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ANALYSIS OF LAND TENURE SYSTEMS AND ITS RELATIONSHIP WITH PRODUCTIVITY IN THE AGRICULTURAL SECTOR IN GHANA

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Abstract

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The paper assesses the effects of Land Tenure systems and its relationship with agricultural productivity in Ghana. It discusses the complex nature of the Tenure systems and some of the reforms the country has done over the years and standard of living in the rural communities. In its assessments, this paper extracts information from Cross-Section Data and analyse it by applying Chi-square test to show the relationship between Land Tenure Systems and agriculture productivity. The outcome shows that Land Tenure Systems has a direct influence on productivity in Agriculture and can result in poverty and low standard of living among peasant farmers. In view of the problems, the paper discusses the prevalence of the terms, rules and regulations of the land acquisitions process and its repercussions and concludes from the results that Land Tenure Systems is a factor for low productivity in Agribusiness, and makes recommendations for the improvement of the land Tenure Systems to reduce the inherent insecurity.

Keywords: land tenure, agriculture, insecurity, development, productivity, poverty

INTRODUCTION

Literary references are quick to generate lists of common problems that challenge high productivity in the agriculture sector in a less developed country like Ghana but few articles offer suggestions on how to improve it and to gain economic strength with sound land policies that will propel an economic growth with firm connection to the global economy.

Land tenure security is one of the factors that some writers has used to explain the poor agricultural productivity in developing countries (Bourdreaux and Sacks, 2009). They stated in their study that one major reform that would help farmers across Africa is to increased attention to problems of land tenure security.

In Ghana, the social relations and institutions governing access to and use of land and natural resources, is usually portrayed as customary or statutory (see Agbosu *et al*., 2007). Land tenure refers to the manner in which land is held or transferred and land tenure (ownership) security refers to whether the land holder perceives that his/her land could be expropriated or not (see Matchaya, 2008).

Ghana is located on the Gulf of Guinea, north of the Equator in the West African sub-region with a land area of about 239,460 km^2. The land is generally low lying. Half of the country is less than 152 meters above sea level.

The climate is typically of the tropical type. The eastern coastal belt is warm and comparatively dry, the southwest corner is hot and humid and the north is hot and dry. Average temperatures range from 21 °C to 28 °C (70 to 82 °F). The population of Ghana is about 24,658,823 million (Ghana statistical service report on 2010 population census). The work force is about 11,754,424 million as reported by the Ghana statistical service. Agriculture and fishing representing about 47.9%; industry and transport 16.2%; sales and clerical 19.3%; services

5.9%; professional 8.9%; other 1.8% of GDP according to the 2007 Ghana statistical service estimate. According to the 2007 estimates, the GDP of Ghana rose to $15.2 billion and the Real GDP growth rate estimate was 6.3%, and the per capita GDP was about $690 and the inflation rate from consumer prices, October 31, 2008 was 17.3%.

In Ghana, the Land tenure system is very complex. It can be defined as the right to hold property as part of an ancient hierarchical system of holding lands. It is basically, a traditional way of land distribution among people in a community. This system of land distribution that prevails in Ghana has complex variations within different tribal areas. However, government can acquire land compulsory for public use.

The general forms of land tenure systems prevailing in Ghana according to FAO corporate document repository are as follows:

State land: land compulsorily acquired by the Government with a legislative instrument for it use in the interest of the public.

Vested land: stool land that has been vested in the state as trustee.

Stool land: land owned and managed by a stool on behalf of the community by the king usually called "omanhene in akan language" represented by a Chief in each town or village within a traditional area.

