

ASSESSING THE EFFECTIVENESS OF PHYSICAL DEVELOPMENT PLANNING
AND CONTROL MECHANISMS IN GHANA: THE EXPERIENCE OF WA
MUNICIPALITY.

KNUST

By

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(BSc. Development Planning)

A Thesis submitted to the School of Graduate Studies
Kwame Nkrumah University of Science and Technology, Kumasi
in partial fulfilment of the requirements for the degree of
Master of Philosophy in Planning
Department of Planning
College of Art and Built Environment

June, 2015

KNUST



DECLARATION

Candidate Declaration

I hereby declare that this dissertation is the result of my own original research and that no part of it has been presented for another degree in this University or elsewhere without due recognition.

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ABSTRACT

In an attempt to achieve sustainable spatial planning, countries have adopted various regulations including building regulations, transfer of development rights and zoning to manage physical growth. However, enforcement of these controls appear to be largely ineffective especially in developing countries. This study analyses the processes involved in local plan formulation, the levels of adherence to physical controls and assesses the capacity of key planning and land institutions responsible for managing physical growth in the Wa Municipality. The study used the mixed methods of research design which used both qualitative and quantitative data and analysis. Questionnaires were used to solicit for data from 200 home builders while face to face interviews were conducted with key institutions using interview guide to gather data on land tenure system, institutional capacity and official physical development processes. Observation was also used to establish how physical development conforms to local plans by updating existing maps and consideration of setbacks between buildings as basis to determine adherence to building regulations.

The home builders were mostly frustrated with the different stages involved in obtaining legal land documentations and acquiring building permit in the physical development process. Secondly, there was a flaw in the planning process involved in preparing local plans due to the fact that, all the public stakeholder consultations stages in preparing a local plan officially were ignored in the process used in Wa. The study also found non adherence to development controls because in the local plans of both neighbourhoods studied, there was a place for everything but in trying to correlate physical development to what was proposed, everything was not in its place. This is because all areas demarcated for open spaces were used for residential purposes. As a result it was established that development controls used were not effective because the objective of enforcing these mechanisms which is to ensure orderly and harmonious spatial development was not achieved. It is therefore recommended that monthly education should be organised on the various radio stations to intensify public education on the measures already adopted to reduce the lengthy and cumbersome process in permit applications. Furthermore, planners are expected to practise integrated planning of land uses to allow for home-based enterprises with caution. Additionally, the services of national service personnel could be used to address the issue of inadequate staff for site inspection and monitoring.

ACKNOWLEDGEMENTS

This master's thesis has been successfully completed due to the support, assistance and inspirations of several people. Firstly, I must express my gratitude to my husband Gervase Kuuwaabong and my daughter Zunoung Damaris Kuuwaabong for their encouragement and support during these stressful and difficult moments. Secondly, I would like to thank all lectures in the Department of Planning in Kwame Nkrumah University of Science and Technology especially the lecturers who for their inputs, valuable discussions and availability whenever you needed their assistance made this a success. Specifically, I would like to express my sincere gratitude to Dr. Justice Owusu-Ansah for his professionalism, guidance, understanding, patience and fatherly contributions during my graduate studies in the Department of Planning. His support and critical inputs have been the pillar for the development of this thesis.

I am also indebted to persons like Mr. Joshua of Lands Commission, Mr. Churchill, Rockson and Mr. Majeed all of Town and Country Planning Department who constantly welcomed me whenever I visited their premises for information, clarification or technical assistance. Particular thanks goes to Alfred Dongzangla Mr. Adamu Majeed, Paul Adeb and Nathan Tetteh who gave me remarkable help during this thesis despite their busy schedule.



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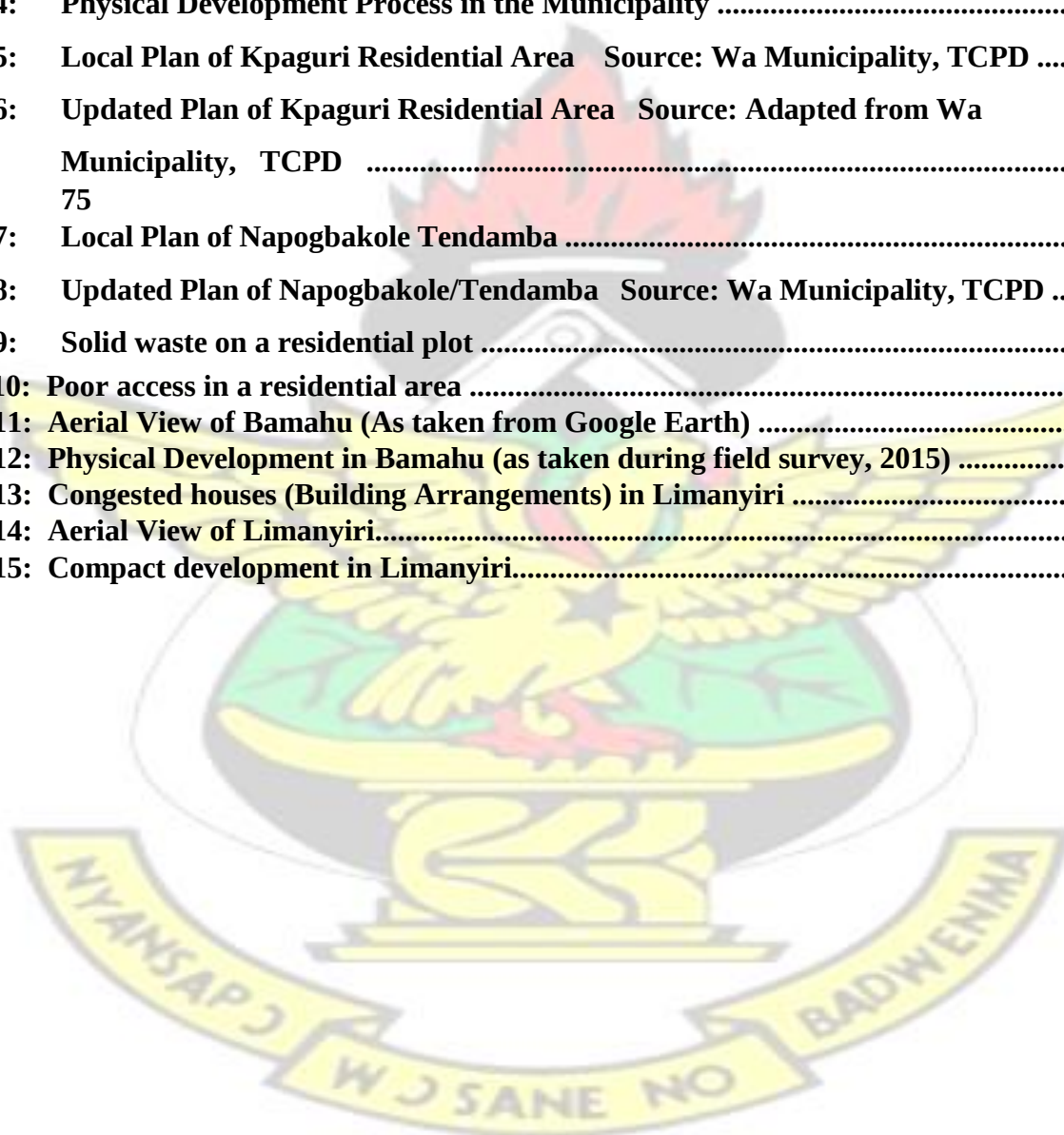
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LIST OF ACRONYMS

CLS	Customary Land Secretariat
GIS	Geographic Information System
GSS	Ghana Statistical Service
NDPC	National Development Planning Commission
PVLDM	Public and Vested Land Management Division
SPC	Statutory Planning Committee
TCPD	Town and Country Planning Department
TCPR	Town and Country Planning Regulations
TDRs	Transfer of Development Rights
UNCHS	United Nations Centre for Human Settlements
WMA	Wa Municipal Assembly

CHAPTER ONE

OVERVIEW OF PHYSICAL DEVELOPMENT

1.1 Introduction

As population increases in urban agglomerations, land uses intensify and urban activities spill-over into previously rural lands on the fringes. Various land use control mechanisms are designed to promote effective utilization of urban land, to maintain standards for physical development and to ensure harmonious spatial distribution of human activities in accordance with an approved master plan (Essein et. al, 2009, Rizwan & Obaidullah, 2006). These mechanisms are designed to ensure that urban activities are organized in space with due consideration for aesthetic, health, safety, convenience, efficiency and energy conservation, environmental quality and social equity (Amler & Betke, 1999). In so doing, development controls reduce the negative effects of physical development. The principal land use control mechanisms used in most countries include planning schemes, development and building permits, covenants, zoning controls, building regulations and subdivision regulations.

While development controls have been utilized with a degree of success to ensure harmonious spatial distribution of activities in advanced countries, their application has been problematic in developing countries (Tang et al 2000 and Wang et al 2010). This has prompted Ogundele et al (2009) to suggest that in most cities in developing countries, physical development does not necessarily conform to planned outcomes. As a result, the built environment in many third world cities are rapidly deteriorating despite the existence of planning legislations to monitor and control development (Boamah et al, 2012). According to Saunders (1996) and Wang et al (2001), physical development usually yield positive outcomes where development controls are strictly enforced. On the other hand, Henger and Bizzer (2009) maintains that land-use patterns are effectively determined through market forces on land than stricter planning controls. Inefficiencies in land use patterns resulting from market failures has contributed to planning authorities in some developing countries to adopt market mechanisms such as transferable development rights to ensure orderly development. These market strategies are usually effective because they operate within limited jurisdictions. Mandelka et al (2001) also supports market induced strategies in achieving effective land use patterns than strict regulatory controls because it is observed that planning regulations amounts to taking which is unconstitutional.

In the context of complex land tenure systems, lack of political will, outdated legislative frameworks (usually inherited from colonial masters), administrative fragmentation and weak administrative institutions, physical development has proceeded in many cities without proper planning (Leduka, 2010; Mends, 2006). As a result, many cities in developing countries are characterised by unauthorised structures, environmental problems such as pollution, poor drainage system and urban sprawl (Adjei-Mensah et al 2010; Pogbekuu 2007). In most Sub-Saharan Africa countries, the central issue revolves around land tenure system which are variously vested in stools, skins, clans and families while individuals enjoy unrestricted right of usage (Mends, 2006 and Kasanga & Kotey 2001). However, increase in population and demand for land for development purposes has resulted to unregulated informal urban land markets. Urban lands are seen as commodity and no longer a common resource. According to UNCHS (2008) Political interference is common among local authorities. Political interference in the urban development control system has limited the local authorities' ability to fully regulate and control development. Powerful Government officials have been known to enforce approvals which do not meet the stipulated requirements. According to Rizwan & Obaidullah (2006); Owei et al., (2010) and UNCHS (2008), most cities in Africa are resource-strained that they will fail to monitor and channel urban development in desired directions. The citizens tend to take advantage of this administrative inefficiencies as builders ignore building codes and planning legislations thus compromising harmonious spatial development however, some planning legislations are described as Outmoded.

In Ghana, the Ghana Building Code 1996, CAP 84 of the Town and Country planning and the Local Government Act 462 (1993) have largely been ineffective in planning, controlling and monitoring physical development largely due to the fact that some of these legislations were inherited from colonial periods which have no relevance to addressing contemporary planning issues. Research has highlighted the laborious procedures involved in the land documentation and permitting processes and the lack of administrative capacities to respond to the needs of home builders (Jowel, 1975, Davis 1980, Yahya et al, 2001 and Sheuya, 2004). According to Owei et al (2010) and Pogbekuu (2007), the nature of land ownership, acquisition and development of land forms the basis for physical growth. Therefore, the land question (who have access to land? and how is land acquired?) should first be addressed along with enforcement of planning regulations.

In the midst of all the problems associated in enforcing development controls, this research aims at establishing whether the development control tools employed in the Wa Municipality are effective. Effectiveness of development controls depends on whether planning conditions or requirements are complied with and whether non-compliance is detected. Therefore when urban activities are organized and developed in space according to specific land uses such as commercial, residential, sanitary areas, civic and culture, roads and industrial activities in a comprehensive and integrated manner, then the objective of development controls is achieved.

The study concluded with recommendations that could guide planners towards a planned and regulated growth in order to avert any future spatial-related problems within the study areas.

1.2 Problem Statement

Over the last three decades Wa, the regional capital of Upper West Region, has experienced rapid growth in terms of physical and economic development since it was declared as the regional capital. With the opening up of the University for Development Studies in Bamahu in 2003, the demand for housing units and other social services has increased. The town's population tripled during the 1984-2010 inter-censal year from 36,067 to 107,214 with an annual growth rate of 4 percent (GSS, 2010). Its housing stock has increased from 8,788 in 1984 to 20,551 in the year 2000. As a result, land use has intensified and urban activities have now dispersed into the fringes mostly in an unplanned manner.

Preliminary investigations have shown that the unregulated land market is the initial trigger of haphazard development in the Municipality. Homebuilders often acquire a piece of land from any individual, start construction immediately and complete their structures without paying attention to existing legalities such as leases and land titles, building permit and the inspection process governing the development of structures (Boamah et al, 2012).

The indiscriminate construction of all kinds of structures raises questions about the Municipal Assembly's ability to control development of physical structures. Thus, the problem of planning in Wa Municipality is not entirely the unavailability of local plans since areas like Tendamba, Kpaguri and Konta that are haphazardly developed had local plans before physical development began. The difficulty therefore lies with the complex nature of the land acquisition processes which is influenced by the land tenure system, legal documentations and the ability of the institutions to enforce development control tools. Yeboah & Obeng-Odoom

(2010), Owei et al (2010) and Pogbekuu (2007) all agree these as challenges to enforcing development controls. This study further assesses how these pose as problems in the Wa Municipality after establishing how physical development conforms to local plans.

In the light of the above, the research aims at analysing the fundamental weaknesses in the land tenure systems which influence development controls, the administrative, technical and logistical strength of institutions responsible for enforcement and to establishing conformity to development controls in the Wa Municipality. This will then form the basis for recommendations to promote harmonious physical development.

1.3 The Objectives of the Research

Specifically, the research seeks to address the following objectives.

1. To assess the influences of land tenure on the physical development process
2. To ascertain the extent of adherence to official physical planning processes by Town and Country Planning Department in the Wa Municipality
3. To assess the levels of conformity to local plans and building regulations by homebuilders in the Wa Municipality.
4. To analyze the human, logistical and technical capacity of institutions that manage physical growth and development of Wa.

1.4 Research Questions

In response to the above mentioned objectives, the research seeks to answer the following questions

1. How does land tenure influence the physical development Process in Wa Municipality
2. What is the extent of adherence to the official physical planning process by Town and Country Planning Department in the Wa Municipality?
3. What is the level of conformity to local plans and building regulations by home builders in the Wa Municipality?
4. What are the human, logistical and technical capacity of institutions that manage physical growth and development in the Wa Municipality?

1.5 Justification for the Study

As one of the fastest growing towns in the Upper West Region, there is the need to address some of the weaknesses associated with development control mechanisms in order to avoid the usual problems associated with uncontrolled spatial expansion that characterise other major Ghanaian cities.

Boamah et al, (2012), Leke (2009) and Chipungu (2011) all focused on constraints encountered in enforcing development controls. Boamah, et al, (2012) revealed the lack of awareness on land use regulations, the complex and arduous processes involved in permit application and political interference as the major constraints. With respect to Nigeria, Leke (2009) emphasized that development planning efforts are largely focused on economic aspects with little regards to spatial planning. He further stressed that planning is still topdown hence become unsustainable. Finally the work of Chipungu (2011) focused on strategies to adopt to restore order with respect to physical development in Zimbabwe. The gap identified in all these related studies is the fact that how physical development conformed to regulatory tools in the respective study areas was not established in detailed. Additionally, it must be noted however that, these studies did not clearly portray the weaknesses in land tenure arrangements and how they affect the outcome of physical development. Therefore, this study fills the gap by first studying into how physical development conforms to planning regulations and clearly portray the weaknesses in land tenure arrangements and how they affect the outcome of physical development.

In a similar vein, Mends (2006) focused on how rural lands were gradually been transformed into urban lands but did not address the fact that, the type of land ownership practiced in a given jurisdiction contribute to uncontrolled physical development. Boamah (2010) studied into the urban land market focusing on the fact that the land market was highly underdeveloped hence the need for land to be effectively managed through a vibrant land market but did not examine the implications of the existing land market on physical planning. Furthermore, Owusu-Ansah & Braimah (2013) analysed the co-existence of traditional and official land management systems in physical development in Kumasi. However, this study focused largely on the conflicts between traditional land management systems based on customs and norms and formal/statutory land management system without exploring the spatial outcomes in greater detail. The above-mentioned research have not sufficiently addressed the influences of land tenure system on physical planning outcomes which is fundamental especially in Ghana

where land is vested in traditional authorities and family. This study adds to the existing literature by analyzing the implications of land tenure as well as the human, logistical and technical capacity of the major land sector institutions on physical planning outcomes in the Wa Municipality. Though research in Kumasi before, this study is situated in Wa where the land tenure practiced is different. The sensitivity of planning to prevailing land tenure systems and institutional contexts makes this study relevant especially in the Wa Municipality where rapid urbanization is contributing to changing customary land tenure and presenting complex challenges to physical planning. Therefore, the uniqueness of this study lies in the fact that, this study fills the gap identified in related studies by first studying into how physical development conforms to planning regulations. Furthermore, discussions on how some challenges such as the land factor and administrative capacity contribute to non-compliance was also researched since these are fundamental physical development problems yet was omitted in other studies such as Boamah et al (2012) and Leke (2009).

1.6 Limitations

Since the unit of analysis were home builders who acquired lands and experienced the physical development process themselves, several houses were exempted from the study because most of the home builders were not available for the questionnaire administration. This limitation made it quite difficult to use probability sampling techniques entirely in selecting respondents. However, this did not affect the findings of the study because issues of development controls and land tenure practices are common and typical cases hence there are no significant variations in experience by home builder within the Municipality.

Another limitation to the study was the difficulty in accessing local plans in digital form from the Town and Country Planning Department. The local plans available were in hard copies which could not be used directly to depict conformity of physical development. Therefore much time was spent to transform the local plans into digital to be used for the study.

