LIVING IN BEEHIVES: THE GROWTH OF UNAUTHORISED STRUCTURES IN THE KUMASI METROPOLIS, GHANA

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Living in unauthorised housing structures in urban areas invariably put human welfare into jeopardy and inconvenience. This paper investigates the factors that have influenced the growth of unauthorised structures in the Kumasi Metropolis of Ghana and how the problems associated with slums can be addressed. A sample size of 238 respondents, comprising 119 house-owners and 119 household heads were covered in the study. Interview schedule and personal observation were used to collect the primary data, while the Principal Component Technique was used to analyse the data.

The results of the study revealed that a combination of socio-economic, cultural, institutional, physical, political and historical factors have influenced people to live in unauthorised housing structures in the Kumasi Metropolis. The paper recommends that local and national governments should provide affordable housing schemes, enforce land-use planning regulations, and ultimately eliminate public institutional practices such as bribery and unacceptable delays in issuing building permits.

INTRODUCTION

The growth of unauthorised structures has become one of the biggest urban settlement problems facing many countries in the world. According to UN-Habitat (2003), the rate at which unauthorised structures are developing in the world is frightening. For example, in 2000, it was estimated that 850 million people lived in slums, hence it was projected that by the year 2020, the number would reach 1.8 billion (UN-Habitat, 2003). In developing countries, the growth of slums has become an eye-sore. It is reckoned that about 90 percent of slums in the world are found in developing countries, especially in towns and cities where urbanisation has become synonymous with slum formation (UN-habitat, 2006). To address the growth of these unauthorised structures, Hiraskar (1993) has recommended the application and enforcement of land-use planning or town planning laws and regulations because a well planned city or town will create good health, convenience and beautiful landscape.

Urban land-use planning is an integral part of the process of national growth and development. This process seeks to identify and satisfy certain basic socio-cultural needs. Unauthorised structures are a major problem in towns and cities of the developing world including Ghana (Acquah-Harrison, 2004). Ghana has a number of planning regulations instituted to guide the development of structures in both urban and rural areas. For example, the Local Government Law of 1993 (Act 462) has provisions in Sections 51 and 52 that unauthorised structures on any of public properties (lands) such as schools, market and sanitation sites, open spaces, nature reserves, parks and roads, could be stopped and even demolished without notice, and the developer(s) surcharged with the cost of demolition. Additionally, the developer who strays into public user areas (such as zoned and approved areas for markets,

schools, parks, etc) would be given 28 days to make the necessary correction before the demolition (Freiku, 2003). Other planning acts that have been passed by parliament to regulate urban development are the National Building Regulation of 1996 (LI 1630), the National Development Planning Systems Act of 1994 (Act 480); and the National Development Planning Commission Act of 1994 (Act 479).

In the same vein, Ghana has established formal Land Planning and Management Institutions that are backed by law to plan, control and ensure harmonious, sustainable and cost effective development of human settlements in accordance with sound environmental and planning principles (Town and Country Planning Department, 2007). These institutions include the Metropolitan, Municipal and District Assemblies (MMDAs), Town and Country Planning Department (TCPD), Land Registration Division, Survey and Mapping Division, Public and Vested Land Division, and the Administrator of Stool Lands Department.

Notwithstanding these legislative and institutional arrangements, the development of unauthorised structures is on the ascendancy in Ghana. According to a report by the Ghana News Agency (2009), Otumfuo Osei Tutu II, the traditional ruler of the Ashanti Kingdom in one of his routine inspections of the Kumasi Metropolis, expressed worry at the rapid rate unauthorised structures were springing up in some parts of the city. This worry was echoed in the observation of Freiku (2003) that between 1990 and 2000 only 7.2 percent of buildings in the Kumasi Metropolis had permits. In 2003, it was estimated that over 80 percent of the new buildings sprouting up in the Kumasi Metropolis were unauthorised.