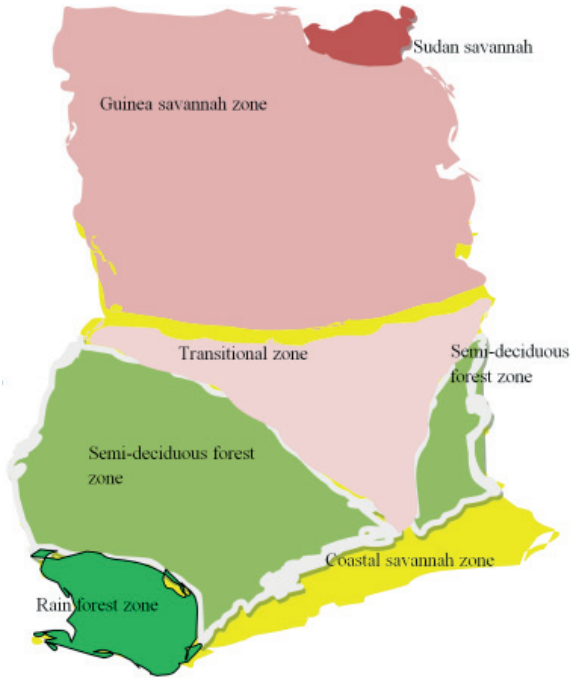
Family land: land vested in a family and preserved for the use by the members of the family or clan.

Privately owned land: land purchased outright by an individual or a group of persons for their private use in accordance to the terms of agreement.

Due to the complexity of the tenure systems, efforts are been made to reform it but little or nothing concrete has come out of it. The question of how to acquire land in Ghana without a problem still prevails and it needs urgent consideration since the development of a country largely depends on land as a primary factor of production.

Profile of the Agro-Ecological Zone of Ghana

The agro-ecological zone of Ghana is divided into six parts namely: Rain Forest, Deciduous Forest, Forest-Savannah, Transitional, Coastal Savannah, Guinea and Sudan Savannahs, which sometimes referred to as the Northern Interior Savannah (see Tab. I).



1: *The Ecological zone of Ghana*
Source: Author's own work with information from Taylor, 1952

The map shown in Fig. 1 depicts the ecological zones in Ghana.

MATERIALS AND METHODS

The data employed to the study are both primary and secondary. The secondary data are extracts from the 2010 Population and Housing Census report of Ghana Statistical Service (GSS), and data from Ghana Cocoa Board, IMF, FAOSTAT, UNCTAD, and MOFA Ghana.

The primary analyses data are extracts from the Institute of Statistical Social Economic Research

I: *Ecological Zone of Ghana*

Zone	Area ('000ha)	Percent of total area	Mean annual rain (mm)	Growing period (days)	Dominant land use systems	Main food crops
Rain forest	750	3	2,200	50–160 major 100 minor	Forest, plantation	Root, plantain
Deciduous Forest	740	3	1,500	50–160	Forest, plantation	Root, plantain
Transition	6,630	28	1,300	00–220	Food and Cash crops	Maize, roots, plantain
Guinea Savannah	14,790	63	1,100	80–200	Livestock food and Cash crops	Sorghum, cowpea, roots, maize
Sudan Savannah	90	1	1,000	50–160	Livestock and food crops	Millet Sorghum, cowpea, maize
Coastal Savannah	80	2	800	00–110	Food crops	Roots, maize

Source: Author's own work with data gathered from Ghana AQUASTAT, 2012

(ISSER) Land Tenure and Land Policy re-search project in Ghana. The survey covered all the ten regions in Ghana. The project collected cross sectional data on respondents in six major areas. Section A included answering questions on respondents identity and that of their households; Section B is used to collect data on problems and characteristics of land tenure systems in Ghana. Section C dealt with legal and institutional issues in Land Tenure administration. Section D covered the area of land markets and productivity in Ghana. Section E covered Land Tenure and the problem of conflicts. Section F covered the area of Land Tenure and Environmental problems associated with agriculture, mining and construction in Ghana and Section G covered the area of efficient land distribution and Land Tenure reforms.

This work focused on the area of productivity in the agricultural sector. Specifically the work tested the hypothesis that, the main systems of land acquisition are interdependent related to productivity

To affirm the relationship between the main systems of land acquisition and productivity the chi-square test is use to test the hypothesis:

H0: Main systems of land acquisition are not interdependent related to productivity.

H1: Main systems of land acquisition are interdependent related to productivity.

Pearson Chi-Square – (SPSS).

Formula:

$$X^2 = \frac{\Sigma(O-E)^2}{E},$$

where

O.....the Observed Frequency and

E.....the Expected Frequency.

Decision Rule = Reject H_0 if X^2 (Calculated) > X^2 (Tabulated).