CHAPTER TWO

THEORETICAL PERSPECTIVES OF PHYSICAL DEVELOPMENT

2.1 Introduction

Literature review is an important aspect of this study because it gives an idea of similar studies already done in this subject area to avoid duplication. It further provides a baseline of data on similar researches that were undertaken, with respect to the methods adopted and the indicators used which serves as a guide in undertaking this study. Finally it reveals lessons from other scholars that could be adopted for the study area if the scope of research are similar in both context and content and helps to identify the gap in knowledge.

Physical development is a major component of urban growth and expansion. In the perspective of physical planning, development is the process of carrying out the structural works which changes the use of land, intensity and or existing use. The activities involved in physical development are varied and affect the environment either positively or negatively (Abubakari & Dinye, 2011). Every effort and activities toward development take place in the physical environment hence the need to control the use of space and land which forms the basis for development. A well-planned city or town promotes good health, convenience and beautiful landscape (Adjei Mensah et al, 2010). However, planned outcomes largely hinges on the existing land tenure systems, the nature of the urban land market, planning legislations and the institutional arrangements for implementation.

Development controls are increasingly used by nations across the globe to promote efficient use of urban lands (Aribigbola, 2008). This chapter explores the major concepts associated with the enforcement of development controls in general and in Ghana in particular. It provides theoretical and conceptual framework which form the basis for operationalization in the subsequent chapter.

2.2 The Land Factor in Development

Land is essential for the growth and development of nations. Until a country uses its available land in a harmonious and orderly manner, the full value of its stock cannot be realised. Generally, land owners control the type of land market and further defines the nature of urban planning. The land tenure system and the mode of alienation have far-reaching implications for planning outcomes. The content of the plan cannot be realised in practice unless the landholders consent to the plans (Yeboah & Obeng –Odoom, 2010).

It is necessary therefore, to study the land ownership and acquisition process in the Municipality. Research by Owei et al (2010) emphasised on land as a major player in the physical planning process therefore, the need to resolve issues of land acquisition is important if control measures are to be carried out in any meaningful way.

2.2.1 The implication of land tenure systems on urban development

The nature of land management is very important in determining the nature of development of any community (Pogbekuu, 2007). Land is variously vested in the state, customary ownership, communities and in groups (Payne (2001) and Palmer et al (2009). According to Water Aid, (2009), State Land are those the Government has compulsorily acquired for a specified public purpose or in the general public interest by the lawful exercise of its constitutional or statutory power of eminent domain. All previous interests are extinguished and persons who previously held recognizable interests in such lands are entitled by law to compensation either monetary or replacement with land of equivalent value. Mends (2006) defined customary land ownership as a system of land relation in which the ownership of the land is vested in a collective group being it a family, clan or a lineage while the individual or members of the group enjoy the right to use such lands without restrictions. Communal lands belong to a group of people who are made up of clans and families descending from a common lineage with the same way of life. The leadership of the group consist of a chief and his council of elders and they have the responsibility to administer the communal lands on behalf of the whole group (Kasanga & Kottey, 2007).

According to Koroso (2011) public ownership of land is better in creating equitable resource distribution and control whilst private land ownership permits is a system which allows for unrestricted use and exchange of land which also ensures its intense and efficient usage (Pogbekuu, (2007). Ruijsink et al (2013) argues that in Albania many people believe in ‘ownership-model’; some land must be shared for public facilities, the rest is in private ownership. This principle is explained as: *I am the owner of this land and I can do what I want with it*. Private owned land tenure system in Albania resulted in informal transactions of land that are not registered and sometimes even illegal therefore causing about 350,000 unauthorised buildings.

2.2.2 Urban land market

According to Palmer et al (2009) and Dale et al (2006), urban land market is a mechanism by which rights to land and housing either separately or together are traded through sale and lease or seen as exchange rights in land for agreed amount of money in urban centres. Therefore land market performs the functions of bringing buyers and sellers together, set prices for land, allocate land and ensuring that land is efficiently used. Wang et al (2010) is of the view that if property rights is clearly defined, market transactions would yield more effective outcomes in dealing with externalities than government interventions.

According to Koroso (2011), Kremzner (1998) and Ruijsink et al (2013), land transactions can take place in a formal land market (registered and title rights in land transfer) or through informal and unstructured channels (without official recognition). Needham (2005) and Zevenbergen (2002) interprets informal markets as deals that are made between families or friends where the actual price does not reflect the ‘formal market price’ and that it also ranges from buying land from illegal owners or buying state lands from illegal officials. According to Dale et al (2006), formal land market must operates within a set of policies and laws that are enforceable and for land market to exist, institutional arrangements must be in place (Zevenbergen, 2002). On the other hand, Leduka (2010) and Mends (2006) argues that, institutional arrangements in land market (formal) is cumbersome, long and open to favouritism hence the reason for majority of people sorting to informal land market to access land because it violates few or all procedures required by regulations. Kirondi (2000) confirms that one major feature of land market in Africa and other developing countries is the fact that they operate totally outside the domain of public authorities. According to UNCHS (2008), despite the various planning legislations that have been put in place to promote urban development and efforts of planning institutions, illegal structures continue to mushroom due to several problems associated with enforcements.

2.3 Development Controls

In an attempt to achieve the objectives of public health and safety, harmony and aesthetics in a specific geographical context, various planning tools are applied. Aesthetics explains the beautiful landscape of a neighbourhood as a result of a well-planned neighbourhood, harmony in physical development is achieved by separating incompatible land uses. Furthermore, development controls relevance in health and safety is achieved by regulating threat which

might arise from overcrowding, fire disasters, diseases, pollution and natural hazards as a result of urban expansion.

Regardless of the type of tenure arrangement what is most relevant is to formulate policies to improve an efficient land market to encourage proper land use development in urban centres (Paynes, 2001; Kirondi 2000). Planning regulations are designed to control and monitor building operations or mining operation in, on, under or over any land, subdivision of land and making of any change to existing land uses. Therefore development controls facilitate spatial interaction and increased productivity. However, this aspect of development has not been given the attention it deserves.

It covers everything for which planning permission is needed, and it extends from creating an international airport to getting permission to cut down and replant a tree which is subject to a tree preservation order (Keeble, 1972 cited in Abubakari and Dinye, 2011 and Davies et al 1980). It can be either pre-development, during development or at post -development stage of a project which is sited in an unapproved location. Scarborough (2006) and Jowell (1975) notes that, the purpose of planning interventions is to protect amenity and the environment in the public interest. It is not designed to protect the interests of one person over another. While master plans denote the desired state of a geographical area, development control is used as regulations to ensure that standards are achieved in physical development towards achieving a desired land use plan. According to Ogundele et al. (2010) and Alluko (2011), development control is a physical planning instrument laid down by legislations, which generally involves the regulations, restraining and keeping in order or checking materials change on land. The strict application of controls sometimes tends to have a negative approach on development since certain types of development might be denied, but at the same time it is a creative tool for effective development planning. In light of all the definitions, they are all operating from the main principle for development controls which is that “Every proposal to develop land or change its use requires planning permission from the local authority (Davies et al 1980 p7)”.

Objective of development controls seek to avert the nuisances that conflicting land uses will cause and also enable the planning authority to direct the urban development process in an efficient manner (Hui & Ho, 2003). Abubakari and Dinye (2011) also argues that, a standard distance is required in-between activities organised in space to allow for the diffusion of noise and other industrial pollutants so that the activities do not affect negatively on the people.

United Nations Centre for Human Settlements (2008) stated that, planning regulations are meant to ensure that no person develops any land within a planning area without planning consent or otherwise than in accordance with planning consent and any conditions specified there in. Regardless of the objectives of development controls, there are some conflicting views about whether it necessary. Studies by Yahya et al (2004) found that some control mechanisms such as building regulations and permit system slowdown development processes and increase the cost of housing development. This is because of the lengthy procedures involved in complying regulations and the cost involved in meeting development standards. However, they admit that, due to the complexities in contemporary living and it associated problems such as overcrowding, fire outbreaks, diseases and pollution there is no other way to ensure safety and healthy environment either than to effectively enforce development control mechanisms. It is however interesting to note that though development controls can prohibit change, it's success depends on the effectiveness of enforcement (Alexander, 2001).

Alexander (2001) emphasises that development controls are critical part of land and property market. He points out that while land use planning restricts rights to the development and usage of land, control mechanisms intervene in the process of construction, occupancy and use to ensure that every activity is in accordance to prescribed rights and rules. The land acquisition process forms a major requirement for the application of permits. Land acquired for building projects without appropriate ownership or title document from relevant lands departments are likely to be refused the granting of a permit.

Therefore the nature and type of land tenure system influences the enforcement of control mechanisms. This has promoted Owei et al (2010) to suggest that Nigeria must find solutions to the land problem that has made sustainable physical planning impossible.

2.3.1 Development Control Mechanisms

In various parts of the world, planning authorities use several mechanisms to restrict physical growth in a particular geographical area. The principal tools used to control and monitor spatial development include planning schemes, development and building permits, covenants, zoning controls, building regulations and subdivision regulations.

These mechanisms are established by legislations and are designed to promote effective utilization of urban land, to maintain standards for physical development and to ensure

harmonious spatial distribution of human activities in accordance with an approved master plan (Essein et. al, 2009).

2.3.1.1 Zoning

Zoning is one of the common regulations used to regulate physical development. According to Fischel (1999) it was first implemented in the United States specifically New York City in the year 1916. Fischel (1999 p 403) states zoning is the division of a jurisdiction into zones with the ordinance prescribing what may be done in each zone and what may not be done. The author further reveals that among the frequent regulations associated with zoning entails minimum area per plot, use to which the lot may be put (agriculture, commercial, residential or industrial), maximum height of buildings, maximum number of units that can be placed on a lot, and minimum setbacks of buildings. Obabori et al. (2007) maintains that, zoning specifies the uses to which property may be legally put and the intensity of development allowed in a particular area. It therefore, prevent property owners from burdening the public with incompatible development which to an extent ensures that activities carried out are harmonious to the environment. Similarly, Arthur (2009), Miller (1990) and Gallent and Kim, (2001) sees zoning as an environmental policy because it is the easiest way to reduce the exposure to pollution by putting a buffer between a polluter and its potential victims. In all, the rationale for zoning as observed in literature is that, some activities cause spill over effects on their neighbours and therefore the best way to address that is to employ police-power regulations to separate uses (Ching 2002, Wilkins et al 2001, Read 2008, (and Hughes & Turnbull 1996).

Fischel (1999), Alexander (2001), Liberty (2003) and Barrett (2010) presented some of the advantages of zoning. They argued that, economic growth in an environment without adequate planning controls such as zoning brought forth unwanted impacts such as traffic jams, inadequate infrastructure, increased air and water pollution, diminished recreational opportunities, rising land values and shortages of affordable housing hence necessary for strict enforcement of zoning. On the contrary Amos (1980) suggests that the conventional control system of zoning must give way to a new work style in which development is positively encouraged because planning authorities keep strictly to regulations based on zoning regardless how it sterilised developments. According to Fischel (1999), zoning reduces the public diseconomies of crowding while maintaining a relatively higher concentration of houses and businesses because there is high productivity in doing business close to other businesses and making cities more liveable attracts people to live in them to keep a city functional. Secondly,

zoning is a “public good-housekeeping rule: a place for everything, but everything in its place” and works perfectly in separating incompatible land uses (Fischel 1999, p420 and Jowell, 1975). According to Brunick (2003) and Wilkins et al (2001), zoning equally has a significant and positive impact on changes in employment and assessed property values

Though zoning has positive effects, other scholars such as Gallent & Kim (2001) presents some of its weaknesses as the fact that, zoning places greater emphasis on broader land use zoning concerns and less emphasis on tools and procedures such as development chargers for regulating new development. It can therefore be deduced that zoning as a control mechanism is not adequate to regulate physical development to achieve a healthy environment. Qian, (2009) and Wilkins et al (2001) opponents of zoning indicated Houston is one of the major cities in North America without zoning because it is believed is a violation of private property and personal liberty. Additionally, the Gallent & Kim (2001) have indicated that the rigid nature of zoning sometimes results in the proliferation of illegal and low quality dwellings because some people are unable to abide by such regulations and at the same time the city fails to satisfy the needs of increasing population. They therefore suggest that city authorities should move away from zoning system towards a system of development permits using building codes since zoning designed centuries ago lacks the ability to cater for or manage contemporary local diversity.

Urban land use decisions has intended and unintended effects. According to Fischel (2001) and Liberty (2003), zoning’s initial purpose is to protect homeowners in residential areas by seeing single-family detached houses as the best way to advance civic virtue and public health. These authors further indicates that, zoning could, however, be used to reduce potential contact between races, or between high and low income people but racial concerns could not be mentioned in any public document as a reason for the ordinance. Segregation of Americans by class and race was fostered by exclusionary zoning and it sharply limits where they can live and thus their access to jobs, education, and a good quality of life (Liberty, 2003). Zoning ordinances identified as exclusionary usually involve municipalities limiting density and increasing infrastructure costs, either directly or indirectly to prevent affordable housing options, forcing lower-income households to remain in the urban core (Serkin and Wellington, 2013). Due to the negative effect of exclusionary zoning, Liberty (2003) argued that, the abolition of exclusionary zoning promotes a more equitable range of housing choice in suburbs such as in the case of inclusionary zoning. According to Wilkins et al (2001),

inclusionary programs make possible the integration of populations that traditional zoning segregates. Inclusionary zoning requires developers to reserve a certain percentage of new residential development as affordable to low-and moderate-income households and to address affordable housing needs (Read, 2008, Brunick, 2003). While exclusionary zoning bring about segregation, inclusionary zoning leads to integration. Further application of zoning is usually in the form of subdivisions and transfer of development rights (Fischel, 1999) hence it can be deduced zoning forms the basis for the enforcement of some other development control mechanisms.

2.3.1.2 Transfer of Development Rights (TDRs)

Transfer of Development Rights is premised on the idea that land ownership consist of a bundle of different rights. Therefore, owning a development right means you own the right to build any structure on the parcel but the bundle of rights may be used, unused, voluntarily separated and sold off or transferred (Kaplowitz et al, 2008). This development control mechanism is applied in developed countries especially in United States of America and Europe (Wang et al, 2010). According to Higgins (2001), Fischel (1999), Janssen Janssen (2008) and Ward (2013), TDRs is a market based mechanism that permits a voluntary transfer of growth from places where a community would like to see less growth (sending areas) to places where there is space for more development (receiving areas). Higgins (2001) further states that sending areas can be environmental-sensitive areas, open spaces, agriculture lands, wildlife habitat, historic landmarks or any area worth protecting while the receiving area are places the general public agrees are appropriate for extra development.

Wang et.al (2010) establishes that TDRs is facilitated by designation of development zones (receiving areas) and preservation zones (sending areas). Landowners in the preservation zones are prohibited from developing their properties and as compensation, they are offered a certain development rights from the local government which permit them to develop in the receiving area. Furthermore, landowners in the development zone are not allowed to develop their properties beyond specific density unless they purchase development rights from preservation zones hence constitute the demand side of the market.

The pros of TDRs is discussed by Wang et al (2010) and Mills (1980). Studies by Wang et al (2010) indicated that, TDRs has been identified as a successful tool for minimizing agricultural

land fragmentation in Eastern United States and can also be effective in smaller jurisdictions where local governments act as facilitators. An example of a successful TDR in Higgins (2001) is in Montgomery County in the United States of America (USA) where the county had permanently preserved over 38,000 acres of farmlands using TDR programme. However, it is interesting to note that, TDRs does not only preserve farmlands and other areas but also redistribute development opportunities spatially which is very important in developing countries (Wang et.al, 2010). According to Mills (1980), because this control mechanism amount to a kind of barter system, TDRs are in principle efficient-enhancing when it is compared to zoning.

Janssen-Janssen (2008) discussed the disadvantages of TDRs. According to the author, there situations such as unwillingness of landowners from sending areas to sell their rights, speculations for higher prices of rights and the difficulty in defining the optimal price which sometimes distorts demand and supply of development rights are some challenges of practising TDRs. Another opponent known as Levinsen (1998) stated that, such mechanisms can result in concentration of harmful activities because overpopulation and crowding occurs in a particular area. Henger and Bizer (2009) also argued that, TDRs operate perfectly on a small scale within a particular community or region hence cannot be an effective regulatory tool at the national levels.

2.3.1.3 Subdivision Regulations

Land subdivision is observed to play an important role in controlling urban growth (Wakchaure, 2001). Subdivisions as “a standard practice in land surveying aims to partition tract of land into smaller size lots by incorporating a range of zoning and development rules” (Wickramasuriya et.al, 2011). The purchase of a farmland for urban development may be subjected to subdivision regulations even though the land will still be farmed on. Subdivision does not necessarily result in residential development but can also provide industrial lots or space for lease in a shopping centre. According to So and Getzels (1988) initially, the main function for subdivision was to ensure proper land records whenever lands were sold. Later, regulations evolved into development controls and hence include design standards for lots and blocks, design and construction standards for subdivision improvement. In all the definitions what is common is the fact that in subdivision land is subdivided according to regulations for different uses. In subdivision regulations, the manner in which land is subdivided, streets are laid out and houses are sold sets the pattern of community development for years to come

thereby maintaining order in development even in the future. Once land is divided into building sites and streets, land ownership is rarely consolidated, land is rarely resubdivided and a particular land is rarely re developed. Subdivision often gives a community its only opportunity to ensure that new neighbourhoods are properly designed. For subdivision to be effective, it must be integrated with other local government plans and policies such as the comprehensive or general plan of the area.

According to Obabori et al (2007) subdivision regulation is another physical extension of zoning for forming the character of an area, usually residential, it also involve building form and community character more specifically than zoning. The requirements in terms of the sizes of front and rear yards, minimum lot size and in some cases minimum house size and materials. Another scholar (Wickramasuriya, 2011) views subdivisions as a control mechanism exercised by government over the development and construction of houses in new neighbourhood.