The planning authorities in Kumasi over the years have embarked upon a series of decongestion exercises to get rid of unauthorised structures in order to restore and improve the

aesthetic image of Kumasi, once the "Garden City of West Africa". In 2009, another decongestion exercise was undertaken to relieve the Central Business District (CBD) area such as Adum and the Kumasi Central Market, as well as waterways, principal streets and other over-crowded areas in the metropolis of the numerous unauthorised structures (Yeboah, 2009). In spite of the efforts and level of the commitments that have been shown by the city authorities, people continue to develop unauthorised structures in the Kumasi Metropolis. The nagging question that comes to mind is what factors have influenced people to live in unauthorised structures in the Kumasi Metropolis and how can this issue be addressed? This paper which is contribution by the authors to answer those questions is an empirical study at Aboabo, a suburb of the Kumasi Metropolis.

The rest of the paper is structured as follows. The next section takes on board the theoretical perspectives of informal settlements. Section three looks at the methods and data used. Section four presents the results, while section five discusses the key findings as informed by the literature. The final section of the paper looks at the conclusion and policy implications.

THEORETICAL PESPECTIVES

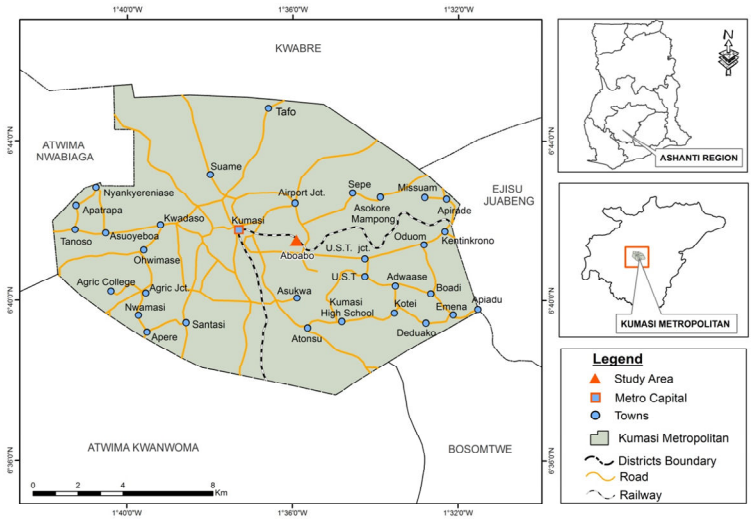
In developing countries, four major theories on informal settlements are known; these are the land management theory, the colonial legacy theory, the inadequate economy theory, and the demand and supply disequilibrium theory. Concerning the land management theory, one school of thought, according to Fekade (2000), believes that institutional factors such as inefficiency of urban authorities, poor land management practices, and inadequate urban planning schemes; create informal settlements in urban areas.

The colonial legacy theory links expansion of informal settlements to political and historical factors, especially colonialism, postcolonial practices, and civil and political instabilities (Debusmann & Arnold, 1996; Global Urban Observatory, 2003). The inadequate economy theory suggests that economic factors especially the introduction of new economic system plays important role in the development of informal settlements. This theory argues that the introductions of urban trade, income and class differences are spatially translated into residential discrimination and social exclusion (Huchzermeyer, 2002). The demand and supply disequilibrium theory also links the growth of unauthorised structures to economic factors. This theory states that the emergence and growth of informal settlements is caused by the imbalance between demand and supply of urban commodities such as land, services and infrastructures. The plethora of explanations suggests that there is no one single theory that can fully explain the emergence and expansion of informal settlements. In view of this, the study adapted the sietchipings (2004) concept of informal settlement which attribute the growth of unauthorised structures to a multiplicity of factors such as socio-cultural, socio-economic, physical and institutional factors.

RESEARCH METHODOLOGY

This paper is based on a single case study of Aboabo, one of the satellite settlements of Kumasi, the capital of the Ashanti Region in Ghana. Aboabo is located some 2 km west of the Kumasi Central Business District (Figure 1). The topography is undulating with several places having rocky surfaces. Most of the houses are located in the valley of the River Aboabo and its tributaries that traverse the settlement.