RESULT AND DISCUSSION

Demographic Data of the Land Policy Survey

The respondents of the ISSER land policy research in Ghana included ages from 15 years and above. However, majority of them are between the ages of 25 and 64 years (see Tab. II).

The respondents are men and women of all calibres. Tab. III shows the sex distribution of respondents.

In Ghana, the female population is higher than that of men. About 48.7% of the total female population are self-employed in the agriculture sector through farming, distribution of farm products and provision of other service to the sector, (see Duncan, 2004), but when it comes to land issues, it is the men who control the affairs. The customs and traditions do not favour women to play leadership role in controlling land. It is therefore obvious that the men have the necessary information about land than women. As shown in Fig. 2, male respondents were three times more than female respondents were.

II: *Age Group of Respondents*

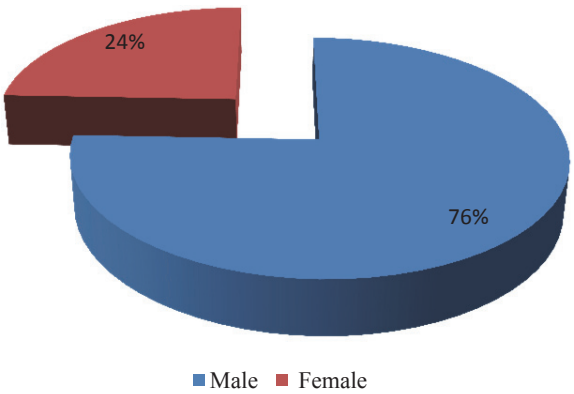
	Frequency	Percent	Cumulative Percent
15–19 years	2	0.1	0.1
20–24 years	66	2.5	2.5
25–29 years	210	7.8	10.3
30–34 years	286	10.6	21.0
35–39 years	341	12.7	33.6
40–44 years	283	10.5	44.2
45–49 years	353	13.1	57.3
50–54 years	284	10.6	67.8
55–59 years	213	7.9	75.8
60–64 years	202	7.5	83.3
65–69 years	146	5.4	88.7
70–74 years	146	5.4	94.1
75+ years	158	5.9	100.0
Total	2690	100.0	

Source: Author's own work with data captured by the ISSER land policy survey, 2012

III: *Sex of Respondent*

	Frequency	Percent	Cumulative Percent
Male	2034	75.6	75.6
Female	656	24.4	100.0
Total	2690	100.0	

Source: Author's own work with data captured by the ISSER land policy survey, 2012



2: *Percentage of male and female respondents*
Source: Author's own work with data captured by the ISSER land policy survey, 2012

Calibre of Respondents

The respondents include people with very low or without any educational level to those who are highly professionals. However the people with very little or no education at all were more dominate. About 77.5% percent of the respondents have just basic school education or no education at all

IV: *Level of Education*

	Frequency	Percent	Cumulative Percent
None	738	27.4	27.4
Primary	309	11.5	38.9
Middle/JSS	1039	38.6	77.5
Vocational & commercial	59	2.2	79.7
O-Level	85	3.2	82.9
SSS	97	3.6	86.5
A-Level	29	1.1	87.6
Training College	63	2.3	89.9
Tech & Professional	98	3.6	93.6
Tertiary	103	3.8	97.4
Koranic	68	2.5	99.9
Other	2	0.1	100
Total	2690	100	

Source: Author's own work with data captured by the ISSER land policy survey, 2012

(see Tab. IV). This is a typical reflection of land ownership in Ghana. Many of the people who are in control of land have either very little or no education. This situation negatively affects the use of land for gainful productive ventures.

Prevalence of Tenure Systems on Productivity

Land tenure systems in Ghana are many as already mentioned nevertheless, the family owned tenure is the system prevailing over all the others. The ISSER land policy survey provides some bases for such an assertion. In the study about 43.4% of respondent described land tenure system in their area as family owned patrilineal and 24.6% describe the system as family owned matrilineal making 70% of the total land ownership in Ghana. Another 28.7% of the respondents said that other forms of tenure systems prevail in their area bringing the total of respondents who describe customary land tenure system as the prevailing system in their area to a total 98.7%. Only about 1.3% of the respondents said land in their area is owned either by individuals or by the Government (see Tab. V). This means that land acquisition process for any form of production venture is largely governed by the terms of prevailing customary tenure system.