2.3.1.4 Covenant or Deed Restriction

Restrictive covenants also known as covenants or deeds restrictions are private land use controls included in a title of property. Hughes & Turnbull (1996), views the contractual obligation established by deed restrictions as credible commitment by unknown future neighbours to utilize their own property within the defined bounds, thereby reducing the uncertainty or riskiness of future externality effects. A valid covenant restricts the use of the property against which it is recorded and is enforceable by a limited group of persons usually landowners in the same subdivision and with similar restrictions on their properties (Qian, 2010 and Hughes, 1996). A covenant can be in the form of prohibiting the sale of alcoholic beverages on the premises of an area (So & Getzels, 1988). Landowners have detailed restrictions on architectural design, external appearance and lot maintenance while a covenant for industrial parks also limits the activities that can be located in the park. All the scholars share similar argument on the fact that covenants possess restrictions on the use of property which are normally formulated by landowners.

Qian (2010) reveals that deed restrictions such as restrictive covenants are often put in place to maintain a desired look in a neighbourhood hence may prevent owners from building more than a pre-established number of homes on one lot. Deed restrictions can also specify what materials or style a building may or may not be constructed of, and how close to the street it can be. It can even specify the minimum size of a house on a lot. This counter what is argued

by Ellickson (1973), who states that if a proposed uniform set of restrictions to single-family use were circulated for signature among landowners in the Santa Monica Mountains, many would refuse to sign, opting instead for freedom to devote their holdings to more dense residential development in the future. What is different is the argument made by Ellickson indicating that certain restrictions might not be supported by land owners if they believe it will curtail their rights hence is not as flexible as other scholars make it seems. However, authors such as Qian (2010) argument contradicts that of Ellickson's because he suggest that covenants can prevent owners from building if such projects will compromise the desired state of the neighbourhood.

Application of Covenant or Deed Restrictions can take any aspect of use of land. According to So & Getzels (1988), virtually all neighbourhoods with restrictions limit use to "residential" only. So & Getzels (1988) further indicates that restrictions clearly state that the use of the neighbourhood shall be single family residential use only and that the construction or improvements in the neighbourhood shall include only single family residential structures. "Single family" can be appropriately defined for each neighbourhood. According to Wilson et al. (2000) and Fischel (1999), Houston adopted covenant as a major part of its governmental land use regulation scheme the unique idea of the City enforcing private residential restrictions in 1965. It is interesting to note that in the early 1990's all leaders of anti-zoning movements commended and encouraged the enforcement of covenants in neighbourhoods

Wilson et al. (2000), further indicated restrictions were basically geared towards the prohibition of satellite dish antennas because when initially developed, satellite dish antennas were large and visually conspicuous which affected the aesthetics of a neighbourhood when erected. Current technology has reduced the size of satellite dish antennas and microwave antennas. However, they still need to be positioned where they have direct access to satellites or transmitting antennas and therefore the still often conflict with the aesthetic concerns of the neighbourhood but not as it was previously. As part of covenant restrictions in Houston, restrictions could also be mandatory requirements for driveways with respect to width, location and manner of construction. Restrictions therefore prohibited "Parking pads" in front yards, but are often allowed behind the front building setback line while another deed restriction was the fact that parking of vehicles on landscaped areas is often prohibited.

One advantage of covenant restriction is that property owners have the incentive to negotiate on land uses and most industrial firms still cluster in locations accessible to the transportation networks like it happens in the case of cities with zoning (Ellickson, 1973). According to Qian (2009), the involvement of civic and private organisations such as homeowners associations plays a vital role in filling the gap left as a result of lack of zoning. This is possible because land use control by private contracts and government legislative interventions are not mutually exclusive meaning that they serve similar purposes in physical development. “Public regulation and private contracts are both used extensively to control land use in urban residential markets” (Hughes & Turnbull, 1996 p160). However, Qian (2009) states that despite the lack of zoning in Houston, local land use regulatory policies made by the municipality have significant influence on urban development. According to Hughes & Turnbull (1996) and Quigley & Rosenthal (2005), in covenants deeds the original landowners ensure that all subsequent landowners and future neighbours are subject to the original agreement, thereby creating a vehicle by which unknown future neighbours credibly commit to the existing contract.

2.3.1.5 Urban growth boundaries

According to Fischel (1999) and Quigley & Rosenthal (2005), urban growth boundary is another development control mechanism applicable where a city can restrict the amount of developed land, outlaw development beyond a growth boundary or restrict urban services such as roads, water, electricity and sewers to certain areas. The consequence of this control tool is usually to have development increased in the area without control boundary and also having workers of the control region competing for fixed number of lots, hence increase the price of land in the control city (Dissanayake, 1987). However, the best option to avoid overcrowding in control cities is to open up the restricted area in phases for development as was practised in Portland. In Portland, Oregon, they applied a metropolitan boundary which periodically expanded to accommodate new growth. In 1998, the boundary was expanded by 4000 acres and by 1940 acres in 2004. Growth boundaries can be an effective control measure because research by Mandelker & Payne (2001), shows that no human-use development can take place in an area unless water and sewers can be provided. According to Holway and Burby (1990), Physical attributes of sites, accessibility to urban activities and availability of public services are some of the factors that influence land value and development activities in an area. According to Fischel (1999) and Quigley & Rosenthal (2005), local growth controls contributes to rise in housing prices due to restrictions on supply.

2.3.1.6 Building Codes/Regulations and Permitting Systems

According to Gallent & Kim (2001), Building codes is used to regulate the construction and modification of buildings using technical guidelines for all development. It is argued that, building codes were formulated as a response to past building failures and therefore strengthening building codes is a means of enhancing development control procedures (Gallent & Kim, 2001). Dissanayake (1989) has indicated that development permit system and building regulations constitute the main components of development control in Colombo, Sri Lanka.

One major advantage of using stricter building codes is that it could lead to the alleviation of the problem of inappropriate development on land and enhancement of environmental quality. As a result, Gallent & Kim (2001) further indicates that a country like Korea moved away from zoning as their planning system towards the system of development permissions because the zoning system developed since 1962 lacks the ability to cater for or manage contemporary development issues and local diversity. On the other hand, regulations are necessary to regulate threat which might arise from overcrowding, fire disasters, diseases, pollution and natural hazards as a result of urban expansion (Shirong and Ming, 1999 cited in Yahya et.al 2001).

Holway and Burby (1990), Jowell (1975) and Davies (1980), argues that, regulations in the form of standards and codes are sometimes ignored due to the fact that they slow down development process and increase cost in construction a dwelling. Furthermore, some regulations are the legacy from the colonial past and are less relevant in the present needs and culture of developing countries therefore are not effective in controlling development (Tipple, 2001 and Dissanayake 1987). Though regulations in many developing countries are what was in used during colonial periods, there were traditional standards within local settings which regulated development. Traditional standards such as room measurements and ceiling heights where determined by a Mason using his body as measurement. Also a donkey with a back pack should be able to pass between compound walls without hindrance and that determine street widths (Yahya et.al 2001). The author argues that it is necessary to develop codes that are flexible and context specific especially in countries where there is diversity in rainfall, soil, temperature and land related issues.

The impact of building regulations depends on several factors of which enforcement is key. Building regulations are intended to ensure orderly development of settlements along with public safety and all other objectives of sustainable physical planning which can be achieved

when regulations are enforced. The extent to which these regulations and standards can affect housing development depends on effectiveness of enforcement, land acquisition process, political interference, the lack of political will, administrative inefficiencies, lack of logistics and inadequate city authorities Yeboah & Obeng-Odoom (2010).

Studies by Payne and Majale (2004) indicate building regulations in most developing countries are of little practical relevance to the current socio-economic situations of people.

This was confirmed by Tipple (2001 p.3) who states that “planning regulations in developing countries have been imported from colonial powers or other industrialised countries” which makes implementation difficult to achieve. According to Tuts (1996), building codes and building-materials standards were inherited from the British colonial power. These standards tend to be very rigid and demand expensive construction resulting to unaffordable nature of formal urban housing. The fact that this result to forcing the majority of urban population into illegal development, it can be concluded that such regulations are irrelevant to the current situation of people.

In developing countries, authorities wait until buildings collapse, flooding and other disasters occur before attempting to enforce regulations (Farvacque-Vitkovic et al 2008). Research by UNCHS (2008), Jowell (1975), Davies (1980) and Sheuya (2004) indicated several issues contributing to weak enforcement of building regulations to include the fact that, authorities responsible for implementing regulatory frameworks are centralised hence contributing to delays, direct and indirect cost in satisfying regulations. Additionally, the high cost involved in attempt to comply regulations makes developers turn to illegal means to get authorities responsible for enforcement to turn a blind eye (Payne and Majale, 2004). Tipple (2001) shows that in order to effectively enforce building regulations and standards it takes political will and resources which is sometimes problematic in developing countries especially with respect to adequacy of personnel and logistics. This was further stated by Payne and Majale (2004:14) that “many developing countries do not have both human and logistical capacity to enforce building standards”.

Depending on the level of enforcement and compliance, building regulations can be effective in controlling physical development in an orderly manner or otherwise. However, it is interesting to indicate that, effective enforcements does not necessarily mean strict enforcement of specifications and insisting on standards but it should be based on what Sheuya (2004) describes as performance of current situations. Gallent & Kim (2001) indicated that, strict

controls such as building codes and regulations lead to an increase in the cost of development therefore reduces the attraction of producing certain types of building in certain areas. The urban poor in third world countries are obliged to comply with standards which were designed for developed countries. These are therefore not only inappropriate but also beyond their means. Research by Lowry and Ferguson (1992) shows that, complex review process of imposed regulations is responsible for causing delays in development process. Davies (1980) argues that, the major challenge to planners and prospective developers is with the building permits process hence individuals often completely ignore established rules, regulations, and code leading to illegal development.

Building codes and regulations go hand in hand with permit system, a developer must satisfy what is required in building codes before a development permission may be granted by planning authorities. Studies by Gallent & Kim (2001) indicates that some scholars recommend replacing zoning which focus on broader context of controlling land uses with development permit system but in other places, it has been possible to fuse the two for effective control of development. In a country like Singapore the two systems are used where all development requires a permit irrespective of whether or not it conforms to zoning. On the other hand, a partial system exist in places like Hong Kong and some parts of America where permits are required for only discretionary uses.

Implementing mandatory building codes and permit systems according to Ripley (2006) is a major step to preparing for natural disaster. Wang (2014) further argues that earthquakes with similar strength in California killed few people than in some developing countries because California has strict enforcements of building codes.

Revisions are not made in only building regulations but also the process involved in permitting system in most countries. The idea for revising the processes and requirement necessary for development is to ensure that all physical development are in accordance to plan to avoid chaotic and unhealthy cities and environment.

Table 2.1 presents some countries, areas of reforms and the specific strategies adopted in making their permitting system flexible for prospective developers.

Table 2.1: Summary of Permit Procedure in Some Selected Countries

Country	Institution Responsible for Permit	Previous days	Revised Number of days	Areas of Reform

Mauritania		82 days	82 days	-Simplifies the requirements for small constructions - One-stop shop for building permits
Colombia	Magistrates	3 months	2 months	-No need for names and information of neighbours before submitting permit application
Liberia	Ministry of Public Works	90 days	30 days	-User-friendly checklist of all the documents -Eliminated the need for the minister's signature - Cut building permit fees in half, from \$1,400 to \$700,
Benin	Municipality	90 days (3 months)	180 days (6 months) proposed 4 months	Because of administrative backlogs
East Asia,(Hong Kong, China)	Hong Kong building department	105 days	67 days	-Pursued program that eliminated 8 procedures -Cut the time for construction permits by more than 5 weeks
Singapore	Urban redevelopment Authority's	43 days	26 days	-Reduced the time for permits by twothirds in 2007/08 - Builders regularly receive updates on the status of their permit applications by e-mail and text messages
Ghana	Statutory Committee	90 days	30 days	Reduced number of signatories and created a one stop shop for land sector department

According to the World Bank report of Doing Business (2012), Hong Kong is ranked 1st , Singapore 2nd , Mauritania 115, Benin 111 and Colombia 27th with respect to ease of applying and granting of development permit. In Ghana, even though in theory a permit is needed from the District Assemblies before one can acquire land for a particular development, in practice the allocation of most land is done without sufficient reference to planning requirements hence makes it difficult for developers to apply for permits (Yeboah and Obeng Odoom, 2001).

2.3.1.7 Limiting Building Permits

In some countries, instead of restricting services to particular areas other cities control development by limiting the number of permits for new housing and business facilities to prospective developers for a particular region. If the number of permits issued is less than the number demanded by developers, the policy decrease those who can leave and work there hence decrease the number of structures to be developed in that region. Like growth boundary, a limit on building permits displaces householders from one city to another.

A city decides how to locate its limited number of building permits to developers. Usually one option adopted to limit building permits is to auction the permits to the highest bidder.

Another option is to allocate building permits to developers that promote the city's development objectives such as granting permit to a high density housing or a project in an area targeted for development. A planning authority could also stage a "beauty contest" that is allocating permits to the development projects that is most appealing to planning authorities (So, 2009).

2.3.1.8 Enforcement and Stop Work Notice

Enforcement notice is served on any breach of Town Planning Law relating to carrying out of development without planning permission (approval). It relates to illegal building, engineering, mining, change of use and so on. This notice may be served either for demolition of such building without approval, or the restoration of an altered building (Ogundele et al 2011). Non-compliance of an enforcement order is punishable. Additionally, the control department may issue a stop work order only where it appears that an unauthorized development is being carried out or a particular development does not comply with a development permit issued by the control department. This document is used in anticipation of the service of an enforcement notice on the owner, occupier or holder of such property. It takes an immediate effect upon service of such property. The time frame is usually 21 days within which such development shall comply. It shall cease to have effect if within 21 days enforcement notice is not served on its contravener (Ogundele et al 2011 and Abubakari & Dinye 2011). In view of all these varied development control mechanisms most cities are occupied with unauthorised structures. Due to rapid growth of urban areas, development exceeds the ability of planning authorities to manage and control hence contributes to the growth of slums, haphazard and low quality of buildings.

2.4 Legal and Institutional Frameworks for Planning

Legal instruments are usually enacted to provide support and regulatory powers to planning authorities to enable these institutions carry out their functions without restraint. According to Leke (2009), physical planning system differs with each country's legal and institutional frameworks which categorically spell out the role of the different actors in the entire planning process. The formulation, enforcement and implementation of land use plans and all other land control measures are inconceivable without an appropriate organisation possessing adequate powers and resources" (United Nations, 1973: 102). Therefore Dissanayake (1989) concludes

that, no matter how appropriate Plans and regulations are, little can be realized without a suitable administrative framework with sufficient powers to ensure their enforcement.

One most common ordinance used in most countries to guide planning is the Town and Country Planning Act. Town and Country Planning Acts in most developing countries specifically in Africa are ordinances that have been based on the town planning laws of Britain and hence they are inappropriate for today developing countries conditions. Though these Acts have been found to be outdated and not responding to the current socio-economic situations in most urbanizing cities (UNCHS, 2008). It is interesting to note that while other countries are still glued to planning laws enacted during the colonial days, other countries have revised their planning laws severally after then. Nigeria is one of the countries who revised their planning laws from the 1946 Town and Country Planning Law to currently using the Urban and Regional planning Law decree 88 of 1992. This is the only law covering physical planning in the country and recognises the three tier governments (Leke, 2009). Furthermore, Town Planners are recognise as professionals in charge of development control though there are other professionals in the building team who have roles to play towards achieving one goal of orderly development (Obabori et al 2007).

In Malaysia, the planning functions are defined in the Town and Country Planning Act (Act 172) and its subsequent amendments. In Peninsular Malaysia, land use planning is undertaken wholly within the provision of the Town and Country Planning Act of 1976 (Act 172) and its amendments in 1995 (Act A933), in 2001 (Act A1129) and in 2007 (Act A1313). This Act contains three basic elements towards an effective planning system which are (a) the planning administrative system, (b) the development plan system and (c) the development control system. The Act was enacted to specifically ensure more integrated and co-ordinated planning, zoning and land use management (Omar, 2008). In Tanzania, according to Sheuya (2004) the Town and Country Planning Ordinance, Cap.378 of 1956 (amended in 1961) is the principal legislation that regulates land use planning and development. The author further indicate that the legislation is supported by the Town and Country Planning Regulations (TCPR) and the Township building rules, Cap 101. The Planning regulations were formulated in 1960 but amended in 1993. Specific regulations include setbacks, maximum space standards for residential densities, floor area ratios and parking lots. While the ordinance provides the legal binding to undertake planning activities in the country, the TCPR provides building regulations

to ensure safety, health and easy accessibility and the Township (building rules) stipulates the procedures to be used before a person can erect a building, specification of rooms, foundations and roofs.

Yahya et al (2001) provides institutional frameworks governing planning in Kenya and just like in the case of Ghana, the earliest building controls were developed in Urban areas to ensure that settlers were not endangered by the potential spread of diseases from areas settled by locals. The main legal frameworks according to the author governing building standards today are the building codes and the public health Act. However, there are planning, building and engineering standards in several other legal documents such as the town planning, land and housing laws, the local government Act and subsidiary legislations. Aside these laws, there are several government agencies responsible for policy, enforcement and control of housing development hence there are instances of contradiction regarding which agency is responsible for what.

2.5 The Lack of Compliance with Controls in African Cities

The lack of compliance to control mechanisms adopted by planning authorities has created informal settlements and unauthorised structures in African cities. Local governments are often handicapped by complex land tenure systems, inadequate and incompetent development control mechanisms, their low technical financial capacities, fragmented institutions and outdated planning regulations.

The United Nations Centre for Human Settlements (UNCHS, 2008) revealed that over the past decades, the conventional forms of urban development and planning regulations have failed to provide orderly and sustainable urban development. This study further argues that, despite the various planning legislations that have been put in place to promote urban development, squatter settlements and informal sector activities have continued to mushroom.

According to Lai and Ho (2001), unauthorised structures include advertisements sign boards projecting from external walls or resting on roof tops satellite discs for televisions and mobile phones, improvised measures to enhance the amenities of properties such as canopies and finally structures to create space for human habitations.

Studies (Yahya et al 2004 and citations required here) have shown that inefficient controls have created the problems of overcrowding, inadequate water supply and sanitation, inadequate

refuse collection, poor drainage, road transport, low quality of buildings and high levels of fire outbreaks which are common in major cities in developing countries. Adinyira and Anokye (2013) states that, unauthorised building works impose danger of fire risk, compromises on aesthetics and collapsed buildings which results in fatal accidents. Similarly, Obabori et al (2007) reveals that due to non-compliance of building regulations on road reservations, Lagos in Nigeria experiences traffic congestions which is linked to narrowness of the roads. Inadequate setbacks are provided by developers between buildings and roads.

