

Factors Contributing To Construction of Unauthorized Residential Buildings in Ghana

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ABSTRACT

Construction of unauthorized buildings has become a major problem in towns and cities of most developing countries of which Ghana is of no exception. Despite numerous efforts at local levels to address this problem, its existence and effects keep on rising in various Metropolis, Municipalities and Districts in Ghana.

This paper explores factors that influence the construction of unauthorized buildings in Ghana, using Asakae as a case study, and identifies strategies to curb them. A sample size of 234 respondents, comprising (182) House-owners, (50) Assembly-members, (1) Head of Physical Planning Department and (1) Head of Works Department from the Sekondi-Takoradi Metropolitan Assembly (STMA), was chosen for the study. Questionnaire survey was used to collect primary data. More so, data were further analyzed using Factor Analysis (Principal Component Technique) and Mean Scores. The results of the survey revealed that Institutional, Physical, Educational and Socio-Economic factors account for construction of unauthorized buildings in Asakae. More so, imposition of high penalties on culprits by the Government; automating permit acquisition processes, monitoring and detection of unauthorized building operations, amongst others, are paramount strategies to curb construction of unauthorized buildings. This paper recommends that, there should be regular public education on the Building Regulations of Ghana. More so, the Assembly should automate their operations, with respect to permit acquisition and monitoring of buildings under construction, to avoid bureaucracy and corruption that has characterized their operations.

Key words: Unauthorized, Residential, Buildings, Construction, Ghana.

INTRODUCTION

Municipalities and governments all over the world have been saddled with construction of unauthorized buildings (Weiner, 2003). Despite numerous efforts at both the international and local levels to address this problem, its existence keeps on rising (Adjei Mensah *et al.*, 2013). Unauthorized buildings denote: any building which has been constructed without a permit or any building which has been constructed without the conditions incorporated in a permit fully complied with (Republic of Ghana, 1993; Republic of Ghana, 1996; Potsiou and Ioannidis, 2006, cited in Ioannidis *et al.*, 2007).

Furthermore, Ahmed and Dinye (2011) attributed congestion and inaccessibility of some activity areas to construction of unauthorized buildings. According to Lai and Ho (2001) and Ahmed and Dinye (2011), the questionable structural integrity of unauthorized buildings poses risk to humanity. To this extent, Kumar (2012) argued that, loss of property and life can be reduced if buildings are designed and constructed as authorized.

Thus, this research seeks answers to the questions:

- What are the relevant factors influencing construction of unauthorized residential buildings in Asakae?

- What strategies are to be mounted to curb the practice of construction of unauthorized residential buildings?

FACTORS INFLUENCING CONSTRUCTION OF UNAUTHORIZED BUILDINGS

Proliferation of unauthorized buildings is an indication of failure of policies and malfunctioning of state institutions (Diang'a, 2011). However, Ioannidis *et al.*, (2007) argued that, combination of several factors influence construction of unauthorized buildings. Accordingly, *Table 1* gives a summary of the factors influencing construction of unauthorized buildings that were identified through literature review.

Table 1: Summary of factors influencing construction of unauthorized buildings

Factor(s)	Variable(s)	Author(s)
Political	• <i>Lack of political will to enforce building regulations</i>	Warah(2003);Adams(2012)
	• <i>Inadequate policy on housing</i>	Ali and Sulaiman (2006)
Socio-Economic	• <i>High rent</i>	Sietchiping(2000);Adjei Mensah(2010)
	• <i>High cost of land</i>	Sietchiping(2000);Adjei Mensah(2010)
	• <i>High cost in getting land document and building permits</i>	Freiku (2003)
	• <i>Unwillingness to accept laid down regulation</i>	Owusu-Mensah (2003)
	• <i>Population growth</i>	Adinyira and Anokye (2013)
Legal	• <i>Obsolete and contradictory laws</i>	Adinyira and Anokye (2013)
	• <i>Lack of public-private partnership in controlling unauthorized buildings</i>	Owusu-Mensah (2003)
	• <i>Non-punitive sanctions against offenders</i>	Adinyira and Anokye (2013)
	• <i>Overlapping institutional roles and responsibilities</i>	Ameyibor <i>et al.</i> (2003)
Educational	• <i>Ignorance on planning schemes</i>	Owusu-Mensah (2003)
	• <i>Ignorance on building regulations</i>	Adjei Mensah (2010)
Institutional	• <i>Unrealistic zoning</i>	Owusu-Mensah (2003);United Nations (2007)
	• <i>Logistic and capacity gap</i>	Ameyibor <i>et al.</i> (2003);Magigi