Map of Kumasi Showing the Study Area in Regional and National Context



Source: DGRP, UCC (2010)

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Figure 1: Map of Kumasi showing the study area in Regional and National Context
Source: Cartography Unit, Department of Geography and Regional Planning, UCC (2010)

Aboabo was chosen for the study because it is a slum area and it has all the problems and hardships faced by the people who have chosen to live in buildings reminiscent of beehives. According to the Kumasi Metropolitan Assembly (KMA) (2006), Aboabo is a one particular area that has high number of unauthorized structures (Plate 1). In this paper unauthorised structures refers to permanent buildings such as houses, and temporal structures such as kiosks, metal containers and any other structures that do not conform to the building regulations or land-use regulations of Ghana. Similarly, slums and squatter settlements are classified as unauthorised structures. Informal settlement on the other hand refers to the community or the settlement whose buildings or structures are unauthorised.

Plate 1: Evidence of unauthorised structures at Aboabo

Source: Aboabo field survey, 2010.

The type of settlement pattern at Aboabo is nucleated (**Plate 2**). The structures are closely connected to each other with little or no space between them. Most of the houses have additional structures attached (to them) which were not part of the original plan of the house.

Plate 2: Aerial photograph of Aboabo, a suburb of Kumasi Metropolis
Source: GoogleEarth (2010).

A case study research design was used for the study because it is commonly associated with a particular set of phenomena in a location such as the Aboabo community. Emphasis here was placed on intensive examination of the setting as suggested by Scwandt (2001) who defined case study as a specific and bounded (in time and place) instances of a phenomenon selected for study. The phenomena of interest were the people and the environment in which the study area is located. According to Yin (2003), in general, case studies are preferred when "how" or "why" questions are posed, the investigator has little control over events, and the focus is on

contemporary phenomenon within some real-life context. The use of multiple sources of evidence makes case study design one of the most powerful research designs used by nearly all social science disciplines (Creswell, 2007). Consequently Mertens (2003) has opined that the application of multiple sources of evidence in case study helps one to have a better understanding of the research problem by converging numeric trends from quantitative data and specific details from qualitative data.

Both primary and secondary data were collected from the study area for the study. Primary data were collected through the use of interview schedules. Data basically focused on the causes of the growth of unauthorised structures at Aboabo. In all, 238 respondents comprising 119 house-owners (developers) and 119 household heads were selected for the investigation. The sample size was obtained using the Fisher, Laing, Stoeckel, and Townsend (1998) formula which took into consideration the total number of house-owners and household heads in the Aboabo community. The household-heads were selected using the systemic sampling technique. A sample interval was calculated using the total number of houses in the community. Based on the sample interval, and from every 7^{th} house, one household head was chosen until all the 119 household heads were visited and selected. The snowball sampling technique was used to select house-owners since there was no adequate sampling frame for house-owners (developers).

The house-owners were selected because they were the actual actors who were involved in the development of the unauthorised structures. The instrument for the house owners sought to solicit from them the underlying factors that influenced their decisions to put up the unauthorised structures. Household heads were engaged in the study because household decision-making, such

as where to live, largely comes from them. They were asked questions about the factors that influenced them to live in the unauthorised structures. Observation checklist was employed to facilitate personal observations of the physical environment, especially the unauthorised structures. Digital photographs were also taken during the observation as exhibits. Finally, secondary data relevant to the study were obtained from published books, journals, newspapers, articles, reports, the internet, as well as from conference and working papers.

Nineteen (19) key variables (factors) (Table 1) which were found in the literature to influence the growth of unauthorised structures elsewhere were presented to the respondents to express their views on. Respondents were asked to indicate the extent to which each of the 19 variables influenced people to live in unauthorised structures at Aboabo. To empirically ascertain the factors responsible for the growth of the unauthorised structures at Aboabo, the Factor analysis or Principal Component Analysis (PCA) was employed. The PCA was chosen because it is very useful for reducing a mass of information to an economical description. It does these by selecting and grouping related variables into their common factor patterns; for example, several factors may influence the existence of a phenomenon, PCA helps to reduce these factors to only the key ones for easy explanation and analysis (Rummel, 1970). The analysis of the 19 variables was done using the Statistical Product and Service Solution (SPSS) Version 16.

Prior to performing the PCA, the suitability of the data was assessed. Evaluation of the correlation matrix revealed the presence of many coefficients of 0.3 and above. The Kaiser-Meyer-Oklin value was 0.636; this exceeded the recommended value of 0.60 (Kaiser, as cited in Pallant, 2005) while the Bartlett's test of sphericity was statistically significant, thus supporting the factorability of the correction matrix.