According to UNCHS (2008), existing planning regulations rarely accommodate the needs of the urban poor and the small scale enterprises but place too much emphasis on detailed layouts and zoning of supposed future land uses.

2.5.1 Lack of public participation

According to Leke (2009) attributes the lack of orderly development in Lagos to the lack of public participation in planning. In Ibadan (Nigeria), for example, Arimah (2000) notes that the level of awareness of the existence of urban development regulations increases successively from the low to the high quality residential neighborhoods. According to UNCHS (2008), the lack of awareness of the existence of urban development and planning regulations is another challenge in enforcement of development controls. This is because in examining the degree of compliance with the required regulations, the extent to which people are aware of the existence of these regulations is important since it partly determines the extent to which people will comply with these regulations. Boamah et al (2012) added that, lack of public participation and awareness of urban development plans and planning legislations lowers the chance of successful implementation of the plan and the degree of compliance with the required regulations.

2.6 Human and Technical Resources in Managing Physical Development

Some scholars have they view that, “planning is sensitive within the institutional framework it operates” implying that for planning policies and ideas to be effective, it depends largely on the institutions responsible for the formulation, implementation and management of planning policies and plans. Several stakeholders are involved in formulation, enforcement and monitoring processes of regulations and physical developments. According to Payne and Majale (2004), regulatory frameworks enforced in cities and towns are made by central

governments and enforced by local authorities. However, the rate at which structures are springing up in recent times is beyond the control of planning authorities.

According to UNCHS (2008), the main objective of urban development and planning regulations is to ensure orderly development of urban areas therefore policies of urban planning and management are decentralised through complex institutional frameworks whose roles and responsibilities are also delegated to various agencies for easy implementation and management of development. However, the author did not hasten to add that, though involvement of many institutions and agencies is towards deepening decentralisation, on the other hand, one of the serious problems facing African countries in relation to development and planning is the multiple and incoherent organisation of planning institutions. This view was similarly shared by Obabori et al (2007) who indicated that due to the involvement of many institutions in controlling physical development, there are ambiguities in the responsibilities and relationships between Local Authorities, Government ministries and agencies. Additionally, Dissanayake (1989) states that several laws provide for declaration and management of protected areas using various institutional arrangements. However, it is important for these laws and institutional arrangements be rationalized to reduce overlap and optimize integration of programme planning and implementation.

Apart from the involvement of several institutions and agencies in controlling physical development which has its associated problem, another aspect of institutions that influence policy, implementation and management of development is institutional resource capacity. Successful enforcement of development controls entails more than institutional structures in place but the presence of human and technical resources to run the institutions. A country can be sure of orderly development of urban areas if there is effective and qualified human resource with the appropriate logistics to combat and address contemporary planning problems. This opinion is backed by Mila (2006) who explained that, London was ranked and has maintained first place among successful cities in the last 15 years due to availability of qualified staff, access to markets and international transport links, telecommunications, availability of office space, internal transport, and languages spoken which makes cities attractive for business. Obabori et al. (2007) also shares the view that, every effort should be made to replace obsolete equipment in various departments and units with new and up to date type. This the author argues will enhance productivity, save time and improve the quality of end product.

Though several studies share the view that qualified human resource and up to date and required logistics plays a key role in effective enforcement of development controls, its absence or inadequacy equally poses serious challenge to implementation and enforcement. Sheuya (2004) indicates that, local authorities are weak in a number of aspects including inadequate revenue, quality of trained staff and equipment and logistics to aid in managing growth hence affect enforcement of planning regulations. Yahya et.al (2004), Alluko (2011), Sheuya (2004), and Payne & Majala (2004) are some of the scholars who strongly argue that institutional capacity with respect to human and logistics has a greater influence in enforcing development control effectively. Therefore the need to address institutional capacity issues in an attempt to ensure effective enforcement of development controls.

In Nigeria, because the introduction of manpower development programme to enhance the productivity of staff has suffered serious setback in the past, the present state of most planning authorities showed that there is shortage of qualified manpower to monitor the fast growing physical development (Obabori et al, 2007). Literature by Alluko (2011) also argues that, there is general lack of dedicated and competent staff to enforce the law therefore, the planning authority always compromise illegal structures, because of the corrupt nature of the system. Which has led to conflicting land uses such as the infiltration of commercial land uses on housing. Studies by Tipple (2001) indicates that, most of the agencies (local authorities and central government offices) have serious capacity limitations in terms of the requisite planning personnel (both in numbers and competence) and equipment. In some instances, the situation is so dire that even office space for staff is lacking which affect all efforts by officials to perform their responsibilities.

According to Rizwan and Obaidullah, (2006), the situation is not different in India because since the inception of Lahore Development Authority (LDA), it has been facing shortage of planners and other technical staff to undertake implementation, monitoring and review of Structure Plan. Therefore the limited staff available are only engaged in merely processing applications filed with the Agency for building plan approval. Additionally, scholars such as Gardner (2007) and Obabori et al. (2007) all agree that another important factor which can influence enforcement of development controls positively or negatively is financial resources (funding) which according them have not received adequate attention for a long time. They share the view that financial resources is necessary for the development and management of cities yet planning problems are difficult to control due to inadequate budgetary central

government allocation for planning and plan implementation. Land allocation is another aspect that cannot be overlooked in this study because it contribute tremendously to compounding the difficult involved in effectively enforcing planning regulations.

According to Jowell (1975, p 543) “A developer would say that delay is the prime problem. Decisions on his applications and appeals are taking far too long, and are based on uncertain and changing criteria” and that alone is enough for developers to ignore development control. According to a report by Dobry in Jowell (1975) and Davies (1980), The fault is not so much the system but more the way it is used the basic defect is that the system is too "cumbersome and complex It should therefore be made more "rational and efficient. Yahya et al (2001) and Sheuya (2004) added that, another problem in enforcing planning regulations is the inability to process building permits or approve applications promptly and the cost involved in order to obtain a permit especially among low income-households.

2.7 Development Planning Control in Ghana

Experience of planning controls in Ghana is of no much difference from other African countries. Despite the existence of legal and institutional frameworks and some control mechanisms, enforcement is problematic. This however, is attributed to several factors one of which is the type of land ownership practised in a planning area.

Though development controls dates back to 1859 in Ghana, there are still some mismatch, overlapping and duplication of mandates in enforcement of development controls. This appears mostly in the legal frameworks and the several institutions responsible to formulate and enforce control mechanisms in the country.

2.7.1 Land Tenure System in Ghana

Land tenure represents the system of landholding, which has evolved from the peculiar political and economic circumstances, cultural norms and religious practices of a people regarding land as a natural resource, its use and development (Water Aid, 2009). Lands in Ghana can be state owned, customarily owned, or family owned. However, discussions on Land tenure system is sourced from Kasanga and Kotey (2007) and Kunbour (2009).

Water Aid, (2009), defined State Land as land that the Government has compulsorily acquired for a specified public purpose or in the general public interest by the lawful exercise of its

constitutional or statutory power of eminent domain. All previous interests are extinguished and persons who previously held recognizable interests in such lands are entitled by law to compensation either monetary or replacement with land of equivalent value. Laws such as Article 20 of the 1992 Constitution, Administration of Lands Act 1962, (Act 123) and the State Lands Act 1962 are governing the compulsory acquisition of land by the government (Water Aid, 2009). This indicates that the interest for state land exceeds that of the interest of an individual interested in the same portion of land in Ghana. Additionally, Vested Land is a special situation brought about by legal intervention where the landowner retains the customary land ownership but the management of the land is taken over by the state in trust for the owners. The management responsibilities entails legal (e.g. prosecution), financial (e.g. rent assessment, collection, disbursement) and estate management (e.g. physical planning and its enforcement and administration of the property). Vested lands are administered under the Administration of Stool Lands Act, 1962 (Act 123) and the Lands Commission Act, 2008 (Act 767) (Water Aid, 2009).

Customary lands on the other hand, are owned by stools, skins, families and clans usually held in trust by the chief, head of family and clan or fetish priests for the benefit of members of that group. Private ownership of customary land can be acquired by way of a sale, lease, grant, gift or marriage. Ownership of land under customary lands is by way of complete purchase from customary land owners or private individuals (Kunbour, 2010). Mends (2006) in her research defined customary land ownership as a system of land relation in which the ownership of the land is vested in a collective group being it a family, clan or a lineage while the individual or members of the group enjoy the right to use such lands without restrictions. The idea derived from the various definitions points the fact that, customary lands are not owned by an individual but a group with the head of the clan responsible for the managements of such lands. It is interesting to note that the head of the clan cannot sell or give portions of land out without the consent of the entire family or clan. However, Stool and skin lands also refers to communal lands belonging to a group of people made up of clans and families descending from a common lineage and having the same way of life which reflects their customs. The leadership of the group consist of a chief and his council of elders and they have the responsibility to administer the communal lands on behalf of the whole group. The chief is however the custodian of the land in him is vested the paramount interest in the land (Kasanga & Kottey, 2007).

Family lands are communal lands collectively owned by a family through a common ancestor who might have acquired the land through purchase, long settlement and conquest or as a gift. Here each member of the family has a right to the land through the family lineage and the family head is the leader of the group who administers the land with a council of elders. The paramount interest in the land like the stool land is vested in the family head. Family lands are similarly administered and controlled like the stool lands but usually cover a smaller area (Kasanga, 2008).

Research by Yeboah and Obeng-Odoom (2001) shows that, in Ghana, In spite of efforts by the state agencies such as the Lands Commission and the Office of the Administrator of Stool Lands to ensure effective land management, there is a recurrent problem of ineffective coordination and harmonization between customary land holders and planning institutions. Some customary landholders sell land for purposes which are different from the uses for which planners zone them. Kasanga (2008) argues that, the traditional land sector supply the bulk of developable lands in most developing countries specifically in Ghana hence such institutions control over 90% of the total land area which is usually sold without the consent of planning authorities. However, Antwi (2002) and Larbi (1994) shares the view that, poor mechanisms for allocating land especially traditional informal land transactions is what contributes to housing and sanitation problems and environmental decay in most Ghanaian urban centres.

On the hand, Boamah (2010) also draws the attention to the fact that, acquisition of land from the customary land sector is associated with problems such as multiple land sales, conflicting ownership claims, boundary disputes, and cumbersome procedures making it difficult to meet some of the requirements for permits. Since traditional authorities have the sole responsibility in land transactions, land keep passing hands from one individual to another without the consent and involvement of planning authorities, there will continue to be problems associated with enforcing development controls effectively in developing countries especially in Africa. Therefore, regardless of how planning authorities reduce the length and procedure involved in acquiring permit, if land title certificate continue to be mandatory in acquiring permits for development, it will still take time for permits to be approved especially in Ghana.

Duplication of institutions and lack of coordination. According to Abubakari and Dinye (2011) several institutions are involved in planning and controlling physical development in Ghana. However, the authors describe the collaboration between these institutions as weak and

inappropriate because there are clear evidence of mismatch, overlapping and duplication of mandates in enforcement of development controls. Research by the United Nations (2007) indicated that, 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. The existence of several institutions in the control process contribute to long delays in issuing building permits, and bribes that one had to pay to officials before a developer could get the required building documents (Adjei Mensah et al, 2010 and Farvacque-Vitkovic et al 2008).

Inadequate human and logistical capacity. Finally, Yahya et.al (2004), Alluko (2011), Sheuya (2004), Payne and Majala (2004) and Boamah, Gyimah and Nelson (2012) are the scholars who strongly argue that institutional capacity with respect to human and logistics has a greater influence in enforcing development control effectively. In Ghana, Unavailability of logistics in terms of drawing equipment's, stationery, vehicles for routine inspections, bulldozers and modern computer software like the Geographic Information System (GIS) is the bother of the departments responsible for enforcement. This has resulted in the inability of the department to ensure effective plan preparation and implementation hence unauthorized development and encroachment on public open spaces and government land (Abubakari & Dinye, 2011 and Pogbekuu, 2007).). Inadequate personnel is a major problem faced by most Assemblies. According to Yeboah & Obeng-Odoom (2010), some years back about 170 districts currently estimate their staffing requirement at 700, a figure which contrasts with the current stock of 101 planners. The planner-population ratio of around 1: 90,000 compares poorly with the situation in some developed countries such as the UK, where an estimated 22,000 planners manage the settlements of 60 million people (a ratio of about 1:2,300). Besides, the few that are there lack the requisite training in order to function effectively. According to Yeboah & Obeng-Odoom (2010), circumstances where there are personnel available, essential planning skills is lacking.

Inadequate funding is another reason for weak enforcement of controls in Ghana. Funding is core to the smooth operation of objectives by local planning authorities. According to Yeboah & Obeng-Odoom (2010), only few town and country planning departments generate sufficient funds to meet their operational expenditure and coupled with the piecemeal financing aid from the government, it makes it difficult for planning activities to be carried out effectively.

Furthermore, due to poor wages and remuneration, some staff tend to be corrupt and receive bribes which enable planning officials to tend blind eye to illegal development of structures.

Political Interference: Political interference in the enforcement of development controls disrupts the smooth implementation of planning schemes and demoralises planning officials; Politicians should isolate the development control process from their political interests. (Boamah et al 2012). According to Gyampo (2008), Planning is a tripartite activity, involving a professional bureaucracy, interest groups, and politicians thus the process is necessarily political. The Statutory Planning Committee (SPC) of each district is the technical body responsible for assessing applications, and enforcing development plans. The SPC is inter-departmental, made up of officials from the Town and Country Planning Department, the Environmental Protection Agency, the Survey Department, the Fire Service, and utility companies. It meets periodically to assess applications for planning permits. The composition of the SPC is cross sectional in order to ensure an integrated approach. The chairman is the chief executive of the local government authority, who is appointed by the central government (Gyampo 2008). As the representative of the central government, the chief executive officer is the single most powerful political person in the district, and the most influential in the SPC. So, although the chief executive may not be a professional planner, his views on planning issues can override professional planning decisions, which can affect physical development negatively (Yeboah and Obeng- Odoom, 2010).

2.7.2 Legal Frameworks for Development Controls in Ghana

Legal instruments are usually enacted to provide support and regulatory powers to planning authorities to enable these institutions carry out their functions without restraint. In Ghana each sector has its legislative instrument to support the functions of institutions however, the Local Government Act, Act 462 of 1993, National Building Regulations, Town & Country Planning Ordinance of 1945, (Cap 84), National Development Planning Commission Act 479 and National Development Planning System Act 480 are among the legislative instruments provided to support planning authorities to manage growth in the built environment (Yeboah and Obeng-Odoom, 2010).

The first legislative instrument is Town and country Ordinance, Cap 84. This Act was enacted as the Town and Country Planning Ordinance, 1945 (No. 13 of 1945). It came into existence on 21st April, 1945. Under the Town and Country Planning ordinance of 1945, the physical

planning for an area begins with a declaration by the minister responsible that, a particular area is a statutory planning area. A planning committee is then appointed to provide the minister with information regarding an area's present and future planning needs. The Town and Country Planning Department (TCPD) propose a scheme that is discussed with the affected land owners, the community, expected beneficiaries, and state agencies. No person is permitted to carry out any development in an area until a final scheme has been approved by the minister. In practice, however, the TCPD does not have the necessary resources to fulfil the role allotted to it and is unable to prepare all the planning scheme layouts required. Furthermore, the procedure for processing applications is very bureaucratic resulting in many planning schemes being out of date before they are even approved. Consequently, much of the development of peri-urban areas in Ghana takes place before any planning schemes are prepared (TCP Act, 1945).

Cap 84 makes provision for a planning authority to remove, pull down or alter a building or any other work which does not conform to the scheme to bring conformity with the scheme, The Minister may acquire the land or buildings that are necessary or convenient for carrying into effect the provisions of a scheme. Where the Minister is unable to purchase by agreement a land or building required for carrying a scheme into effect the land or building may be acquired under the State Lands Act, 1962 (Act 125) or the State Property and Contracts Act, 1960 (CA. 6). The lands and building acquired under this section for carrying a scheme into effect shall be used only for, or in connection with, the scheme for which they were so acquired (TCP Act, 1945).

At the apex of the planning structure is the National Development Planning Commission (NDPC). This was established by Act 479, which consequently established the legal framework for planning in the country. The functions of the NDPC include the Preparation of broad national development plans, undertake studies and recommendations on development and socioeconomic issues and plan for all district in the country by taking into consideration advantages of the different districts in Ghana (Pogbekuu, 2007). Additionally the NDPC performs multi-functional roles which consist advisory, prescriptive, regulatory and supervisory role in the planning process of the country.

The local Government Act 462 established in 1992 was meant to complement the National Development Planning Commission and also provide all planning activities at the district and local levels. This act also spells out the functions of the District Planning Authority. The

formation and functions of district assemblies as a form of decentralised planning is emanating from the Local Government Act. The District Planning Coordinating Unit (DPCU) is set as the department responsible for the preparation of district development plans. Plans are supposed to conform to the National goal indicated in the national development planning commission. However, the Metropolitan, Municipal and District assemblies (MMDAs) are established as planning authorities to prepare and implement development schemes and enforcement of development controls. This act also makes building permit a mandatory requirement for physical development in Ghana. Development charges shall be rated by, payable to and collected by the District Planning Authority which would be use for infrastructure and service provision for the specific area (Yeboah and Obeng-Odoom, 2010).

Enforcement in Respect of Unauthorised Development is stipulated in Section 52 of the local government Act. It states that, where physical development has been or is being carried out without a permit or where conditions incorporated in a permit are not complied with, a District Planning Authority may give written notice in such form as may be prescribed by regulations to the owner of the land requiring him on or before a date specified in the notice to show cause in writing and addressed to the District Planning Authority why the unauthorised development should not be prohibited, altered, abated, removed or demolished. If the owner of the land fails to show sufficient cause why the development should not be prohibited, altered, abated, removed or demolished, the District Planning Authority may carry out the prohibition, abatement, alteration, removal or demolition and recover any expenses incurred from the owner of the land as if it were a debt due to the District Planning Authority (Act 462). Nothing shall prevent a District Planning Authority from issuing an enforcement notice demanding the immediate stoppage of the execution of any work carried out contrary to this Act or to the terms of an approved development plan. It is stated that, any person who fails to comply with a notice issued under subsection (3) of this section commits an offence and is liable on conviction to a fine not exceeding ₵200,000.00 (GH₵20) or to a term of imprisonment not exceeding six months or to both (Act 462).

