.



**Figure 4: Land ownership**

#### 4.2.4 Land use

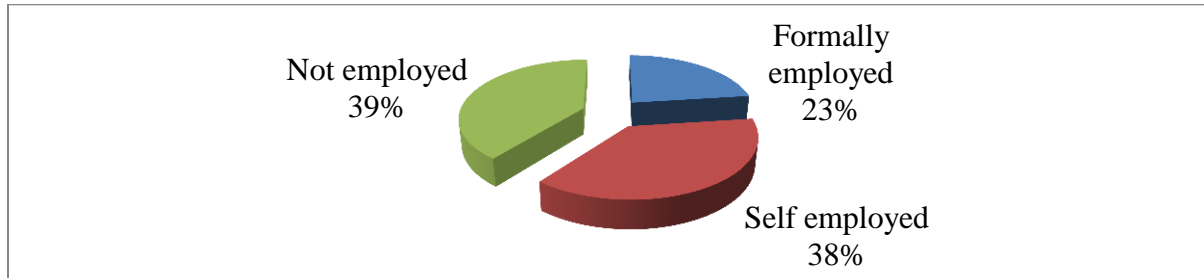
The respondents were asked to indicate they type of activities they engaged in on their land. Figure 5 indicates that majority were involved in mixed farming (43%), keeping livestock and engaging in crop farming. These findings agree with those the Food Assessment Report (2013) that majority of the population in Kajiado County carry out mixed farming.



**Figure 5: Land use**

#### 4.2.5 Employment

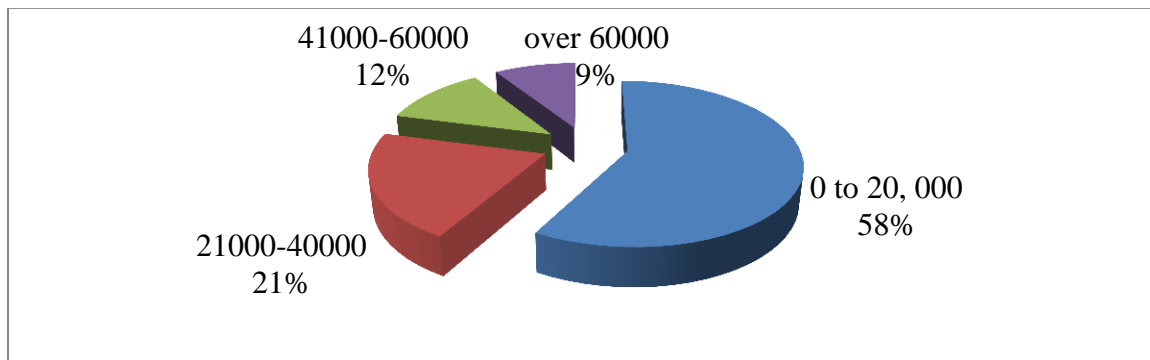
The respondents were asked to indicate their type of employment. Results in figure 6 reveal that majority (39%) were not employed. 38% were self employed while only 23% had formal employment. These findings concur with those of the ASDSP (2014) that over 10% of the productive population in Kajiado County are actively seeking employment.



**Figure 6: Type of employment**

#### 4.2.6 Level of income

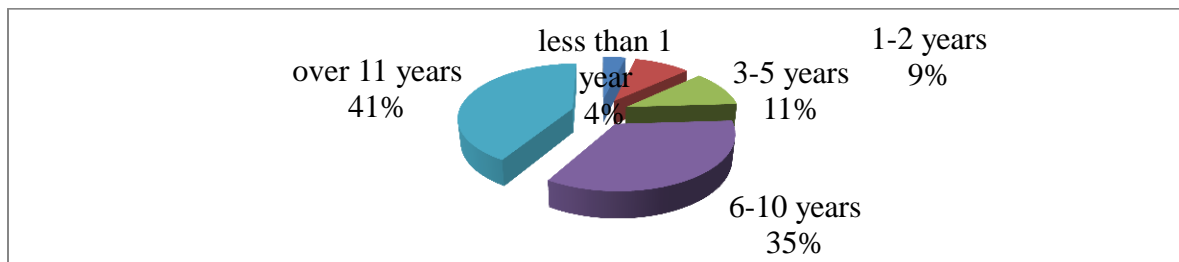
The respondents were asked to describe the level of their monthly income. Results in presented in figure 7 indicate that majority earned between Ksh. 0 and 20, 000. These findings are supported by the KNBS (2009) report that indicated that 45.60% of households in Kenya live below the poverty line.