Table 1: 19 variables for the growth of unauthorised structures

Socio-economic
1. Low level of income
2. Low level of education
3. Rural urban migration
4. High rent charges elsewhere
5. Employment
6. Social contacts

Cultural
7. Marriage
8. Religious reasons
9. Family ties

Physical
10. Advantage location of the area
11. The nature of the land

Political
12. Inadequate housing policy by government
13. Political instability (conflict)
14. Lack of political will to prevent unauthorised structures

Historical
15. Ancestral lineage

Institutional
16. Delays in getting building documents
17. Lack of enforcement of the building regulations
18. Lack of sanctions against offenders
19. Corruption involved in getting building documents

RESULTS

The PCA performed initially showed that some seven (7) components had eigenvalues exceeding one (1). The seven (7) components together explained 67.8 percent of the total variance. However, the scree plot shown in Figure 2 reveals a clear break after components four and six. That is the scree plot begins to level off after components four and six. This suggested that either four or six components had to be retained instead of seven components.

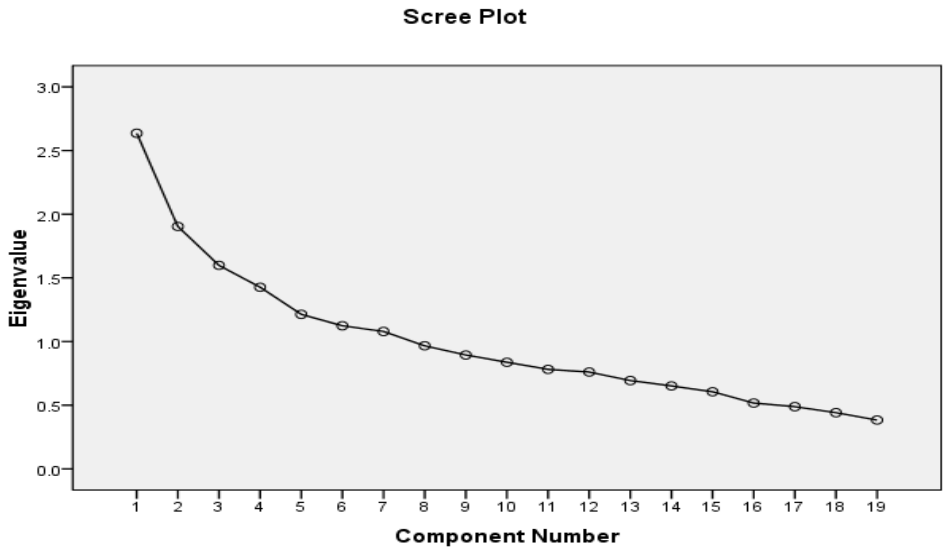

Figure 2: Scree plot showing the number of components to be retained

Source: Data Analysis (2010).

To be clear on the number of components that were to be retained for further investigation, parallel analysis was done. The Monte Carlo PCA for parallel analysis was performed (Watkins, 2000). The results from the parallel analysis supported the observation from the scree plot to retain six components for further investigation. From the parallel analysis, the six components

had eigenvalues exceeding the corresponding criteria values for a randomly generated data matrix of the same size (19 variables × 238) as shown in Table 2.

Table 2: Comparison of eigenvalues from PCA and corresponding criterion values obtained from parallel analysis

Component Number	Actual eigenvalues from PCA	Criterion value from parallel analysis	Decision
1	2.636	1.5292	accept
2	1.904	1.4314	accept
3	1.598	1.3572	accept
4	1.426	1.2812	accept
5	1.214	1.2111	accept
6	1.124	1.1203	accept
7	1.079	1.1206	reject
8	0.967	1.0703	reject
9	0.894	1.0247	reject
10	0.837	0.9787	reject
11	0.781	0.9340	reject
12	0.760	0.8883	reject
13	0.694	0.8455	reject
14	0.651	0.8058	reject
15	0.606	0.7658	reject
16	0.517	0.7771	reject
17	0.488	0.6700	reject
18	0.441	0.6206	reject
19	0.383	0.5618	reject

Source: Data Analysis (2010)

To facilitate easy interpretation of the six components, a verimax rotation was performed (Table 3). Three variables (employment, lack of enforcement of building regulations and lack of political will to prevent unauthorised structures) were deleted from the original 19 variables. The reasons were that these variables either did not load well or did load significantly on more than

one scale. Each of the remaining 16 variables had a factor loading of 0.3 and above, which according to Fraser, McRobbie and Giddings (1998) is acceptable.