National Building Regulations (Building Code L.I. 1630). The building code regulates all physical development in Ghana. The Legislative Instrument 1630 (L.I.1630) spells out in details the building permit application requirements, building densities, permissible land uses and site and spatial standards. The roles of District Planning Authorities and validity period of permits are clearly indicated in the building code (Building code).

A study by Boamah et al (2012), revealed the loop holes in the legislative instruments where it was worth noting the contradiction in the Local government Act 462 and L.I. 1630. Act 462 prevents any physical development without prior written approval by the planning authority while section 8(2) of L.I 1630 states an applicant not informed of grant or refusal of permit after three (3) months of application can commence development on the basis that the application is acceptable by the planning authority. This in itself makes it difficult for enforcement of development controls since there is a flaw in the legislative instruments. Currently, however, the local Government Act (Act 462), Town and Country Planning Ordinance and the National Building code L.I. 1630 are the main instruments used for the control of physical development in Ghana. According to Abubakari and Dinye (2011), Ghana's legislations has been the concurrent operation of the Act 462 and the CAP 84 with regard to the approval of plans. While the Act 462 provides for the approval of plans to be done by the Assembly, the CAP 84 provides that this should be done by the Minister in charge of Town Planning. The operation of the two legislations side by side has led to a situation where smart developers capitalize on some contradictions between the two legislations to frustrate the efforts of local planning authorities in their stab to manage physical development. An experience which is common with countries using different legislations without clear separation of powers and responsibilities. Generally, it can be said that no country practice planning activities without any legal backing, though sometimes several different frameworks are been operated, they are all meant to protect planning authorities in undertaking decisions governing planning and development.

2.7.3 Institutional arrangement for physical planning in Ghana

With the establishment of the Town and Country Planning Department and its associated institutions, Ghana is still struggling to meet its town planning vision of creating liveable communities. It has often been said that planning is sensitive within the institutional frameworks it operates it is therefore, necessary to identify some of the institutions involved in physical planning in Ghana as stated in several studies such as Boamah, Gyimah and Nelson (2011), Yeboah and Obeng-Odoom (2010), Pogbekuu (2007) and Abubakari and Dinye (2012).

As part of efforts towards managing and controlling the growth of settlements in Ghana, the Town Planning Department was established by the Town and Country Planning Ordinance of 1945 (cap 84, is a section under the Act 1945 within the TCPD Ordinance). The Department is

responsible for the planning and management of development and growth of human settlements to enhance social and economic activities and the wellbeing of people in Ghana. This is pursued through the design of structure plans, detailed planning schemes and the administration of planning standards to guide and ensure orderly growth and development. The department also provides various forms of planning services to public authorities and private developers.

The Environmental Assessment Regulations, LI 1652, was promulgated in 1999 to give complete legal status to the Ghana Environmental Impact Assessment procedures. The Regulations require that all development activities likely to impact adversely on the environment must be subject to Environmental Assessment. The objective of the LI is to ensure that such development activities are carried out in an environmentally sound and sustainable manner. The requirements of the LI, however, place enormous responsibilities on all players in development in Ghana.

The department was established in 1901 as part of Mines Department during the colonial era. The department produces the sectorial plans on which title registration is based. Though it also prepares the base maps on which plotting is done, site plans are prepared by licensed surveyors hence are usually inaccurate and unreliable causing land disputes. The major problem of the department is related to inadequate funding, skilled staff and equipment's leading to the slow pace of preparing base maps. In most cases lands are sold before base maps are prepared resulting in duplication of sale of land and haphazard development

The Lands Commission currently operates under the Lands commission act 1994 (Act 483) of the 1992 constitution. The commission is responsible for the management of public lands and any lands vested in the president or the commission on behalf of the government. The Secretariat provides Land Title Registry with records of all transactions on a given land before a land title registration certificate can be granted. The commission has the responsibility to manage public lands and any lands vested in the president or the commission on behalf of the government and to advise the government, local and traditional authorities on policies for the development of specific areas to ensure coordination between individual pieces of land and development plans for the area. Some constraints the Lands Commission Secretariat has include, inadequate skilled personnel, frequent political interference in its activities, inadequate logistics and support services, poor remuneration and low morale among staff of the commission (Kasanga and Kotey, 2001).

The chiefs and other opinion leaders contribute greatly to sharpen the built environment especially in relation to the part played in land acquisition and development. According to Pogbekuu (2007), the majority of developers in Ghana acquire lands from chiefs who are the traditional land owners. However, some developers also obtain land from other sources such as individual speculators. According to Kasanga and Kotey (2001), about 80% of lands in Ghana are owned by traditional authorities. This makes the customary authorities very important players in land use planning and management hence the need for collaboration between all players in physical development towards achieving one specific goal. These are some of the most important institutions involved in planning and enforcement of regulations. Though the structures are in place to carry out development, certain institutional factors hamper their efforts to perform effectively in Ghana.

2.7.4 The Official Process for Preparing Planning Schemes in Ghana

Initiation of plan preparation: The preparation of the Local Plan may be funded and initiated by any of the following: District Assemblies, District Physical Planning Department, Land owners, Central Government and any group of persons whose interest is directly affected by the presence or absence of a Local Plan. Bodies authorised to prepare and approve local plans: They should be qualified persons with appropriate academic and professional qualification. A planning team consisting of staff of the physical planning department, the Works department and the District Planning Coordinating Unit and land use planning consultants. Base maps should be prepared by qualified surveyors and GIS Specialist.

Boamah et al (2012) also indicates that, development plans and proposals require approval by planning and local authorities before their implementation according to planning regulations. This has been reported to take unnecessary long period of time thus delaying developments in most of the local authorities in Africa and Asia. In most cases, developers have had to go ahead with their developments with no regard for submitted plans and many of such developments (petrol filling stations for instances) have health and environmental consequences on the life of the society (UNCHS, 2008).

Furthermore, UNCHS (2008) added that, political interference is not uncommon in the local authorities. Political interference in the urban development control system has limited the local authorities' ability to fully regulate and control development. Powerful Government officials have been known to enforce approvals which do not meet the stipulated requirements. High

demand for space has led some authorities to overlook the standards required for various uses and abuse of development control especially open spaces. Lack of occasional court interventions affect activities of enforcing development control. Gyampo (2008) and Yeboah and Obeng- Odoom (2010) shares how there might be strong political influence in approving of permits in the Ghanaian Context.

Planning legislations in form of land use plans, zoning, subdivision regulations, building codes, and other planning regulations shape and guide developments which are normally adopted to help protect the urban and natural environment. Most existing development control codes, the building and zoning regulations are considered to be too static, outdated and inflexible for regulating urban development hence they do not conform to the countries' current environment, social, economic and political circumstances (Abubakari and Dinye, 2010).

Ghana was among the first countries in the world to adopt formal national planning strategies in 1920. There have been, however, several other plans and planning regulations over the years after the first comprehensive plan of Gordon Guggisberg. Till date planning in Ghana from the colonial period focused on infrastructure and socio-economic planning with little attention on spatial planning in Ghana. The first physical plan prepared during Nkrumah era failed to meet the objective of spatial equity in the siting of economic and social infrastructure spatially due to lack of political commitment to physical planning. Though little was done with respect to physical planning in both Guggisberg and Nkrumah plans, efforts were made in controlling and managing the growth of cities and towns through the implementation of development planning control mechanism and legislations adopted in Ghana. Development control could be traced back to the United States of America in the 19th century in New York City where it was adopted to achieve effective implementation of master plans for certain areas through the application of different control mechanism such as land sub-division, regulation, zoning ordinances and restrictive covenants. Development control also came into being legally in Great Britain through the enactment of an act of parliament, Cap 54 of 1933.

History of development controls in Ghana based on literature by Boamah et al (2012) and Pogbekuu (2007) states that, as part of the major aspects of planning, in a similar way, development Control in Ghana dates back to 1859 when the Municipal Ordinance of 1859 was promulgated to regulate spatial development in the Accra, Cape Coast and Sekondi-Takoradi Municipalities. The aim was to place all lands under the ambit and jurisdiction of the governor who had the power to determine the kind of use that was permissible on a particular parcel of

land. This was misunderstood to mean a deliberate effort to take land from the people so they violently resisted and the attempt failed.

Similar attempts between the periods of 1894-1897 failed for the same reasons. Based on the experience from the earlier attempts, the Town & Country Planning Ordinance was disseminated which declared the Town & Country Planning Authority as the final authority in land use matters and made all Municipalities Statutory Planning Areas. In 1925, a new Ordinance that nullified the previous one was put in place called the Town & Country Planning Ordinance aimed at ensuring orderly and progressive development of land, towns and other areas, control of street layout and proper drainage within these areas. The focus was to ensure that the Ordinance promoted a well-planned human settlement that conformed to health regulations. This gave birth to the establishment of Health Boards some of which were the Central Health Board and the Kumasi Public Health Board (CAP 13, 1925) as well as the Mining Health Areas (CAP 106, 1926) to deal with sanitary works, water supply, drainage, town planning and housing.

In 1945, a more comprehensive Ordinance was introduced. This was the Town & Country Planning Ordinance (CAP 84) to correct all the lapses of the previous bills and ensure a more “orderly and progressive development of land, towns and other areas, whether Urban or Rural and to preserve and improve the amenities provided for these areas.

In 1958, CAP 84 was amended with the appointment of a Town Planning Minister. This amendment made the Town & Country Planning Department responsible and accountable to the minister designated to it. Currently, the legal framework for development control in Ghana is contained in the, Town & Country Planning Ordinance of 1945, (CAP 84), Local Government Act of 1993, (Act 462), Act 497 & 480 of 1994, 1996 of the National Development Planning Systems and National Development Planning Commission Law respectively.

Initially, the introduction of development controls was towards achieving orderly development in only three municipalities to the neglect of other urban areas which was the coastal areas where the colonial masters lived. Presently, Ghana is still making do with the Cap 84 to regulate physical development which to a large extent can be said to be outmoded alongside local government Act 462 and the National building Codes. As a result of the challenges in implementing development control mechanism coupled with the unending springing of unauthorised structures, a new spatial planning model has been proposed to link socio-

economic policy and land use management. This initiative can be said to be a step in the right direction because some scholars such as Leke (2009) indicated that, the major challenge confronting physical planning and development is due to non-integration of socioeconomic goal with physical planning objectives, legislative bottleneck, lack of public participation and corruption. To a large extent the new spatial planning model proposed is expected to address the concern of Leke (2009) in Ghana.

2.8 Conceptual framework

As seen in figure 2.1, every country's planning activities are backed by legal and institutional frameworks. No matter how appropriate Plans and regulations are, little can be realized without a suitable administrative framework with sufficient powers to ensure their enforcement. The two main issues that influence how land is put to use are the controls in place and the land market which is sometimes influenced by the land tenure system. However from the conceptual framework, there is a level of influence of land tenure on adherence and enforcement of control mechanisms. The physical planning instruments which regulates the development of land and building and generally involves the regulations, restraining and keeping in order or checking materials' change on land include local plans, subdivisions, building regulations and permit systems. The ultimate aim for controlling development of land is to achieve orderly development of cities to improve living environment, health status of the residence of a given urban area and to direct urban development process in an efficient manner. Nevertheless, achieving orderly development is sometimes interrupted by several challenges in relation to enforcement some of which include legislative bottleneck, lack of public participation, inadequate institutional capacity, land acquisition process and corruption in all developing countries. However, depending on the gravity of the challenges in enforcing development controls, the main objective of spatial planning might be achieved or compromised.

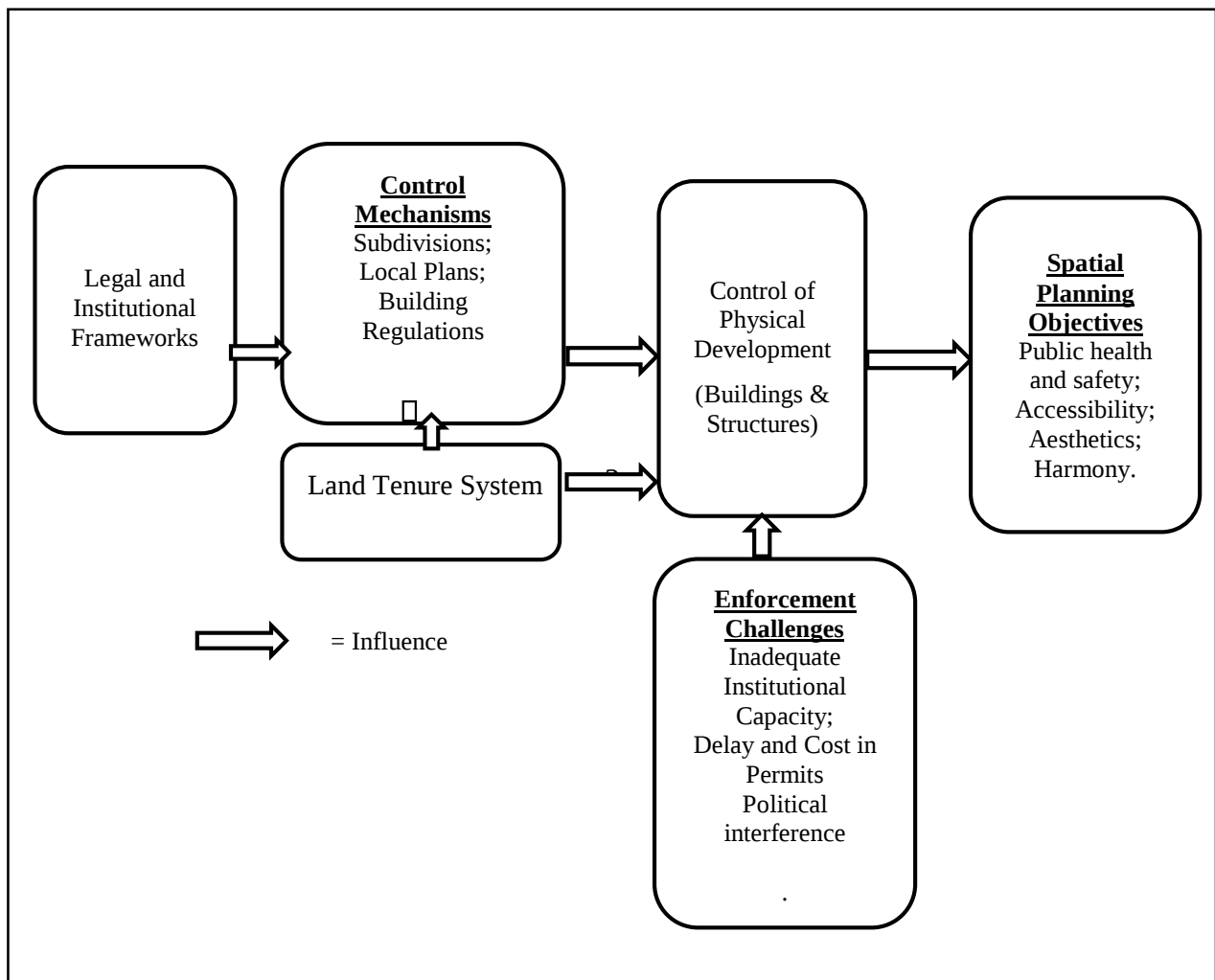


Figure 2.1: Legal and Regulatory Frameworks in Achieving Orderly Development

CHAPTER THREE

METHODOLOGY OF THE STUDY

3.1 Introduction

The preceding literature highlighted the variables which were then linked in the conceptual framework for the study of physical development controls. The lessons then served as a guide in the methodology for this study. The review of existing literature yielded information on the land tenure systems, mechanisms adopted to control physical development and legislative instruments and standards in Ghana (National Building Codes Legislative Instrument (LI)

1630 and Planning Standards), this chapter outlined the processes used in the collection of secondary data to fill in the data gaps. This information provided insight as to what data to seek for using primary sources.

The chapter further discusses the methods used in collecting primary data for the analyses. Primarily, it highlights operationalization of concepts, research strategy, sampling techniques, sample size determination as well as data analyses and presentation techniques adopted in achieving the success of the research.

3.2 Research Strategy

According to Sheuya (2004), survey is likely to be more appropriate in instances where the main research questions are who, what, where, how many and when the focus is a contemporary phenomenon. Survey deals with large samples which allows findings from a research to be summarised into percentages, frequencies, statistical testing and descriptions. Yin (1984) also indicates that one of the criteria used to determine which type of research strategy to adopt is the research questions. The author explains further by stating that “why” and “how” questions are more explanatory by nature hence leads to the use of case study.

The study used the mixed method which is a blend of both quantitative and qualitative approaches. This is suitable for the study because the research questions are made of both what and how hence demands both descriptive (survey) and explanatory (case study) application. The use of mixed method approach is to ensure that, the study harnesses the advantages of both qualitative and quantitative approaches of data collection and analysis. While the qualitative approach to the study will provide in-depth understanding of the research variables, the quantitative approach is geared towards the comparisons and statistical aggregation of data. It must be noted however, that the objectives of this research, made it to take a more qualitative than quantitative approach.

The qualitative (explanatory) aspect of this study mainly has to do with the assessment of the land tenure system and how it influence development control and the human and logistical capacity existing in the Wa Municipality. Qualitative techniques can bring survey results to life, providing the stories and examples that help to understand what the numbers mean. The research utilised inductive reasoning as the basis for generalisations for the entire Municipality. This is possible because the research is centred on land tenure and development control

mechanisms in some selected neighbourhoods in Wa Municipality hence findings can be generalised for the entire Municipality.

3.3 Preliminary Data Collection

An initial visit was paid to collect preliminary information from the traditional authorities and key land related institutions including the Town and Country Planning Department, Lands Commission, Survey Department, Municipal Building Inspectorate. The visit to the Town and Country Planning Department yielded additional information on land tenure systems and the dynamics of land development in the study area. During this process, information was sought on locations with local plans and those without. These visits provided insights into potential study locations

At the Survey Department, topographical maps were collected for use as base map for the study. The Customary Land Secretariat was also contacted to ascertain their role in the allocation of land for physical development. The Building Inspectorate Unit of the Assembly was visited for preliminary information on adherence to development controls. The general lack of compliance with regulatory controls and standards justifies the need to undertake this research

3.4 Data Collection Exercise

This aspect comprises of the source of data for the study (both primary and secondary sources) and the process involved in selecting study communities in the Wa Municipality.