		and Majani (2006)
	• <i>Corruption</i>	Kumar (2002);Kumar (2012)
	• <i>Bureaucracy</i>	Freiku (2003);United Nations (2007)
	• <i>High enforcement cost</i>	Freiku (2003)
<i>Professionalism</i>	• <i>Labour force are easily influenced by house-owners</i>	Keteku-Atiemo(2006)
	• <i>Cheap labour</i>	Keteku-Atiemo(2006);Davids(2011)
<i>Land insecurity</i>	• <i>Litigant land market</i>	Darkwa and Attuquayefio(2012)
	• <i>Multiple sale of land</i>	Darkwa and Attuquayefio (2012)
<i>Physical</i>	• <i>Location of land</i>	Magalhaes and Eduardo(2007)
	• <i>Nature of land</i>	Magalhaes and Eduardo (2007)

STRATEGIES FOR CURBING CONSTRUCTION OF UNAUTHORIZED BUILDINGS

Construction of unauthorized buildings is as a result of multiple factors (Sietchiping, 2004).Notwithstanding the numerous efforts both at the international and local levels to address it, its existence keep on increasing (Adjei Mensah *et al.*, 2013).It therefore requires multiple strategies to mitigate this practice because, according to Ioannidis *et al.* (2007), classic administrative control procedures alone, cannot curb the menace. This stems from the argument that classic administrative control procedures have been characterized by high inefficiencies, especially when public administration suffers from lack of employees, bureaucracy, and increased responsibilities (*ibid.*) Accordingly, *Table 2* gives a summary of the strategies

identified through literature review to curb construction of unauthorized buildings.

Table2: A summary of strategies for curbing construction of unauthorized buildings

<i>Author(s)</i>	<i>Strategies</i>
<i>Adinyira and Anokye (2013)</i>	<i>Government must apply high penalties in case of detection of construction of unauthorized buildings</i>
<i>Ali and Sulaiman (2006); Aryeetey et al.(2007) GNA (2013)</i>	<i>Planning authorities should be well resourced and well paid There should be public-private partnership in curbing unauthorized buildings</i>
<i>Ioannidis et al. (2007)</i>	<i>Automating monitoring and detection of new buildings by authorities</i>
<i>GNA (2013)</i>	<i>Review of outdated and contradictory building and planning laws</i>
<i>Adjei Mensah (2010);Kumar (2012)</i>	<i>Intensified public education on building regulations</i>
<i>Cheema (1993)</i>	<i>Government should provide or facilitate affordable buildings accessible to all class of persons</i>
<i>Andoni(2007); Vlaevsky (2013)</i>	<i>Regularizing/legalizing of existing, structurally sound unauthorized buildings</i>
<i>Keteku-Atiemo (2006)</i>	<i>Skilled artisans-masons, carpenters and steel benders should be licensed and regulated by the assembly</i>

RESEARCH METHODOLOGY

This paper is based on a single case study of Asakae, one of the sub-towns in the Sekondi-Takoradi Metropolis. Its strategic location from Takoradi has made it an alternative residence of choice to the populace who wished to stay in Takoradi, which is now densely populated. Within the catchment area of the town are hospitals, schools, market and other businesses. Asakae was chosen for the study because it is one particular area that has high number of unauthorized buildings.