Table 3: **Rotated component matrix showing factor loadings and amount of variance explained for the growth of unauthorised structures at Aboabo**

	Factors					
Variable	1	2	3	4	5	6
Low level of income	0.774					
High rent charges elsewhere	0.754					
Social contacts	0.731					
Rural urban migration	0.714					
Low level of education	0.570					
Religious reasons		0.612				
Family ties		0.525				
Marriage		0.495				
Delays in getting building documents			0.522			
Corruption involved in getting building documents			0.509			
Lack of sanction against offenders of unauthorised structures			0.338			
Advantageous location of the area				0.559		
The nature of the land				0.305		
Inadequate housing policy by government					0.358	
Political instability (conflict)					0.301	
Ancestral lineage						0.458
% of variance explained	23.9	10.0	8.4	7.5	6.4	5.9
Total variance explained: 62.1%						

[*Factor loadings less than 0.3 have been omitted*]
Source: Data Analysis (2010)

The verimax rotation shown in Table 3 suggests the following factors: socio-economic factors (component 1), cultural factors (component 2), institutional factors (component 3), physical factors (component 4), political factors (component 5) and historical factors (component 6) as the main factors that statistically influence the growth of unauthorised structures at Aboabo. The six factors explained 62.1 percent of the total variation of growth of unauthorised structures at Aboabo.

Among the six factors, socio-economic factors contributed the highest (23.9%) to the total variation explained. This supports the findings of Sietchiping (2000) that unauthorised structures in developing countries occur substantially because of socio-economic factors. The factor that contributed less to the total variation explained was historical (5.9%). From the results of the PCA, it was found that the combined strength of socio-economic, cultural, institutional, physical, political and historical factors are the main items that combine to influence people to live in unauthorised structures at Aboabo. The six factors that emerged in the study and their interpretations are reported in Table 4.

Table 4: Description of factors and their relation to unauthorised structures

Factor	Description
Socio-economic	Social and economic experiences and realities that helps to mold one's personality and lifestyle.
Cultural	Shared, learned, symbolic system of values, beliefs and attitudes that shapes and influence the perception of a person.
Institutional	Administrative issues in planning and management of land by land planning institutions.
Physical	Natural features or characteristics of land.
Political	Government intervention in housing issues and riots in communities.
Historical	Strong attachment to a place because of past experience or family relations.

Source: Data Analysis (2010)

DISCUSSION

Socio-economic factors

Socio-economic variables that were found to statistically influence people to live in unauthorised structures at Aboabo were low level of income, high rent charges, social contacts, rural-urban migration and low level of education. Majority of the respondents indicated that they were living in Aboabo because of the low income they were earning. Most of the respondents

(68.1%) were self employed, engaged in their own trading activities to earn a living; almost half (48.3%) of them earned between GH¢100 (US$ 150) and GH¢190 (US$ 285) a month. Taking into consideration the large family or household sizes of the respondents, their incomes were too small to enable them put up standard structures as required by law. The low income status also made it difficult for them to rent quality houses in high class residential areas where the Building Regulations of Ghana are followed. Most respondents emphasized that people who owned authorized houses charged exorbitant rents which were beyond their reach.

The evidence of the low income status of residents in Aboabo support Cheema's (1993) report that low income earners unable to cope with high standard of living in the upper class section of cities, construct houses with their own available resources in low class residential areas without any regard for building and other government regulations.

Cultural factors

Religious reason, family ties and marriage types were the most dominant cultural factors that influenced the majority of dwellers at Aboabo to live in unauthorised structures. Aboabo is a predominantly Muslim community; 79.8 percent of the respondents were Muslims. The Islamic Religion which permits polygamous marriage has probably contributed to the large family sizes (IslamicReligion.com, 2006). Most of the house-owners said that they used their own resources without recourse to any laid down building regulations to add additional structures to their original house to make room for the large family sizes.