V: *Prevalence of Tenure Systems*

Tenure system	Percentage
Family owned patrilineal	43.6
Family owned matrilineal	26.4
Tendana system	4.6
Chieftaincy owned (or administered), patrilineal	11.4
Chieftaincy owned (or administered), matrilineal	12.7
Individuals	0.9
Government has taken over the land	0.4
Total	100.0

Source: ISSER Land Tenure and Policy Survey, 2005

Terms of Land Acquisition and its Effects on Agribusiness

The efficient organisation of the land tenure systems in Ghana impacts on agriculture productivity, employment and investment. Tenure insecurity resulting from different category of people and gender equity in the tenure systems affects the acquisition of land. The lack of land tenure systems to perform efficiently affects economic growth as well as development and creates unemployment amongst the indigenous people in the rural communities. Agriculture provides about 51% of the Gross Domestic Product (GDP), and about 45% of all export earnings in Ghana. The growth rose to from 4.1% per annum in 2002 to 4.8% by 2005. Farming provides economic livelihood for about 80% of the indigenous Ghanaians (Duncan, 2004), but the terms for acquiring land are shrouded in complexity. Tab. VI shows respondents status in relationship to plots of land used for their occupational purposes.

VI: *Status in relation to plots of land use for occupational purposes*

	Frequency	Valid Percent	Cumulative Percent
Land owner	863	41.9	41.9
Tenant	714	34.6	76.5
Using lineage land	320	15.5	92.0
Both tenant and landowner	47	2.3	94.3
Using lineage land and tenant	41	2.0	96.3
Land owner, tenant and using lineage land	21	1.0	97.3
Land owner and using lineage land	37	1.8	99.1
Caretaker	4	0.2	99.3
Others	15	0.7	100.0
Total	2062	100.0	

Source: ISSER Land Tenure and Policy Survey, 2005

VII: *Terms of land use by tenants*

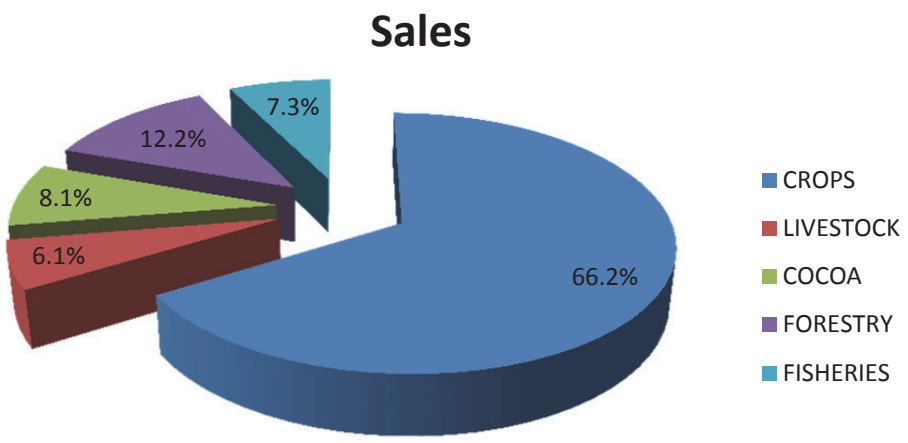
	Frequency	Valid Percent	Cumulative Percent
Sharing the crop into halves or three (abunu or abusa)	164	21.8	21.8
It was a gift but I gave the owner a ram and drinks	11	1.5	23.3
No specified period	39	5.2	28.5
Pay rent	372	49.5	77.9
No terms	157	20.9	98.8
I am to use it for 2yrs and return it	7	.9	99.7
Communal labour	2	.3	100.0
Total	752	100.0	

Source: ISSER Land Tenure and Policy Survey, 2005

VIII: *Ranking of Farming by Respondents*

Rank of Farming	Frequency	Valid Percent	Cumulative Percent
Most Important	1891	86.0	86.0
Important	304	13.8	99.8
Least Important	5	0.2	100.0
Total	2200	100.0	

Source: ISSER Land Tenure and Policy Survey, 2005



3: *Export Contribution of the Agricultural Subsectors to GDP (%)*
Source: mofa.gov.gh, 2010

Looking at the above table one will realise that 41.9% of the respondents owns their plot of land on which they work on and more than 57.4% are using land owned by family lineage, paying rent in addition to other tenure arrangements. Other status in relation to plots of land use for occupational purposes is just 0.7%.