3.4.1 Sources of Data

As indicated in table 3.1, data from primary sources was derived mainly from field surveys through interviews and observation. Data on land tenure system and development control adherence was solicited from landowners and home builders. Adherence to the official process in preparing local plans was also sourced from TCPD. Additionally, data on assessment of institutional capacity of the various planning institutions such as Town and Country Planning, Land's commission, Municipal Building Inspectorate Unit and other related experts were derived from primary sources. Data gathered through observation on the built environment also constituted primary source for the research. Data collected using questionnaire survey included number of home builders who applied for permit, sources of land acquisition space dimensions reserved between two buildings and home builders who were granted permits. While data

solicited using face to face interviews were issues of land tenure system and how that influenced enforcement. In addition to that, the assessment of institutional capacity was done through face to face interviews. This is because the later demanded detailed and indepth explanations hence appropriate to use face to face interviews.

Secondary data was also used to aid in the analysis especially the National Building Regulations of Ghana, a planning policy documents and the existing planning schemes from Town and Country Planning. What was solicited from the building codes was the regulation on setbacks for two buildings and between a building and a minor road, in policy document was obtained the official stages necessary for preparing planning schemes in Ghana and finally the use of the planning schemes of selected Neighbourhoods to establish compliance.

3.4.2 Selection of Study Communities

Purposive sampling was used to select the study neighbourhoods for the study. Neighbourhoods selected were Kpaguri Residential Area, Napogbakole/Tendamba Residential Area, Bamahu and Limanyiri. The selection of these four study areas was based on a classification of neighbourhoods in the Wa Municipality into areas with local plans and areas without. With respect to this, Kpaguri and Napogbakole residential areas had local plans while Bamahu and Limanyiri were without plans. The study also ensured that all the different categories of residential areas classified by the Wa Municipal Assembly were represented. As a result, Kpaguri was selected as a high class residential area, Napogbakole/Tendamba a middle class residential area, Bamahu a low class and Limanyiri an indigenous area. This provided bases for the representativeness of findings. Government built residential areas were exempted from the study because the unit of analysis were home builder who acquired lands and constructed their own houses. They therefore had an idea of the entire process involved in physical development. Finally, the researchers familiarity with the neighbourhoods with easy access to respondents (home builders) was another criteria considered in selecting the study areas. Table 3.1 shows the grouping of neighbourhoods into classes of similar characteristics.

Table 3.1: Housing Classification in the Municipality

Level of Classification	Total number of Residential areas	Sample Size
High Class Residential Areas	Degu, SSNIT Flats, Kpaguri Extension, Kpaguri Residential area and Airport Extension	Kpaguri Residential

Medium Class Residential Areas	Donkpong Extension, West Airport, Dobile/Kambalepani, Fongo/Wapani, Sokpeyiri/ Kambalepani, Kpaguri/Tendamba, Napogbakole/Tendamba, Konbiehe	Napogbakole/Tendamba
Low Class Residential Areas	Mangu, Bamahu, Dokpong	Bamahu
Indigenous Residential Areas	Central Dondoli and Limanyiri.	Limanyiri

Source: Wa Municipal Assembly, 2014

3.5 Sampling and Questionnaire Administration

This aspect of the methods entails how the sample size was determined, sampling technique employed for both administration of questionnaire and face to face interviews, specific methods and tools employed for collecting data and pre-testing of questionnaire. The units of enquiry for the study include home builders, land owners and heads of institutions from land and planning agencies.

3.5.1 Sample Size Determination

Yamane (1967) cited in Israel (2013) provided a simplified formula to calculate sample size which was given as $n = N / (1 + N(e)^2)$. Where n is the sample size, N is the population and e represent the margin of error. The study employs Yamane's formula at a confidence level of 95 percent and a 5 percent margin of error. According to the 2010 population and housing census, the total number of house in the four selected study area is 621 which represents " N ". Applying the formula, $n = N / (1 + N(e)^2) = 621 / (1 + 621(0.05)^2) = 243$

Therefore, the sample size for the study is 243 houses. However, the houses here are used as proxy for 243 home builders to be surveyed. The sample size was distributed proportionally among the four selected study areas. During the survey, 200 home builders were surveyed out of the 243 given a non-response of 43. This was as a result of the fact that some home builders were absent during the survey while others were renters which was not the interest of the study. Table 3.2 presents how the sample size expected was distributed proportionally according to the total number of houses in each study area and how many were actually interviewed. The non-response of 43 does not affect findings of the study because according to Israel (2013), one of the consideration in sample size determination is in relation to the number required for

data analysis which was indicated that if just descriptive analysis (mean and frequencies) then any sample will do. However, a good sample from 200-500 is needed for other analysis like multi regressions. Since the sample is 200 it is good for both descriptive statistics and regressions analysis.

Table 3.2: Distribution of Sample Size among Study Areas

Study Areas	Total Number of Houses	Sample Size	Number of houses Sampled
Kpaguri Res. Area	79	31	26
Napogbakole/Tendamba Res. Area	374	146	120
Bamahu	108	42	35
Limanyiri	60	24	19
Total	621	243	200

Secondly, in an attempt to establish compliance to building regulation on setbacks between buildings and between houses and minor roads in study areas with local plans a random measurement of 60 spaces left between two buildings and 60 measurements of spaces between buildings to minor roads were used by the researcher. These constituted 20 measurement taken from Kpaguri Residential Area and 40 from Napogbakole/Tendamba.

3.5.2 Sampling Technique

The study used both probability and non-probability sampling methods. The specific methods employed were stratified and purposive sampling respectively. The entire residential areas in the Wa Municipality was first organized into two strata, consisting of areas with local plans and neighbourhoods without local plans. Two neighbourhoods were conveniently selected from each stratum, based on a criteria which was, the degree of familiarity with the neighbourhood, as well as ease of access. Another criteria used was to ensure that there was representativeness from each of the different grouping of neighbourhoods by the Municipal Assembly. The study areas selected therefore were Kpaguri Residential, Napogbakole /Tendamba Residential area, Bamahu and Limanyiri. The study selected two neighbourhood from areas with local plans and two from areas without local plans because the neighbourhoods in the Wa Municipality do not vary significantly in terms of housing conditions, layouts and the processes involved in physical development. Kpaguri was part of high class residential areas, Napogbakole/Tendamba Residential areas was categorised as a middle class, Bamahu a low class and Limanyiri an indigenous area. Table 3.3 presents neighbourhoods with and without local plans in the Municipality.

After identifying the specific neighbourhoods, all house were enumerated in each neighbourhood. Numbers were assigned to each house after which simple random sampling was used to select home builders. In areas without local plans, to make the enumeration process easier, a landmark was identified from which numbering was done eastwards and westwards in a straight direction to enumerate houses till all the houses were numbered. In each neighbourhood, the numbers assigned to each house were written on pieces of papers, folded and kept in an enclosed box. The numbers were then mixed up then applying the lottery style, a number picked from the box is surveyed until the quota for each study area was obtained. It was only when the selected house homebuilder was absent that a replacement was done. Only home builders who were available and consented to the research were those surveyed for the study.

Purposive sampling was used to select key institutions which are relevant in land tenure issues and enforcement of development controls in the Wa Municipality. These institutions included Town and Country Planning Department, Customary Land Secretariat, Lands Commission, Municipal Building Inspectorate Unit. The heads of these institutions were selected purposively because they had in-depth knowledge about institutional capacity assessments and enforcement of development controls. Furthermore, in each neighbourhood, the landowner¹ was purposively selected and interviewed on how land ownership and acquisition influence enforcement of controls.

3.6 Primary Data Collection Process

Table 3.3 summarizes the data collection process including variables and indicators and methods

¹ Head of Tendana

Table 3.3: Operationalization of Concepts

Concept	Variable	Indicators	Methods of data collection	Sources of data collection	Data collection tools
Socio-Economic Characteristics	Social/ Demographic	- Gender - Age - Level of Education - Place of origin (Native/in-movers)	Survey	Home builders	Close-ended Questionnaire
	Economic	- Occupation - Income		Home builders	
Control Mechanisms	Local plans	- level of adherence - Preparation process - Key stakeholders(builders,	Desktop study interviews	Official from TCPD	-
	Building Regulations/ Codes	- Duration - level of adherence	Survey, Interview. Observation	Home builders Building Inspectorate	Interview guide and Questionnaire
	Building Permits	- Length of acquisition Cost of acquisition - Waiting time - Land Title certificate - Application and receiving permits - Experience with key institutions	Survey	Home builders	Close - ended Questionnaire
(Institutional Capacity	Human Resource	- Staff (available and Required) - Staff Qualification - Problems - Effects	□ Face to face Interviews	Officials from TCPD, Lands Commission and Building Inspectorate	□ Interview Guide
	Technical Resources	- Logistics and equipment - software availability			
Principles of spatial Development	Accessibility Harmony Health Aesthetics Safety	- Access to property, density - Nature of buildings - Sanitation facilities - environmental analyses	□ Observation	Built environment	□ Checklist

Land tenure system	Stakeholders Procedure	• ownership • Land Acquisition Cost	☐ face-to-face interviews	Official from Customary Secretariat and land owners	Land ☐ Interview guide
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Source: Author's field work, 2015



3.6.1 Pre-testing of Survey Questionnaires

Cooper and Schindler (2014) suggested that validity is the extent to which a test measures what it actually seeks to measure while reliability is the accuracy and precision of a measurement procedure. The two main forms of validity include external and internal validity. The external validity of research findings is the data's ability to be generalized across persons, settings, and times; while internal validity is the ability of a research instrument to measure what it is purported to measure.

Validity was ensured by pre-testing data collection tools. In the case of the survey and interview guide for homebuilders and landowners respectively, they were pre-tested in two neighbourhoods which were not selected for the study - Mangu and Kambali. From the pretesting, questions that were not clear to respondents were refined to make them unambiguous. Interview guide designed to elicit data from head of institutions was reviewed by the Head of Quality Assurance of the Faculty of Planning and Land Management, University for Development Studies to ensure that the questions were clear and measure what they intended to measure. Finally, few questions were re-enacted to ensure that they could comprehensively address the main research questions. To ensure reliability, then several questions were used to elicit the same type of information. Therefore, changes made in the wording and structure of questions are likely to produce different responses

3.6.2 Administration of Survey Questionnaire

Survey questionnaire (both closed and open ended) was administered to the home builders to collect data on a wide range of variables as shown in Table 3.1. Survey questionnaire was administered to a total number of 200 home builders. Administration of the questionnaire was conducted with the help of research assistances who were trained on the processes involved in physical development. Questionnaires were self-administered however, home builders who could not read and write were assisted. Home builders who were surveyed were selected based on the practical experience in land acquisition, physical development process, their availability and consent to the research.

3.6.3 Face-to-face Interviews

In order to elicit detailed information about issues emerging from the survey, face-to-face interviews were conducted with eight selected landowners (two from each community) and six officials of key land sector institutions using an interview guide. Two officials from Town and

Country Planning Department (TCPD), one from Building Inspectorate, one from Lands Commission and two from Customary Land Secretariat. They were interviewed on the official physical development process, preparation of local plans legal issues in land acquisition processes and the institutional capacity influence the entire enforcement process. These respondents were purposively selected based on their in-depth knowledge in the subject under investigation.

The use of the interview guide was to ensure that at the end all relevant questions were asked and discussed. However, with consent from the officials, all interviews were recorded and transcribed for analysis.

3.6.4 Field Observation

Prior to the actual questionnaire administration, the planning schemes of the study areas were updated to establish buildings that conformed and those that did not which was done through structured observation. Structured observation was applicable because there was a list of issues already pre-determined to be observed before going to the field. Observation was valuable in that it provided a first-hand encounter with the phenomenon of interest such as the indiscriminate dumping of solid waste. Photographs of what was observed was taken during the field work and used to support findings during analysis. Several aspects observed included space reservations between buildings, arrangement of buildings especially the closeness “stop work notices” and the width of streets and roads. Additionally, snap-shot ariel photography from google earth of Bamahu and Limanyiri were used to further establish how buildings appeared physically. This was used to support the argument that areas without local plans developed haphazardly sometimes without access routes.

The local plans of two of the study areas was analysed to establish conformity of physical development in the study areas. Comparing the base maps with the updated maps of the selected neighbourhoods with planning schemes (Kpaguri and Napogbakole) reveals how physical development have occurred in them over the years. This was done by manually updating the base map of the study by indicated on the local plan the shape, location and land use of buildings identified physically on the ground. After which the AutoCAD was used to digitize the local maps for use in the analysis. However, the entire local plan of Kpaguri Residential Area was not used for this study because the southern section had a different plan reviewed most recently as a result of a change in the plots sizes from 120×120 ft. and 150 ×150

to 100×100 ft. However, that extension scheme could not be traced by Town and Country Department hence that section was excluded from the study. With regards to the study areas without schemes (Limanyiri and Bamahu), Google Earth was used to obtain images that provides a visual impression of the arrangement of buildings within those areas. In order to show vivid haphazard development of study areas without schemes, recent aerial photography (2015 version) from google earth for Limanyiri and Bamahu was also used in the study.

3.6.5 Ethnical Consideration

The first ethnic considered was to ensure that the questions were not sensitive therefore data collection instrument were pre-tested and sensitive questions which were detected were rephrased. There was a cover letter attached to questionnaires and interviewed guides explaining the relevance and objectives of the study to respondents. Permission was first sought from the Municipal Assembly and chiefs from all four study communities before collecting data. Survey and interviews were voluntary and only respondents who consented to the study were interviewed. Anonymity of respondents were assured by omitting names and assigning codes to the various responses. Finally, permission was sought from home builders before taking dimensions on setbacks. However, because confidentiality of information was granted, some home builders were present to assist by showing their boundaries.

3.7 Data Analyses and Presentation

The data was analyzed using both qualitative and quantitative method of analysis. Computer based Statistical Product and Service Solution version 22 (S.P.S.S.) was used to analyze quantitative data. Findings from primary data were presented where appropriate in the form of frequency and percentage tables and pie charts. Statistical testing such as chi-squares and correlations was also used to establish the relationship between existing controls and what is practical in relation to physical development.

Atlas-ti is a software used for contemporary qualitative data analysis. Qualitative research software like ATLAS.ti helps people to manage, shape and make sense of unstructured information. The software make available tools that can be used to locate, code, and mark findings in primary data material afterwards, the analysis process identify themes and develop meaningful conclusions. The qualitative data from in-depth interviews was transcribed and uploaded into the primary unit of Atlas-ti in separate files where each interview

was coded and marked. These codes are the various themes identified from each interview. Finally, outputs of the codes with quotations were generated from all interviews and patterns used for analysis.

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CHAPTER FOUR

DATA ANALYSES

4.1 Introduction

While this chapter primarily centers on the data analyses, it is important to first provide basic information on the study area. Therefore the first section which is mostly based on secondary information, highlights the history, geographic location and socio-economic as well as land tenure system which has shown to have significant influence on physical development in the municipality (see Owusu-Ansah and Braimah, 2013).

The second section analyses the primary data collected through fieldwork to show the levels of compliance to local plans, building codes, how land tenure influence the physical development process and an assessment of resource capacity of institutions such as Town and Country Planning Department, Lands Commission and Building Inspectorate Division.

4.2 Profile of Wa

Location The Wa Municipality is the regional capital and most urbanized settlement in the Upper West Region. It is located within latitude $2^{\circ}35'N$ to $2^{\circ}25'N$ and longitude $9^{\circ}55'$ to $10^{\circ}10'W$. It is the only municipality out of the nine (9) administrative districts within the upper West region, and is bounded by Nadowli district to the North, Wa East District to the East and south, and Wa West to the West. The municipality occupies a total of 234.74km^2 in physical land area, occupying about 6.4% of the total regional land size (Ghanadistrict.com).

The town serves as a transportation hub for the north-western part of Ghana, with major roads leading south to Kumasi, north to Hamile and Burkina Faso, and northeast to Tumu and the Upper East Region. The Municipality is mostly made up of the mole-dagbani group (frafras, dargari, wala, Dagombas) constituting about 60 percent with the remaining 40 percent distributed among other ethnic groups who are the minority. It is the seat of the WaNa - the Paramount Chief of the Wala traditional area.

Wa has been inhabited since the late seventeenth century, first by Lobi and Dagaare people, and then by Islamic scholars and traders who settled there in order to participate in the transSaharan trade. This suggests that there existed indigenous settlements before the start of Town Planning in the municipality in 1993. These indigenous settlements pose a challenge to

spatial planning. One would therefore expect that, with the exception of indigenous settlements, subsequent physical developments in the municipality from 1993 onwards would be in conformity to planning standards. Whoever was the first settler automatically became the Tindana for all lands.