Institutional factors

According to the United Nations (2007), excessive bureaucracy while issuing land development and building permits, and corruption of public officials are important institutional factors that influence the growth of unauthorised structures. Magigi and Majani (2006) have observed that poor enforcement of building regulations is the cause of many unauthorised structures in many cities. Similar results emerged from the study (Table 3). Most of the respondents indicated that they were living in unauthorised structures because of the long delays in issuing building permits, and bribes that one had to pay to officials before one could get the required building documents. Through personal observation, it was also found out that the level of enforcement of land-use and building regulations were not strict at Aboabo. As a result, residents took the laws into their own hands and constructed sub-standard structures.

Physical factors – Proximity to the Central Business District

Almost all the respondents said that they were living at Aboabo because of the close proximity to the Central Business District (CBD) of Kumasi. Aboabo is about 2 kilometers away from the CBD where residents go to do business. The advantageous location of the township initially attracted many people to live there. Later, some of them acquired plots of land and put up any dwellings from which they did business at the Kumasi Central Market. This finding is in line with Magalhaes and Eduardo's (2007) observation that most informal settlement dwellers in developing countries prefer living in the central or advantageous areas accessible to places of employment opportunities, infrastructure, and urban services, especially health and education.

Political factors

Two main political factors were brought out by the PCA as among the factors that have influenced many people to settle at Aboabo. These factors were inadequate housing policy by government and political instability. Through observation, high proportion of the respondents were found living in their own self constructed wooden structures which were sub-standard and very affordable as compared to the sandcrete structures. The reason given by most of the respondents for living in wooden structures was that the government is not able to provide affordable houses for them. This result supports Kombe and Kreibich (2000) findings in Tanzania where the failure of the government to respond to the housing needs of the poor encouraged the poor to find their own way of putting up houses, thus increasing the number of unauthorised structures in Tanzania.

Historical factors

According to Asabere (1994), informal settlements develop as a result of ancestral lineage. Some people in order to preserve their ancestral lineage prefer living on the land handed over to them by their forefathers. In this case, whether the land lacks legal backing or not, the occupants do not care. What was found at Aboabo was not different from Asabere's (1994) observation. High number of the respondents indicated that they are living in Aboabo because of ancestral lineage. Some of the respondents reported that the houses they are living in and the land on which they have build their houses were handed over to them by their parents, grandparents and other family members who are no more in existence.

CONCLUSION AND THE WAY FORWARD

The paper has established that Aboabo has poor landscape because of the presence of many unauthorised structures. The growth of unauthorised structures is mainly the result of socio-economic, cultural, institutional, physical, political and historical factors. This has policy implications for planning practice for all stakeholders. Based on the key findings and conclusion therefore, the following recommendations are submitted. Firstly, all institutions responsible for the planning of townships should strictly enforce the land-use planning regulations. All individuals who go contrary to the land planning regulations should be given a specific time to make the necessary corrections within the confines of the law and those who fail to comply should have their structures demolished and be severely sanctioned.

Second, the government of Ghana should expand its affordable housing scheme to include informal settlement areas, since most slum dwellers are low income earners who find it difficult to put up standard houses. The rational is that affordable housing scheme will give the opportunity to many slum residents to own houses that conform to the Building Regulations of Ghana and to pay the cost of such houses in instalments (mortgage arrangement) over a period of time. This, it is hoped will prevent residents from using unauthorised materials to build honey-comb or beehive structures in towns and cities.

Lastly, attention should be given to socio-economic, institutional, and cultural factors that compel people to develop unauthorised structures; socio-economic variables such as high rent charges, low level income, rural-urban migration and poor education in slum areas should critically be looked into by local and national governments. Land Planning and Management Institutions should process and issue building documents to individuals as quickly as possible.

Unacceptable institutional practices such as bribery and corruption should be curtailed in all public land institutions and organisations. Any land institution official found in any bribe and corruption case should be severely sanctioned to serve as deterrent to other officials. With respect to cultural factors, although traditions die hard, archaic traditions that impede development should be discarded. The security of a chief, large family sizes, and family ties for example, should not be given as excuses to erect beehive structures that have one or two common entrances or outlets.

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