Apart from being an owner of a plot, which comes from the fact that ownership is acquired from a customary land tenure system, tenancy is another common means for a person to gain access to a plot of land. A tenancy arrangement comes in various forms as show in Tab. VII. From the tables discussed above it is clear to note that the basic purpose of acquiring land in Ghana is for Agribusiness and Construction with Agribusiness being the most important.

In ranking the importance of farming, 2200 respondents answered a question on the importance of farming in their area during the ISSER land policy survey. Out of the 2200 respondents 86% described farming as the most important work in their area, 13.8% described farming as import and 0.2% said farming is the least important work in the area (see Tab. VIII). This result shows that farming is the mainstay of the people and thus confirms the assertion that more than 80% of the rural population in Ghana are involve in either farming or agribusiness in one way or the other.

The main agricultural export in Ghana includes Cocoa, Timber and Horticultural products, Fisheries, Game and Wildlife (see Fig. 3). As noted earlier the main mineral exported includes Gold, Bauxite, Manganese and Diamond.

- The Industrial Crops are Cocoa, Oil Palm, Coconut, Coffee, Cotton, Kola, and Rubber.

- The Starchy and Cereal Staples constitute Cassava, Cocoyam, Yam, Maize, Rice, Millet, Sorghum and Plantain.
- The Fruits and Vegetables are made up of Pineapple, Citrus, Banana, Cashew, Pawpaw, Mangoes, Tomato, Pepper, Okra, Egg Plant, Onion, and Asian Vegetables.

Agriculture is an important foreign exchange earner in the economy of Ghana contributing the greater percentage to GDP in the 1990s, and the early 2000s but started declining from 2005 and since then the service sector has taken lead (see Tab. IX).

The trend of productivity is depicted on Fig. 4, the Agriculture, Service and Industry sector moves horizontally from 1997 till 2005 and then the Agriculture and Industry sector begins to fall whereas the Service sector rises.

From the depicted trend, we observe that there is a relationship between productivity in the Agricultural sector and the systems of acquisition of land. However, there are undisputed facts that other factors also affect productivity.

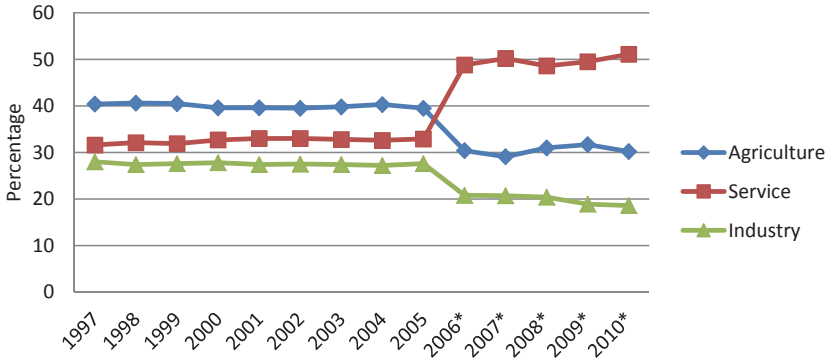
In order to confirm the relation between land tenure system and productivity the opinion of respondents on the main systems of land acquisition as against the ranking of the importance of farming during the ISSER land policy survey are cross tabulated and the Pearson chi-square test is performed using SPSS (see Tabs. X and XI).

From the cross tabulation table of the main systems of land acquisition and the importance of farming, the counts and column proportions are shown as the summary statistics. Column proportions are computed so that they sum to 100% down each column. If these two variables are unrelated, then in each row the proportions should be similar across columns but there appear to be differences in the proportions, which show that they are related.