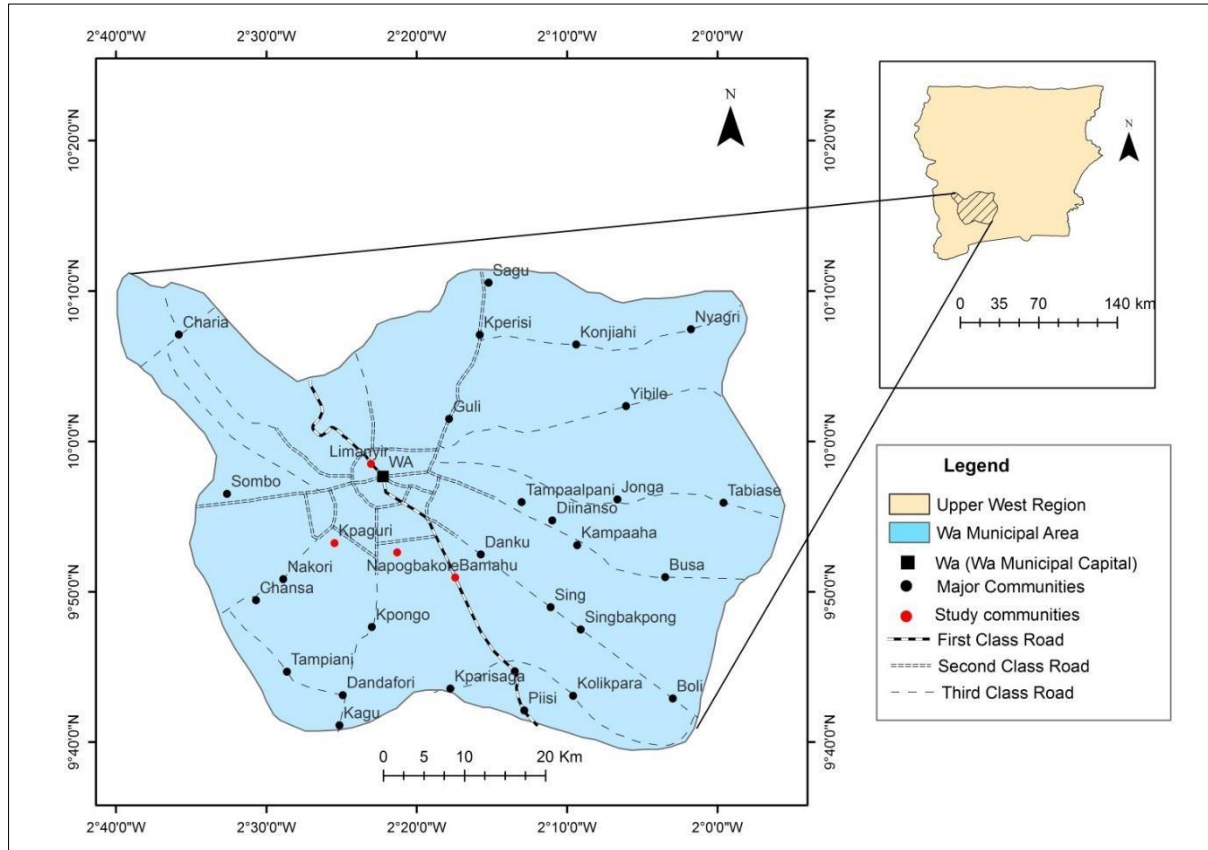


Figure 4.1: Map of Wa Municipality (Adapted from WMA, 2010)

In pursuance of the policy of decentralization which started in 1988, the Wa Municipal Assembly was created out of the then Wa District in 2004 with Legislative Instrument (L1) 1800. The Assembly is the highest political and administrative body in the Municipality charged with the responsibility of facilitating the implementation of national policies. Under section 10 of the Local Government Act 1993 (Act 426), the Assembly exercises deliberative, legislative and executive functions in the District. By this act, the Assembly became is responsible for the overall development of the Municipality including regulation of physical development The Physical Planning Department and the Building Inspectorate Unit of the Assembly in particular are charged with the responsibility of planning and managing physical development in the Municipality.

The implication of the location of the Municipality for development is that it enhances bilateral trade and commerce with francophone countries. Wa town has the potential to grow and be upgraded into both an industrial and commercial hub for the north-western corridor of Ghana which in effect contribute to the concentration of people in the municipality thereby making physical development and control an important issue in the municipality. This is because everyone make efforts to put a building to accommodate their family or for commercial purposes. Figure 4.1 shows the geographical delineation of the Municipality in the national context also indicates the study areas and the remaining communities in the context of the entire municipality.

4.2.1 Demographic Characteristics

Analyzing the data indicated in table 4.1 reveals that the rate of increase in the population of the settlements is quite significant. This has implications for the development of each settlement. It can be seen that Accra and Kumasi has relatively larger population figures than Tamale and Wa. However, the inter-censal population growth rates for Tamale and Wa outweighs those of Accra and Kumasi. Once human population increases, the faces of towns change likewise, to reflect this growing attribute of the settlements. The demand for infrastructure, particularly housing also increases on the market. This can lead to emergence of sprawls in these urban areas, as is faced by most of our cities today.

Table 4.1: Population of some major settlements in Ghana (1960-2010)

Year	1960	1970	1984	2000	2010	Inter-Censal Growth rates			
						1960-1970	1970-1984	1984-2000	2000-2010
Settlement									
Wa	*	13,740	36,067	66,664	107,214	*	9.6	6.1	1.9
Tamale	58,183	83,653	135,952	202,317	371,351	3.6	4.9	4.0	2.9
Kumasi	218,172	346,336	496,628	1,170,270	2,035,064	4.6	3.6	8.6	2.7
Accra	388,396	624,091	969,195	1,658,937	1,848,614	4.7	4.4	5.4	2.5

Source: Ghana Statistical Service, 2005; 2012

*..... Figures not available

According to Ghana Statistical Service (GSS) (2010), the Municipality has a total population of 224,066 with a growth rate of 2.7% for rural and 4% for urban. There is growing population density and consequently pressure on land and socio-economic infrastructure. This raises the

issue of population management, specifically, housing, streetism, conflict management and land use planning. The youth form 49 percent potential working population with 51 percent for the dependent group. The implication is that the youthfulness of the population requires the provision of social infrastructure especially schools, crèches, day nursery, primary and junior secondary schools, clinics and drug shops to meet the demand of the population. As a result, calls for the development of more structures with coupled with the limitation of planning authorities to manage physical growth since physical development moves faster than the institutional capacity. The increasing population has its associate development implication in the areas of housing, education and health facilities, environmental sanitation and water supply.

There is profound concentration of population in Wa because it is the most endowed town in terms of the provision of higher level services (First level services and functions) in health, education, finance, administration of justice and security, commerce and transportation and other services to its hinterland.

4.2.2 Housing Characteristics

A critical observation of the inter-censal growth rates for the stock of housing in the various cities indicated in Table 4.2 reveals that between 1960 and 1970, Tamale had the highest rate of housing stock growth, which is followed by Accra and Wa respectively. The next decade however, saw Wa top all the major cities in the housing stock growth rate and has maintained a steady progression from 4.0% in that decade to 6.2% between 1984 and 2000, placing it second only after Kumasi. Both in that period and also in the last decade (2000-2010). This increase in housing stock is in response to the demand for housing which can be seen as the major form of physical development within the municipality. It is imperative to note that due to weak enforcement of development control mechanisms, this demand for housing has contributed to uncontrolled development which had negative effects on accessibility, security and aesthetics.

Table 4.2: Housing stock over the years (GSS Analytical Report, P.21)

Year Settlement	1960	1970	1984	2000	2010	Inter Censal Growth Rates			
						1960-1970	1970-1984	1984-2000	2000-2010
Wa	766	1,212	2,102	5,539	9,592	4.7	4.0	6.2	5.5
Tamale	2,643	6,933	9,728	15,873	19,387	10	2.4	3.1	2.0
Kumasi	8,475	11,775	17,933	67,434	148,413	3.3	3.1	8.6	8.0
Accra	18,239	35,835	57,250	131,355	149,689	7.0	3.4	5.3	1.3

Source: GSS Analytical Report, P.21

The municipality is characterized by different housing types which include separate houses, compound houses, semi-detached, detached, huts, tents and improvised homes such as kiosks among others. Details of this is indicated in Table 4.3.

Table 4.3 Housing Typology in Wa Municipality

Type of Dwelling	Separate House	SemiDetached House	Flat/ Apartment	Compound house	Huts/Buildings (Same Compound)	Huts/Buildings (Different Compound)	Tent	Improved home (Kiosk/ container)	Living Quarters attached to office/shop	Uncompleted Building	Other
Number	4715	2027	579	11081	359	219	48	18	92	373	86

Source: Ghana Statistical Service, 2012

Statistics further indicate that these dwellings are often built with either cement blocks, or mud/brick/ earth, which dominates the municipality with 59.9% and 35.7% respectively (Ghana Statistical Service, 2012). However, there are others which have been constructed with burnt brick, slates, wood and thatch.

Most prominent residential zones in the Municipality include Dobile, Kunta, Bamahu, Danko, Mangu, Kambali, SSNIT, Kpaguri, Limanyir, Tindamba, Kaabanye, Zongo, Bamahu and Tagrayir. These residential zones are into four classifications which are high residential area with SSNIT as an example; Dobile as a medium residential zone, Zongo as an example of the low class residential zone and Limanyiri as an indigenous area (See table 3.1 for the neighbourhood classification). Most houses in the municipality as observed are sub-standard without basic facilities such as sanitation facilities which could be associated with the present and absent of planning schemes in these areas

4.2.3 Economic Activities

The relationship between economic distribution of a settlement and its physical development cannot be understated. It is worth noting that the development of economic activities within a settlement should result in an increase in competition for land, as well as raising the income levels of residents such that they can afford to go through process that will enable them safeguard their lands and acquire legal documentation for housing development. Therefore it is necessary to understand the economic distribution of the people within the Municipality Notwithstanding the fact that the municipality is the commercial hub of the Upper West Region, agriculture remains the main economic activity. It is the largest single contributor to

the local economy and employs about 70 percent of the active population. The main staple crops grown are millet, sorghum, maize, rice and cowpea cultivated on subsistence basis. These crops are mostly cultivated for household consumption. However, soya beans, groundnuts, Bambara beans are produced as cash crops with sheanuts, dawadawa, mango, baobab and teak as the economic trees grown within the municipality. Though agriculture is the largest with respect to the number of people employed in the municipality, is said to be the least with respect to contribution to household income. Commerce and service sector is second to agriculture in terms of employment. The main activities involved in these sectors include retailing, transport, finance, public service. The Municipality is currently the regional's commercial and service centre for all other communities and districts in the region.

The industries in the Municipality are small scale and categorized into agro processing (shea nut processing and pito brewery), wood, textile, metal glass, leather & hide, clay/sand/stone, art & craft. Majority of the enterprises in the Municipality are owned and operated by sole proprietors. This limits the scope and ability of enterprises to secure the necessary funds for growth and expansion. Cooperatives are to be encouraged to ensure that the industrial sector take its roles in the creation of jobs and generating income. The Municipal is mostly characterised by containers for business activities which mere the beauty of Wa township and Bamahu. The economic status of people in the Municipality influence why some stages in the physical development processes are ignored especially with respect to permit applications and land document legalizations. The next section therefore explores the traditional land tenure system in Wa.

4.3 The Traditional Land Tenure System in Wa

According to Kunbour (2009), Land ownership in the Wa Municipality is vested in the 'tindana' or families who are the first settlers of the place. They allocate land, serve as land priest and settle land disputes between members of the tindano. All vacant virgin lands are vested in the Tindana. The highest institutional structure of traditional land administration in the Upper west is the Tendaalun. The head of the tindaalun is the tingansob who is the most senior male descendant of the first settlers who act on behalf of the clan and not as an individual. He takes decisions on land matters after consultation with members of his clan. The traditional land tenure system in the Wa Municipality has the *tindemba* lineage and family headmen as the key players in land matters. Generally, the *tindemba* have control over land, particularly vacant communal land. Most agricultural and town lands are, however, in the

effective control of lineage and family headmen. Individual rights in appropriated land are quite pronounced and are inheritable and secure. Disputes over farm boundaries, rights in land and trespass on another's land are said to be rare. Land is hardly sold and cannot be sold to a migrant by an individual without informing his head of family. (Djokoto and Kyeretwie, 2010a).

Each member of a land holding unit is permitted to occupy and exploit any portion of this land. Access to farmlands for indigenes is generally not difficult. Migrants, on the other hand, have no inherent rights to use land but can acquire land with the permission of the landowner. The tenure systems allow migrants to farm on terms agreed on with the owners. In most communities, it is not permissible for migrants to plant trees since it is considered that this may result in their claiming ownership of the land. They can only plant trees with the consent of the person who gave them the land on such terms as may be agreed. Opportunities for leasing land for tree planting also exist. Land owners are willing to grant leases of land for woodlots and plantations on the payment of a mutually acceptable consideration. Otherwise, where a stranger plants trees without the requisite consent or permission the trees are said to belong to the landowner (Djokoto and Kyeretwie, 2010b). Though, chiefs are not associated with matters of land administration in the traditional system, state institutions at both the centralized and decentralized levels assign them the role as custodians of land in the Wa Municipality. Any transaction affecting land requires the paramount chief to endorse it before state institutions can accord its validity.

The data generated from the fieldwork revealed some changes in the land tenure system starting from ownership, requirements and conditions attached to acquiring lands in the Municipality in recent times. Currently, lands ownership and control in Wa has moved from the original allodial owners like the Tindana to family² ownership and controlled by family heads and private individuals. It was reported that the Tindana used to be the allodial title holder of all clan and family lands, and that any family member who wants to use a piece of land first meets the Tindana, who in consultation with clan or family heads allocates land for use. However, with growth in population resulting in high demand for land, one of the

Tindana's in the past shared lands among heads of extended families to control. With the passage of time, these family heads also shared it among nuclear families or brothers. As a

² Family: A group of people with a common ancestor who's right to land is through a lineage

result, it is family heads who now own and undertake land transactions while the Tindana performs only ceremonial roles.

Also, the survey revealed that, land acquired by homebuilders for development were from family heads, private individuals, lands commission and Tindana. Table 4.4 clearly shows that majority of home builders (61.5%) acquired land from family heads, most of whom now own and control lands in the Municipality. The 13.5% of home builders who acquired land from Tindana might have obtained it at a time when the Tindana's controlled land on behalf of clans and families. The remaining home builders acquired their lands from private individuals and Lands Commission constituting 20 and 5 percent respectively. This confirms the view that the ownership and control of land now rest on family heads rather than Tindana's as the case was in the past.

Table 4.4: Sources of land acquisition by Home builders

Sources	Frequency	Percent
Family heads	123	61.5
Private individuals	40	20.0
Lands commission	10	5.0
Tindana	27	13.5
Total	200	100.0

This study confirms work done by Yaro and Zackaria (2008) who found how land holdings in the Upper West Region is more fragmented now because it has gone through several changes from the Tindana through to family owned and now to individuals.. This analysis suggests that the role of the Tindana is becoming extinct in land transactions due to the fact that lands who were controlled by the Tindana has been distributed to families" a view similarly shared by (Djokoto & Kyeretwie, 2010).

This change in land tenure system has had significant influence on land acquisition in the contemporary era. Currently, negotiations on land in the Municipality is based on the market values, a view similarly shared by Mends (2007) on their study in peri-urban area of Accra and Owusu-Ansah & Braimah (2013) on their work in Kumasi. A prospective home builder identifies a land of his interest and negotiate the amount with the landowner. The farther away the land is from the central business district, the less expensive it becomes. It ranges from thousand Ghana Cedis to three thousand Ghana Cedis. During the face-to-face interview, a landlord reiterated that *"everything is now modernized so we do not take cola again to give out*

lands. We take money but the idea is that we will use that to buy cola, fowls and schnapps to pacify the gods”. (Interview 3-CLS). All lands are leased for a period after which it returns back to the owner. Therefore, the leasing period now applies to every individual who acquired land, either native, in-mover or a foreigner unlike previously when it was applicable to foreigners (non-Ghanaians). If the land is for residential purpose is leased for 99 years and commercial is between 30 - 60 years. The implication is that land ownership is now fragmented among several different owners in Wa making it difficult for physical planning, coordination and control. This is further analysed in the next section

4.3.1 Effects of Fragmented Land Ownership on development Controls

The Town and Country Planning Department is required to prepare Local Plans for Municipalities ahead of physical development. However, the “no money” syndrome of the Assembly to finance the preparation of Local Plans has shifted that responsibility to land owners. In cases where portions of land are owned by about different families, the land owners must agree and be ready to contribute before a local plan could be prepared. However, seeking this general agreement was found to be a major challenge. The result is that in many places development has occurred without Local Plans. One of the officials interviewed revealed this:

“To a large extent the land ownership practised in the Municipality does influence the nature of haphazard development and enforcement. Assuming the whole of the lands in Wa is under one ruler and that person says do not sell until I have a scheme to guide development first, then our problems will be solved because everyone takes orders from that one person pertaining to land transactions. Now we have fragmentation of land ownership and even with the smallest portion of land is owned by about 10 families”.

(TCPD). Evidence of such haphazard development is presented in figure 4.2, where buildings are constructed spontaneously without creating room for access.



Figure 4.2: Haphazard Development in the Study Area

Secondly, in their effort to minimize cost involved in scheme preparation, land owners hire non-professional planners to prepare schemes which then forms the basis of lands to prospective buyers. The study found that lands around Kilanjoun, East Airport and Kumpaala were sold with schemes prepared by non-professions. However, such schemes are not recognized by the Town and Country Planning Department and for that matter building permits could not be issued for applicants. This is what a Senior Planning Official had to say in response to whether some land owners make their own schemes without involvement of planning authorities;

“Actually there have been instances where non-professionals prepared schemes for landowners for plots to be sold. The non-professionals who aid this process often disguise themselves as Town Planners. If such schemes come to our notice, we usually nullify them. We’ve had many instances. An instance is at Kilanjoun around the polytechnic area; we observed that somebody prepared a land scheme for them and took colossal money. When we got to know that, we rejected everything, but by then some had bought plots and used the plot numbers in that scheme to prepared their documents, presented plans for permit and others had started constructions. Even most of the lecturers at Wa polytechnic were victims.”

However, contrary to building regulations, most home builders initiated constructions in such areas before applying for building permit. Apparently, an official from Customary Land

Secretariat believe that, Town Planners have no right to deny such people with permit and his reason as narrated is as follows: *“Town Planning are supposed to go the field and prepare layouts and ensure that all proposed roads are well demarcated and constructed at least by simply opening up the roads using graders before lands can be sold. They do not do that and what is frustrating is we the landowners prepare our own layouts with assistance from some private technical persons and all they do is to sit in their offices and only visit these sites to write stop work, produce permit. Why should they do that if they don’t want to invest in prepare scheme”* (CLS-Official).

Another outcome of the land fragmentation process was that a piece of land could be sold by different family members to several people without the legal documentations to apply for permit. This therefore encourages home builders to construct houses without satisfying regulations because they do not have the required documents.

4.4 Urban Land Use Management

It is a notable fact that efficient administration of land in urban areas could promote development of communities and enhance socioeconomic growth. The management of land use dwells significantly in the district assemblies. As indicated in the literature, The Local Government Act 462 empowers the district assemblies to manage the development of lands in the entire land mass under the assembly’s jurisdiction. Per this, the overall power for managing urban land use can be said to be wielded by the district assemblies, who provide all planning activities at the district and local levels. They are to prepare and implement development schemes and enforcement of development controls, consequentially managing the use of urban land spaces within their jurisdiction.