**Figure 7: Level of income**

#### 4.2.7 Years of stay

The respondents were asked to indicate how long they had stayed in Kajiado North District. Majority had stayed in the area for over 11 years.



## Figure 8: Years of stay

### 4.3 Descriptive statistics

#### 4.3.1 Land fragmentation

Table 2 shows that 47.4% of the respondents agreed that the number of owners had gone up in the area. 48.8% agreed that fenced properties had increased in the area while 44.6% also agreed that the size of land owned by individuals in the area had decreased in the recent past. Majority of respondents agreed that land available for grazing had decreased for the last five years as indicated by 51.8% of the respondents. These results imply the existence of land fragmentation in Kajiado North District

**Table 2: Land fragmentation**

Statement	strongly agree	agree	neutral	disagree	strongly disagree
Land owners have increased	24.40%	23.00%	28.90%	11.50%	12.20%
Fenced properties increased	25.80%	23.00%	27.90%	10.10%	13.20%
Size of land owned by individuals decreased	21.30%	23.30%	31.70%	13.60%	10.10%
Land available for grazing decrease	26.80%	24.60%	18%	12%	19%

#### 4.3.2 Land change of use and socio economic development

The respondents were further asked whether the number of pastoralists had decreased over the previous years. Majority (41.6%) agreed that the number of pastoralists had decreased. 49.1% agreed that land under crop farming had consequently increased and 38.7% agreed that the real estate industry had grown in the area. For a formally pastoralist area, this results indicate that there is change of use of land in Kajiado North District.

**Table 3: Change of use of land**

Statement	strongly disagree	disagree	neutral	agree	disagree
Number of pastoralists reduced	19.20%	22.60%	25.80%	14.60%	17.80%
Land under crop farming increased	22.60%	26.50%	22.30%	12.50%	16.00%
The real estate industry grown	20.60%	17.80%	26.50%	15.70%	19.50%

#### 4.3.3 Informal settlement and socio economic development

Further, the respondents were asked whether unconventional dwellings (non-permanent structures, slums, squatter settlements) had increased in the area. Majority of the respondents

agreed as indicated by 43.3%. 44.4% of the respondents agreed that the number of squatters had increased in the area while 46.4% also agreed that housing was inadequate in the area.

**Table 4: Informal settlements**

	<b>strongly agree</b>	<b>agree</b>	<b>neutral</b>	<b>disagree</b>	<b>strongly disagree</b>
Unconventional dwellings has increased	21.30%	22.00 %	26.50%	16.00%	14.30%
Number of squatters has increased	20.20%	24.40 %	25.10%	11.50%	18.80%
There is inadequate housing	30.0%	16.40 %	20.6%	17.40%	15.70%

#### 4.3.4 Infrastructure development and socio economic development

The fourth objective sought to determine how infrastructure development influenced socio economic development of households in Kajiado North District. The respondents were asked whether the building of schools had improved their quality of life. This is indicated by 46% of the respondents who agreed. 49.8% also agreed that building of dispensaries had improved their quality of life while 45.6% agreed that building of roads had improved their quality of lives. Majority of respondents agreed that construction of the Standard Gauge Railway would improve their lives as indicated by 48.2% of the respondents. Building of banks and shopping centers had improved the quality of life of households in Kajiado North District as represented by 41.8% and 41.4% of the respondents respectively.