IX: *Percentage Share of Agriculture in GDP*

Year	Sector			
	Agriculture (%)	Service (%)	Industry (%)	Real GDP @ Constant 1993 Purchases Value (GH¢-Million)
1997	40.4	31.6	28.0	453.39
1998	40.6	32.1	27.4	474.67
1999	40.5	31.9	27.6	495.69
2000	39.6	32.7	27.8	514.21
2001	39.6	33.0	27.4	535.71
2002	39.5	33.0	27.5	560.08
2003	39.8	32.8	27.4	589.47
2004	40.3	32.6	27.2	622.35
2005	39.5	32.9	27.6	658.87
2006*	30.4	48.8	20.8	18,705
2007*	29.1	50.2	20.7	23,154
2008*	31.0	48.6	20.4	30,179
2009*	31.7	49.5	18.9	36,867
2010*	30.2	51.1	18.6	44,799

Note: Figures won't add up to 100 where the proportion of Net Indirect Taxes has been deducted. * GDP at 2006 Base Price)
Source: Ghana Statistical Service, Accra culled from mofa.gov.gh, 2010



4: *Percentage Share of Agriculture in GDP*
Source: Author's construction base on Tab. IX

X: *Main system of Land acquisition and Rank of Farming relationship*

Main system of Land acquisition in this community * Rank of Farming Cross tabulation						
			Rank of Farming			Total
			Most Important	Important	Least Important	
Main system of Land acquisition in this community	Matrilineal inheritance	Count	428	94	1	523
		% within Rank of Farming	22.6%	30.9%	20.0%	23.8%
	Patrilineal inheritance	Count	1083	99	2	1184
		% within Rank of Farming	57.3%	32.6%	40.0%	53.8%
	Both matrilineal and patrilineal inheritance	Count	143	30	1	174
		% within Rank of Farming	7.6%	9.9%	20.0%	7.9%
	Direct outright purchase	Count	93	53	0	146
		% within Rank of Farming	4.9%	17.4%	0.0%	6.6%
	Long lease (abunu, abusa, etc)	Count	109	19	1	129
		% within Rank of Farming	5.8%	6.2%	20.0%	5.9%
	Don't know	Count	21	6	0	27
		% within Rank of Farming	1.1%	2.0%	0.0%	1.2%
	Gift transfer	Count	4	0	0	4
		% within Rank of Farming	0.2%	0.0%	0.0%	0.2%
	Customarily	Count	3	3	0	6
		% within Rank of Farming	0.2%	1.0%	0.0%	0.3%
	Chieftaincy	Count	1	0	0	1
		% within Rank of Farming	0.1%	0.0%	0.0%	0.0%
	Rent	Count	6	0	0	6
		% within Rank of Farming	0.3%	0.0%	0.0%	0.3%
Total		Count	1891	304	5	2200
		% within Rank of Farming	100.0%	100.0%	100.0%	100.0%

Source: ISSER Land Tenure and Policy Survey, 2005

XI: *Chi-Square Tests*

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	114.18[a]	18	.000
N of Valid Cases	2200		
a. 17 cells (56.7%) have expected count less than 5. The minimum expected count is .00.			

To affirm the relationship the chi-square test is use to test the hypothesis:

H0: Main systems of land acquisition are not dependently related to productivity.

H1: Main systems of land acquisition are dependently related to productivity.

Pearson Chi-Square – (SPSS)

Formula:

$$X^2 = \frac{\Sigma(O-E)^2}{E},$$

where

O ..... the Observed Frequency and

E ..... the Expected Frequency.

Decision Rule = Reject H_0 if X^2 (Calculated) > X^2 (Tabulated).

The computed chi-square statistic has a value of 114.18. In order to determine whether this is enough evidence to reject the hypothesis of independence, the significance value of the statistic is computed. The significance value is the probability that a random variate drawn from a chi-square distribution with 18 degrees of freedom is greater than 114.18. Since this value is less than the alpha level specified on the Test Statistics tab, we reject the hypothesis of independence at the 0.05 level.

Conclusion: From the results, there is a relationship between the main system of land acquisition and ranking of farming as an importance economic activity with value = 114.18, *df* = 18, $p = 0.000$.

The null hypothesis (H_0 :) is rejected and the alternative hypothesis (H_1 :) accepted.