A case study approach was adopted for this study. Yin (2003) argued that, case studies are preferred when *how* or *why* questions are posed. The researchers have

little control over events, and the focus is on contemporary phenomenon within some real-life context. More so, questionnaire survey approach was adopted. Primary data were collected with the aid of questionnaires. Questionnaires were administered to (182) House-owners in the study area, and (52) key informants, comprising:(1) Head of Physical Planning Department, (1) Head of Works Department and (50) Assembly Members in the Sekondi-Takoradi Metropolis, to elicit their views on the variables (factors) identified from literature to influence construction of unauthorized buildings and strategies to curb construction of unauthorized buildings respectively.

The House-owners were selected because they were the actual actors or agents who were involved in the construction of unauthorized buildings (*c.f* Melesse, 2006; Adjei Mensah, 2010). More so, houses were used to select House-owners because, houses were appropriate avenues through which household heads and House-owners can easily be located (*c.f* Melesse, 2006; Adjei Mensah, 2010; Adinyira and Anokye, 2013).Accordingly, the number of houses in Asakae was 693(Ghana Statistical Service,2005). The 182 House-owners were sampled for the research using the Fisher *et al.* (1998) formula; whilst, the 52 key informants were purposively added, making the total respondents for the research 234.The snowball sampling technique was used to select House-owners since there was no adequate sampling frame for House-owners (developers). More so, secondary data relevant to the research were obtained from books, journals, newspapers, articles, reports, the internet, and thesis as well as from conference and working papers.

More so, data from the House-owners were further analyzed by factor analysis; whilst, data from the key informants were analyzed using their mean scores.

Factor analysis

Factor analysis (Principal Component Analysis, PCA) is very useful for finding clusters of related variables. More so, it is ideal for reducing a large number of variables into a more easily understood framework for easy explanation and analysis (*c.f* Rummel, 1970;Hair *et al.*,1998;Norussis,2000;Ahadzie,2007).Thus, twenty-four (24) key variables identified through literature review to influence construction of unauthorized buildings were presented to House-owners in Asakae to solicit their views. On each of the 24 variables, respondents were asked to indicate the extent to which the variable influences people to construct unauthorized buildings in Asakae, based on a five-point Likert Scale where:1-Highly Insignificant,2-Insignificant, 3-Neither, 4-Significant and 5-Highly Significant.

Prior to performing the PCA, the suitability of the data was assessed. The data had 54 observations per variable .The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO), achieved a sufficiently high value of 0.708, suggesting that, the sample size was adequate for factor analysis (*c.f* Field, 2000; Ahadzie, 2007).Furthermore, the Bartlett test of Sphericity was undertaken. In this case, a Sphericity value of 2739.398 was realised and the associated significance (Sig.) was 0.000.In addition, the communalities involved were established. The average of the extractions was 0.728. The conventional rule regarding communality values was

that; extraction values (eigenvalues) of more than 0.50 at the initial iteration showed that the variable was significant; thus should be included in the data for further analysis or otherwise removed (*c.f* Field, 2005).

After all necessary tests of reliability and survey instrument, survey size adequacy and population matrix were satisfied, the data set was subjected to Factor Analysis using Principal Component Analysis (PCA) with varimax rotation. In order to expedite easy interpretation, after rotation, three variables were deleted from the original 24 variables owing to the reasons that, either they did not load well or did load significantly on more than one scale (*c.f* Adjei Mensah, 2010; Nkyi, 2012).

Accordingly, the total variance explained by each component extracted was as followed: **Component 1** (19.323%), **Component 2** (15.613%), **Component 3** (12.681%), and **Component 4** (9.215%). Thus, the final statistics of the PCA and the components extracted, cumulatively explained 56.832% of the variation in the data set, and fulfilled the cumulative proportion of variance criterion which required that, the extracted components should together explain at least 50% of the variation (*c.f* Field, 2005; Kissi, 2013). The analysis of the 24 variables was done using the Statistical Product and Service Solution (SPSS) Version 16.