**Table 5: infrastructure development**

	<b>strongly agree</b>	<b>agree</b>	<b>neutral</b>	<b>disagree</b>	<b>strongly disagree</b>
Building of schools	28.20%	17.80%	15.00%	18.80%	20.20%
Building of dispensaries	32.00%	17.80%	15.10%	17.80%	17.40%
Building of roads	31.40%	14.30%	13.90%	22.00%	18.50%
Construction of the SGR	19.20%	28.90%	14.30%	18.10%	19.50%
Building of banks	27.50%	14.30%	17.10%	22.00%	19.20%
Building of shopping centers	28.20%	13.20%	18.5%	20.60%	19.50%

#### 4.4 Correlation Analysis

Correlation analysis was undertaken to establish the association between the study variables. Results indicated that negative significant correlation between land fragmentation and socio economic development. Informal settlements and change of use of land were also negatively correlated to socio economic development. This is evidenced by negative coefficients of correlations and p value of less than 0.05. Infrastructure development on the other hand is

positively correlated socio economic development as represented by correlation coefficient of 65.5% and p value of 0.000(less than 0.05).

**Table 6: Correlation Analysis**

		social economic development	Land fragmenta tion	Informal settlement s	Infrastructure development	Chang e of use
social economic development	Pearson	1				
	Correlation					
	Sig.(2- tailed)					
	N	287				
Land fragmentation	Pearson	-.395**	1			
	Correlation					
	Sig. (2- tailed)	0.000				
	N	287	287			
Informal settlements	Pearson	-.167**	.389**	1		
	Correlation					
	Sig. (2- tailed)	0.005	0.000			
	N	287	287	287		
Infrastructure development	Pearson	.655**	-.425**	-0.106	1	
	Correlation					
	Sig. (2- tailed)	0.000	0.000	0.074		
	N	287	287	287	287	
Change of use	Pearson	-.288**	.446**	.428**	-.270**	1
	Correlation					
	Sig. (2- tailed)	0.000	0.000	0.000	0.000	
	N	287	287	287	287	287

#### 4.5 Regression Analysis

Regression analysis was used to model the relationship between the independent variables and the dependent variable. Table 7 illustrates the model summary used in this study and indicates the R Square value which gives the most useful measure of the success of the model. Results indicate that the model of the study accounts for 45.2% of variation in socio economic development of households in Kajiado North District.

**Table 7: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.673a	0.452	0.444	0.39893

Analysis of Variance (ANOVA) assesses the overall significance of the model. Table 8 below shows the model of the study sufficiently or significantly explains the variation in socio economic development of households in Kajiado North District,  $p < 0.05$ , (0.000).

**Table 8: Model Summary**

	Sum of Squares	df	Mean Square	F	Sig.
Regression	37.056	4	9.264	58.21	.000b
Residual	44.88	282	0.159		
Total	81.936	286			

A multiple linear regression between the independent variables and dependent variable was also conducted. From the results in table a model equation is derived and presented below:

$$Y = 3.081 - 0.054X_1 - 0.021X_2 + 0.038X_3 + 0.336X_4$$

Where

Y= Socio economic development

X1= Land fragmentation

X2= Informal settlements

X3= Change of use

X4=Infrastructure development

**Table 9: Multiple regression**

	B	Std. Error	Beta	t	Sig.
(Constant)	3.081	0.148		20.769	0.000
Land fragmentation	-0.054	0.03	-0.099	-1.821	0.040
Informal settlements	-0.021	0.029	-0.036	-0.721	0.472
Change of use	-0.038	0.029	-0.069	-1.321	0.187
Infrastructure development	0.336	0.028	0.591	12.001	0.000

The results in table 9 above indicate that there is a negative significant relationship between land fragmentation and socio economic development ( $p < 0.05$ -0.040). A unit increase in land fragmentation leads to a decrease in socio economic development by 0.054 units. However, a positive significant relationship exists between infrastructure development and socio economic development ( $p < 0.05$ -0.000). A unit increase in infrastructure development leads to an increase in socio economic development by 0.336 units.