In Ghana, the Constitution anticipates the application of customary law as it exists in particular communities, not what it ought to be. It is therefore recommendable to state clearly that it calls for in-depth research into customary land tenure and

management systems of the various ethnic groups for purposes of incorporation into the mechanisms for the public administration of land.

One area in which we believe that policy makers could use to improve the livelihoods of forest dwellers in Ghana is for Government to use its financial strength and influence to acquire or negotiate access to land from the requisite authorities. The land can then be lease or rented and payments made out of proceeds from investment.

Other option that can be used to address the land tenure problem and to protect the interests of investors are measures, which ensure the legal security of deed and title registration over the period for which land is rented or leased. One way to acquire land for large-scale investment project would be for the Government to create an institution that will acquire land directly from landowners and pay adequate compensation on behalf of investors. The Government can also acquire land by this means and then lease the land to would be investors and individuals who does not have the means to acquire land directly from the owners. Compensation could be in the form of an adequate lump sum paid up front in the case of the freehold tenure system.

The advantage of this option is that potential investors will feel secured when dealing directly with the Government, which is the recognised sovereign entity, which has the oversight responsibility and capacity to solve any form of land dispute, which may arise rather than some obscure, individual or traditional leader. Such a practice will be reasonably acceptable to the landowners if it is formalised and enshrined with a legislative backing couple with transparent administrative rules and regulations for its implementation.

In addition, the Government can put in place a modality whereby landowners offer their land to investors for economic projects by using the compensation from the use of their land in the form of equity or loan in financing the project. In the case where any of the people whose life depends on the land, has the required skills and are willing to work, they are given the first opportunity to work as employees to receive some wages or salaries in addition to their equity interest. This will serve as an incentive for many landowners to participate. The advantage of this modality is that landowners who are employees will work hard to ensure the success of the project to safeguard their interest. Such financial interest in large-scale projects can be a powerful and easy way of achieving landowners support and commitment.

Another option is that the Government and Organisations that are seeking to improve the living standards of the poor, should form partnership with landowners by investing in their land and sharing the profit proportionally, whiles cost of investment is being re-covered and subsequently putting the landowners in charge of the project after given them the needed skills and support. The advantage of this option is that companies that are seeking for vertical integration can find it easy and cheap to obtain land to produce raw materials to feed their production plants and make high profit from the sale of final products.

However, to eliminate the problems relating to land acquisition in Ghana described above, it will be necessary for the Government to ensure institutional transparency. Potential investors and landowners must have confidence in the institutions put in charge of land administration in Ghana. The solution of the problem is not far fetch since many chiefs and traditional leaders who are in control of land in Ghana are now highly educated and very progressive.

CONCLUSION

Many reasons has been given as an explanation to the prevalence of poverty and lack of development in Sub-Saharan Africa as a whole and Ghana in particular. Some of the reasons given are lack of education, lack of technology, lack of capital, lack of democracy, poor management of resource revenues, high level of corruption, weak rule of law, lack of infrastructure, conflicts and wars, poor access to health care, malnutrition and diseases among others. In as much as the reasons given are true, they may not be the primary cause. The root causes of such problems are the factors from which they arise and the Land Tenure Systems is a factor that causes such problems.

Land tenure systems in Ghana generally affect every kind of natural resource weather found on the surface or under the surface of the earth at any area occupied by any tribes in Ghana. Since all the factors stated above depend on land and its revenues, it is not be wrong to describe the insecurity of the land tenure systems as the primary cause of low productivity, poverty and lack of development in Ghana.

The role of land tenure can be positive or negative. It can neither be traded nor price in the market. They are not objects of market transaction and do not appear in the revenue and cost of the producer. It can be positive or negative spill over, which can affect both individuals and the society.

The paper tested the main systems of land acquisition and its impact on productivity. It resulted that the systems of land acquisition in Ghana have a high impact on productivity. The study shows that the land tenure systems do not follow one standard regulation or lay down rules. These rules hinder investments and result into low productivity and low revenues for socio-economic development. The effects of low productivity are that there is low income, low standard of living, crime, conflicts, wars, famine and low human development, which lead to underdevelopment.

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