Consequently, based on an examination of the inherent relationships among the variables under each component, together with factors with the highest loadings, the following labels and interpretation were assigned; **component 1** is termed *Institutional factors*; **component 2**, *Educational factors*; **component 3**, *Physical factors*;

component 4, Socio-Economic factors, as the main factors that account for construction of unauthorized buildings in Asakae.

Table 3: Rotated Component Matrix^a

<i>Rotated Component Matrix^a</i>				
<i>Factors</i>	<i>Component</i>			
	1	2	3	4
<i>Location of land</i>			<i>.787</i>	
<i>Nature of land</i>			<i>.674</i>	
<i>lack of political will to enforce building regulations</i>			<i>.539</i>	
<i>Inadequate policy on housing</i>			<i>.649</i>	
<i>high rent</i>				<i>.715</i>
<i>high cost of land</i>				<i>.648</i>
<i>high cost in getting land documents</i>				<i>.563</i>
<i>Unwillingness to accept laid down regulations</i>		<i>.619</i>		
<i>ignorance on planning schemes</i>		<i>.857</i>		
<i>ignorance on building regulations</i>		<i>.707</i>		
<i>unrealistic zoning</i>			<i>.702</i>	
<i>Corruption</i>	<i>.836</i>			
<i>Bureaucracy</i>	<i>.871</i>			
<i>high enforcement cost</i>	<i>.775</i>			
<i>obsolete and contradictory laws</i>	<i>.657</i>			
<i>lack of public private partnership in controlling unauthorized buildings</i>	<i>.534</i>			
<i>Non-punitive sanctions against offenders</i>	<i>.557</i>			
<i>overlapping institutional roles and responsibilities</i>		<i>.573</i>		
<i>labour force are easily influenced by house owners</i>	<i>.515</i>			
<i>cheap labour</i>				<i>.617</i>
<i>litigant land market</i>		<i>.845</i>		
Extraction Method: Principal Component Analysis.				
a. Rotation converged in 5 iterations				

RESULTS AND DISCUSSIONS

Factors Influencing Construction of Unauthorized Buildings In Asakae:

Component 1: Institutional factors

Institutional factors accounted for 19.323% of the variance. This supports the observation of Owusu-Mensah (2003) that, institutional inefficiencies account for construction of unauthorized buildings. According to Freiku (2003), institutional bureaucracy compels many house-owners not to acquire building permit before they even start their building. Thus, it is important that institutional factors are immediately addressed so as to prevent people from building in an unauthorized manner.

Component 2: Educational factors

Educational factors accounted for 15.613% of the variance. Accordingly, this finding supports the observations of Adjei Mensah (2010) and Adinyira and Anokye (2013) that, unauthorized buildings occur due to lack of education or ignorance of people about planning schemes and building regulations. Similarly, Owusu-Mensah (2003) observed that, to a large extent, people have disregarded planning schemes and building regulations and built haphazardly. It is expedient that educational factors are giving the necessary attention by the Sekondi-Takoradi Metropolitan Assembly to avert this course.

Component 3: Physical factors

Physical factors accounted for (12.681%) of the variance. This supports the observation of Magalhaes and Eduardo (2007) that, Physical characteristics such as, location and nature of the land of certain areas, influence construction of unauthorized buildings, as most people prefer living in central or advantageous areas where they will get easy accessibility to infrastructure, place of work, and urban services, especially health and education.

Component 4: Socio-Economic factors

Socio-economic factors accounted for (9.215%) of the variance. Accordingly, this supports the findings of Sietchiping (2000) and Ioannidis *et al.* (2007) that, construction of unauthorized buildings in developing countries occur largely due to Socio-Economic factors. Hence, Socio-Economic factors have significantly contributed to increasing number of unauthorized buildings in the nation. It is important that the Socio-Economic variables are addressed to avert the course of construction of unauthorized buildings in Ghana.