## **5.0 DISCUSSION CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Discussion**

The first objective of the study was to determine whether land fragmentation affected socio economic development of households in Kajiado North District. Results indicated that the size of land owned by households in Kajiado North District had decreased over time. The number of land owners and fenced properties had also increased. Land available for grazing on the other hand had decreased. The second objective sought to determine the effect of change of use land on socio economic development of households in Kajiado North District. Results indicated that households had changed the type of agricultural activities they undertook. The number of pastoralists had decreased while the size under crop farming had gone up. The respondents also noted that the real estate industry had grown in the area.

The third objective of the study sought to determine the effect of informal settlements on socio economic development of households in Kajiado North District. The study findings revealed that the number of unconventional dwellings like slums had increased in the area. The number of squatters in the area had also increased in the area and housing was inadequate. The fourth objective sought to determine how infrastructure development influenced socio economic development of households in Kajiado North District. Results revealed that the building of schools, dispensaries, roads, banks and shopping centers had improved the quality of life households in Kajiado North District. They also expected that the construction of the SGR was going to improve their quality life.

### **5.2 Conclusions**

Based on the findings above, the study arrives at two conclusions. Firstly, land fragmentation is on the rise in Kajiado North District. Land fragmentation has a significant negative relationship of with socio economic development. Increases in land fragmentation leads to the deterioration of socio economic development of households in Kajiado North District. Secondly, infrastructure development had improved the quality of life of households in Kajiado North District. A positive significant relationship existed between infrastructure development and socio economic development of households in Kajiado North District.

### **5.3 Recommendations**

Based on the results, findings and conclusions the following recommendations have been deciphered. Closer attention should be paid to regulation of land fragmentation given its effect on the socio economic development of households in Kajiado North District. It should also involve integrating subdivision and infrastructure development. All subdivisions must include provision of essential services that will uplift and conducive to good standard of living.

## **REFERENCES**

- Constitution of Kenya (2010), Article 60(2).
- Ellis, J., & Galvin, K. A. (1994). Climate patterns and land-use practices in the dry zones of Africa. *BioScience*, 44(5), 340-349.
- Flyntan, F., (2012). Land Tenure Options: Experiences Shared and Implications for Ethiopia. Learning Initiative: *Making Rangelands Secure*

- Grainger, A. (1995). National land use morphology: patterns and possibilities. *Geography*, 235-245.
- Johnson, O. E. (1972). Economic analysis, the legal framework and land tenure systems. *Journal of Law and Economics*, 259-276.
- Kameri-Mbote, P., & Kindiki, K. (2008, December). Trouble in Eden: How and Why Unresolved Land Issues Landed 'Peaceful Kenya' in Trouble in 2008. In *Forum for Development Studies* (Vol. 35, No. 2, pp. 167-193). Taylor & Francis Group.
- Kioko, J., & Okello, M. M. (2010). Land use cover and environmental changes in a semi-arid rangeland, Southern Kenya. *Journal of Geography and Regional Planning* 3(11), 322-326,
- Long, H., Heilig, G. K., Li, X., & Zhang, M. (2007). Socio-economic development and land-use change: Analysis of rural housing land transition in the Transect of the Yangtse River, China. *Land Use Policy*, 24(1), 141-153.
- McAuslan, P., Toulmin, C., & Quan, J. (2000). Only the name of the country changes: the diaspora of "European" land law in Commonwealth Africa. *Evolving land rights, policy and tenure in Africa*, 75-96.
- Nguyen, T., Cheng, E. & Findlay, C. (1996). Land fragmentation and farm productivity in China in the 1990s. *China Economic Review*, 7(2), 169-180.
- Ntiati, P. (2002). *Group ranches subdivision study in Loitokitok division of Kajiado District, Kenya. Land Use Change Impacts and Dynamics (LUCID) Project Working Paper*, 19.
- Sundqvist, B., & Andersson, O. (2006). Low-temperature phase transformation in NaBH<sub>4</sub> under pressure. *Physical Review B*, 73(9), 092102.
- Waijanjo, C., & Ngugi, P. E. (2001). *The effects of existing land tenure systems on land use in Kenya today*. (In Proceedings from International Conference on Spatial Information for Sustainable Development. Nairobi, Kenya).