Strategies for Curbing Construction of Unauthorized Buildings:

Accordingly, to empirically ascertain the factors that will help eliminate the construction of unauthorized buildings in Asakae, the nine (9) key variables, which were identified during literature review, were presented to the key informants to solicit their views. It must be emphasized that, out of the fifty-two (52) questionnaires that were administered to the key informants, only fifty-one (51) were retrieved representing 98% and thus, used for the analysis.

According to *Table 4*, all the standard deviation values were less than 1.0 suggesting that, there was little variability in the data collected as well as, consistency in agreement among the respondents. As a result, it could be concluded that the variables identified as strategies for curbing construction of unauthorized buildings, through the literature review, reflected the consensus of the respondents (key informants). In addition, based on the mean scores, the variables were ranked to know the level of importance respondents regarded the strategies for curbing construction of unauthorized buildings as shown on *Table 4*.

Table 4: Summary of mean scores showing results of 1-tailed test and ranking

No	Strategies	Mean	Std. Deviation	Sig. (1-tailed)	Ranking
1	Government must apply high penalties in case of detection of construction of unauthorized buildings	4.6667	.55377	.000	1
2	Automating permit acquisition, monitoring and detection of new buildings by authorities	4.3725	.59869	.000	3
3	There should be public-private partnership in curbing unauthorized buildings	4.5294	.57803	.000	2
4	Planning authorities should be well resourced and well paid	3.3137	.67794	.000	7
5	Regularizing/legalizing of existing, structurally sound unauthorized buildings	2.1961	.80049	.028	8
6	Skilled artisans-masons, carpenters and steel benders should be licensed and regulated by the assembly	2.0392	.72002	.000	9
7	Review of outdated and contradictory building and planning laws	4.3529	.62685	.000	4
8	Intensified public education on building regulations	4.1176	.71125	.000	5
9	Government should provide or facilitate affordable buildings accessible to all class of persons	3.8431	.54305	.000	6

Accordingly, *Government must apply high penalties in case of detection of construction of unauthorized buildings* ranked first. Likewise, *there should be public-private*

partnership in curbing unauthorized buildings ranked second; Automating permit acquisition, monitoring and detection of new buildings by authorities ranked third.

Furthermore, the fourth important strategy was *Review of outdated and contradictory building and planning laws* and the fifth important strategy was *intensified public education on building regulations*. More so, ranked sixth was, *Government should provide or facilitate affordable buildings accessible to all class of persons*. Likewise, the seventh ranked important strategy was *Planning authorities should be well resourced and well paid*. More so, *Regularizing/legalizing of existing, structurally sound unauthorized buildings* ranked eight and ranked ninth important strategy was, *skilled artisans-masons, carpenters and steel benders should be licensed and regulated by the assembly*.

CONCLUSIONS AND RECOMMENDATIONS

Construction of unauthorized buildings in Asakae is as a result of largely interrelated multiple factors, key amongst them were Institutional, Educational, Socio-Economic and Physical factors. More so, the key informants of the research population agreed that, all the nine (9) strategies the survey identified constituted the strategies for curbing construction of unauthorized buildings with the three topmost strategies being, *Government must apply high penalties in case of detection of construction of unauthorized buildings; there should be public-private partnership in curbing unauthorized buildings and automating permit acquisition, monitoring and detection of new buildings by authorities* respectively.

As a result, this paper recommends that the Assembly intensifies educational campaigns, in collaboration with the local radio stations, to educate the populace on the provisions of the National Building Regulations. More so, the Assembly should automate their operations with respect to permit acquisition as well as

monitoring and detection of unauthorized buildings; thus curbing bureaucracy and corruption that has characterized the operations of the institution. More so, automating monitoring and detecting of unauthorized buildings would ensure early detection and sanctioning of unauthorized buildings in the Metropolis. Thus, saving the Assembly from allocating quite huge sums of money towards decongestion exercises.

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