Under CAP 84, the Town and Country Planning Department (TCPD), Part III Sub Section 10:1, 2, when an area is declared a planning area, it is the mandate of the Town and Country Planning Department to prepare schemes for the development of such areas, indicating that a person must obtain a legal permit from the department before developing any piece of land within such a jurisdiction. This means that urban land management functions are both in the hands of the district assemblies and the Town and Country Planning Departments, who both have the right to grant permit for the development of land. Pending the approval of a bill to resolve this arrangement, there exists a conflict in roles and duties within the institutional management

system. This is as a result of a weak collaboration between the Town and Country Planning Institution, and the District Assemblies.

Despite the fact that the land in the hands of families, urban land use is determined by the Town and Country Planning Department. The basic aim of planning authorities in the Wa Municipality is the provision of services and urban land use management. The land sector institutions include, Town and Country Planning Department, Building Inspectorate Division and Lands Commission. Planning authorities collaborate with other institutions to prepare layouts to guide the structure and direction of growth of major towns to ensure orderly development as well as efficient environmental sanitation and waste management for the municipality. In spite of the past efforts made by Town and Country Planning to produce local plans for all the neighbourhoods of the municipality, it has not been possible to keep pace with the increasing urbanization and infrastructural requirements. This is due to the rapid increase in the demand for higher order goods and services such as tertiary education, health needs and transport services among others. The people who are pulled into the municipality are compelled to find places of abode, acquiring land with little emphasis on legal underpinnings of land acquisition and development. The consequences of this haphazard development, are congestion, environmental pollution and road accidents in the municipality.

Also, it was revealed that, thirty – three local plans have been prepared for various areas in the Wa Municipality since the start of Town Planning in the region in 1983 to guide the growth and orderly development of Towns. However, some areas within the built-up area of Wa are still without local plans. Respondents from the Municipal Assembly indicated that several reasons, such as fragmentation in ownership of land which results in sale of lands by private owners with some having no regard for the leasing procedure, and resource scarcity compels them to prepare schemes in a piece-meal manner. Majority of areas without planning scheme are newly developing communities at the fringe of the town. The absence of local plans in new developing areas would undoubtedly affect the capability of planning authorities to enforce regulations

4.4.1 Adherence to Official process involved in Preparation of Local Plans in Wa

The process outlined in figure 4.3 is the planning stages in developing local plans. The 11 stages are supposed to be followed by TCPDs in preparing local plans to control physical development in Ghana. Reconnaissance survey is to obtain first-hand information on the Local

Plan area with regards to the terrain and physical problems. All the three stages on stakeholder consultations goes to deepen public participation in the planning process of the local plan. The base map designed by competent surveyor(s) is to indicate existing structures, land rights boundaries, roads and bridges, drainage, water bodies and areas with substantial tree coverage. Socio-economic survey and analysis will provide a profile of the existing beneficiaries including traditional settlements within the plan area and help clarify their aspirations, which shall be analysed in line with the broad proposals made in the Structure Plan. The draft local plans are placed in Public Data Room and notice issued for the community, stakeholders and all relevant interested Departments of the Assembly to review and make comments. The final local plan and report are signed and approved by the Technical Sub-Committee of the Statutory Planning Committee. At this point, the local plan becomes a regulatory tool for physical development hence all planning applications for development within the Local Plan Area must conform to the approved Local Plan.

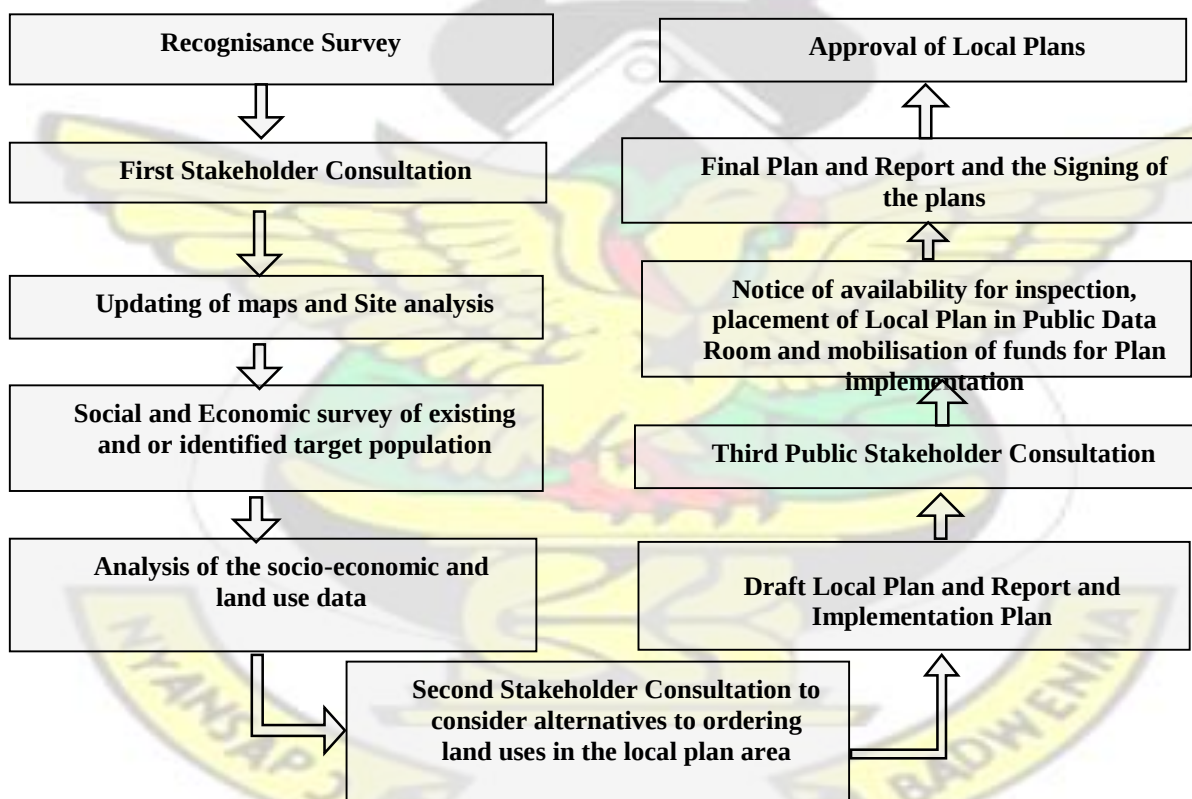


Figure 4.3: Official Process in Preparing Local Plans in Ghana: Source: Planning Model, Volume 4, TCPD

The extent of realism in saying that land owners should first initiate the whole process is highly questionable. This situation can be said to be the major cause of inability of the Municipality to plan for all its neighbourhoods. With fragmented land ownership in the Municipality, it will be difficult to get all land owners under a single umbrella to initiate the process. Again, right

after analysing the existing situation, the actual plan preparation stage no longer involves the citizens' participation. It can be realised that the rest of the processes are largely dependent on officials and technical persons, with no stakeholder consultation. Considering the fact that the residents in the neighbourhoods are the final end users of the land use proposals, it will be a bit unrealistic to exempt them from the process. This undermines the extent of compliance to plans, and consequentially affects their sustainability.

However, in the Wa Municipality, not all the stages outlined in figure 4 are adhered to in preparing local plans. The study found, in practice, the processes of preparing local plans was flawed. First, there was no spatial development frameworks for the region as well as the Municipality as required in the three tier planning process under the current dispensation. Similarly, the Structure Plan formulated for the Municipality depicting the major land uses expired in 2008. This clearly shows that the Town and Country Planning Department prepares local plans without making reference to the overall regional development frameworks the implications of this is that there will be conflicts in land use proposals, which will undermine the harmonious development of the Municipality. Furthermore, local plans define the land uses for all parcels of land within the plan area and must be observed by all those developing the lands within the boundaries covered by the planning scheme. In the Wa Municipality though local plans are prepared, they do not exist in all neighbourhoods. This will result in harmonious land usage occurring only in the neighbourhoods with plans, with possible haphazard physical development in those without plans.

The research found that certain stages are often ignored by the Town and Country Planning Department. Contrary to official expectations, the base maps is supposed to be prepared by qualified surveyors and GIS Specialist. However in practice some landowners make use of non-professional surveyors because they charge less compared to professional surveyors. At times, they are given plots in lieu of money. Further interrogation revealed that, the fees charged by surveyors in the preparation of base maps is illegal.

Secondly, all stakeholder consultations which are expected to be held to sensitize the public on the essence of planning, consider alternatives to ordering land uses in the local plan and to solicit for comments and views about the local plan were all ignored in preparation of schemes in Wa Municipality. The study found that these consultations were never organised by the Department due to the cost involved and delays in the formulation of local plans.

Another stage ignored by the Municipality was that, the local plan was not publicly exhibited for general comments contrary to the provisions that it should be displayed for not less than twenty (20) working days. The study found that the schemes were only presented for comments from the Technical Sub-Committee and landowners. The reason for ignoring this stage in scheme preparation in Wa is narrated by the Town Planner as follows:

“Normally what is expected to have happened is that, if the preparation of the local plan had gone through the traditional system of planning where it is financed by the Assembly, then you are expected to display it on the notice board for public scrutiny. But now, a landowner consults you and pay for the preparation our angle of working is now skewed towards only that particular landlord or family and not the public

Finally, the local plans had not been reviewed over the past fifteen years, contrary to the planning model by TCPD requiring review every five years. As Table 4.6 shows, the local plans of Napogbakole-Tindamba and Kpaguri Residential areas had not been reviewed since their preparation in 1977 except for a section of the Kpaguri local plan to reduce the plot size from 120ft×120ft and 150ft×150ft to 100ft×100ft. The reason for the inability to review local plans was that, to be able to review plans there is need for data which requires funds. This is because there would be need for field work to gather data and analyse before updating but then, lack funds by the Municipality to carry out the review process has attributed to the use of schemes prepared decades ago. As a result, local plans prepared decades ago were not effective in addressing contemporary physical problems such as indiscriminate dumping which occurred as a result of the weaknesses in the plan. The table 4.5 presents the availability, production dates and review dates of local plans in the study neighbourhoods.

Table 4.5: Production and update of Local Plans in study neighbourhoods

Residential areas	Availability of scheme	Production year	Last time reviewed
Kpaguri Res area	Yes	1977	2014*
Napogbakole-Tindamba	Yes	1977	Not at all
Bamahu West	No	N/A	N/A
Limanyiri	No	N/A	N/A

Source: TCPD, Wa, 2014

*Partly reviewed

4.4.2 Physical Development Process in Wa Municipality

During the study, it was realised that there was an official process home builders in the Municipality had to follow in carrying out physical development. These processes can be broken down into major phases, beginning with land acquisition phase, land documentation, permit acquisition and commencement of physical development.

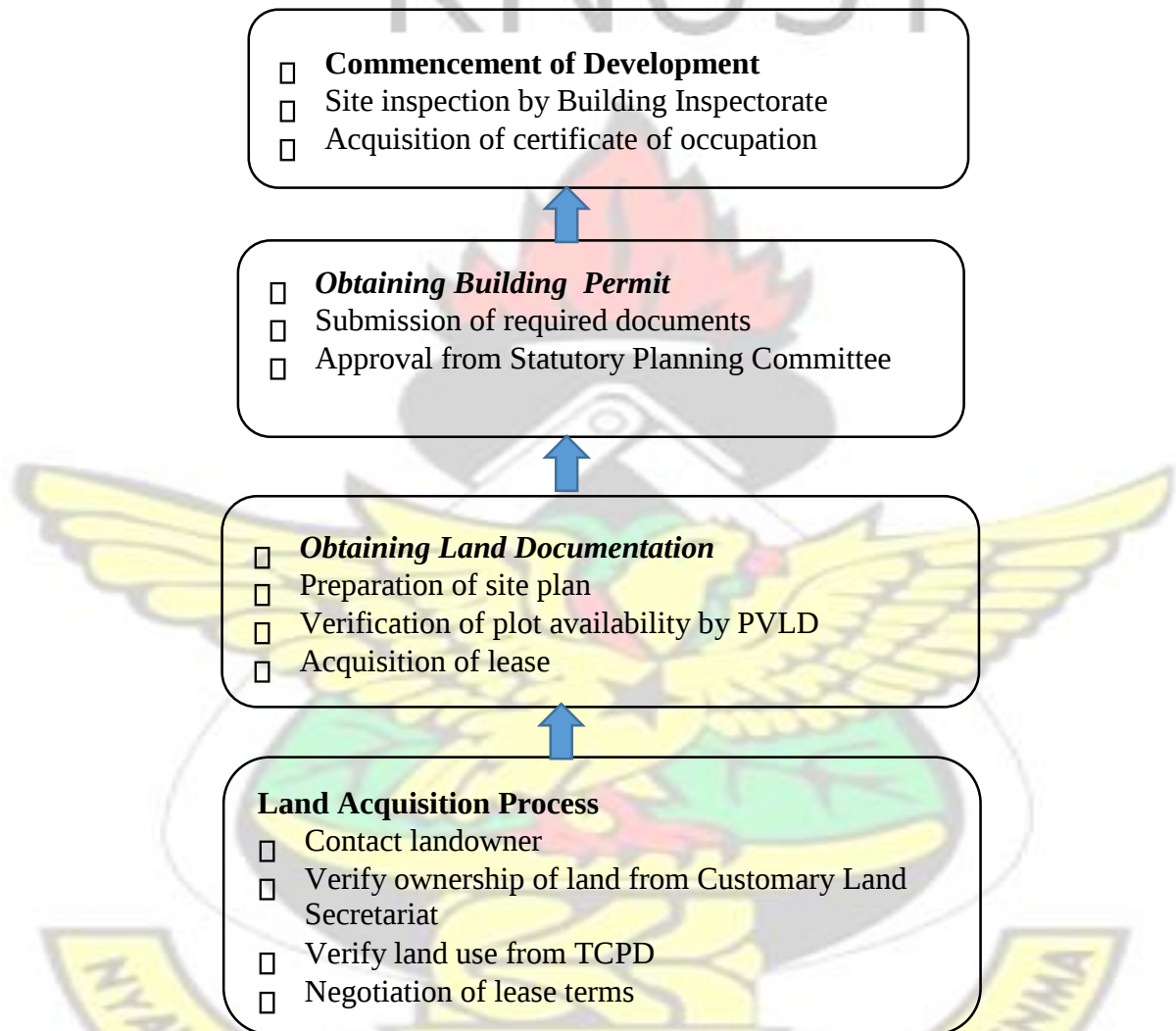


Figure 4.4: Physical Development Process in the Municipality

As summarized in Figure 4.4, a prospective homebuilder was required to follow at least 11 separate steps from land acquisition, obtaining land documentations (site plans and leases), building permit and finally obtaining occupancy certificate in building a house. However, in practise the process was not adhered strictly too. This was because home builders simply contact a land owner, negotiate the lease terms and begin constructions without seeking for a

building permit. This happens because according to home builders obtaining the requirement for permit application especially site plans and lease was costly.

Contrary to the above official requirements, the survey of 200 homebuilders found that the homebuilders found these stages very frustrating. The survey found 33 and 47 percent of home builders were frustrated at the stages involving acquisition of building permits and legal land documentations (site plans and lease) respectively. In fact, 59.5 percent of the respondents did not acquire building permits. However, in the case of legal land documentation, 39% of homebuilders were not having lease while 55% did not have site plan. This finding confirms what was found by Gommez (2001) who argued that, the major challenge to planners and prospective developers is with the building permits process hence individuals often completely ignore established rules, regulations, and codes such as acquiring permit leading to illegal development. The least stages considered to be frustrating were the land acquisition and satisfying building regulations stages (13% and 7% respectively).

Table 4.6: Ownership of legal documents on land and building

Required Document	Obtained	%	Did not Obtain	%	Total
Lease	122	61	78	39	200
Site plan	90	45	110	55	200
Structural plan	83	41.5	117	58.5	200
Building permit	81	40.5	119	59.5	200

Source: Author's survey, 2015

Majority of homebuilders acknowledged acquiring legal documentations was the most important stage needed to be fulfilled for the sake of security of tenure and protecting their property against issues of double sale and encroachment. However, the cost involved to process a lease document (*GHC 500*) is on the high side considering the other charges usually off records of the commission which is usually charged by land agency officials such as the surveyors

Furthermore, satisfying standards such as space reservations as required in both local plans required building materials (in the building code) needed for construction was the least frustrating among the processes involved in physical development. This was attributed to the fact that some home builders had no idea about the required standards in constructions while others who were aware stated clearly that in building, they make do with the resources available to them because satisfying some of the building standards are seriously beyond their means. Especially setbacks were land is a scarce resource in contemporary times. Few home builders

who stated the process of acquiring land as a problem revealed the incidence of double-sale as the disturbing reason. This finding supports Boamah's (2010) who cited financial constraints and delays as the major reason for not registering land.

From the perspective of officials interviewed from Lands Commission and Town and Country Planning Department, it was also revealed that the major stages that were usually ignored by home builders were the aspect of obtaining legal land documentation and building permits. An official of Lands Commission reiterated that

“even though the cost of processing lease document in the Municipality ranges from GHC 500 -550 for a plot, the more the acreage of land the less the unit cost, homebuilders still complain that it is too expensive and prefer to build without obtaining lease documents. They only run to us when they begin to face problems like double sale”

Apart from the long procedures, what also contributes to the delay is the final stage of documentation referred to as “good title” to land. In the Wa Municipality according to an official from Lands Commission, home builders have to wait for a lease document to be sent to Accra for certification before it becomes legal. This is because in the Ghana National Building Regulations (L.I 1630), a good title shall be in accordance with a certificate issued by the Chief Registrar of Land Titles or any other agency so authorised.

An official of the TCPD said that *“In my opinion there are still a lot of people who are not aware they need to acquire permit before they build. Their mind is that, once you acquire the land and process the lease then you can start to develop it and that is what most of them do which is highly unacceptable”*. The Building Inspector however, concluded that obtaining occupancy certificate by home builders to prove that they satisfy standards is highly ignored simply because much had not been done from the perspective of the Inspectorate Unit.

Therefore, considering the above findings it can be concluded that, acquiring land is largely dependent on the availability and market value which is negotiated among the land owner and the prospective buyer, hence not too cumbersome. However, once land is acquired, the lengthy processes and cost involved in obtaining land documents and permits frustrate home builders most hence these stages are ignored in physical development. This has resulted in constructions by home builders immediately land is acquired without adhering to regulations. The

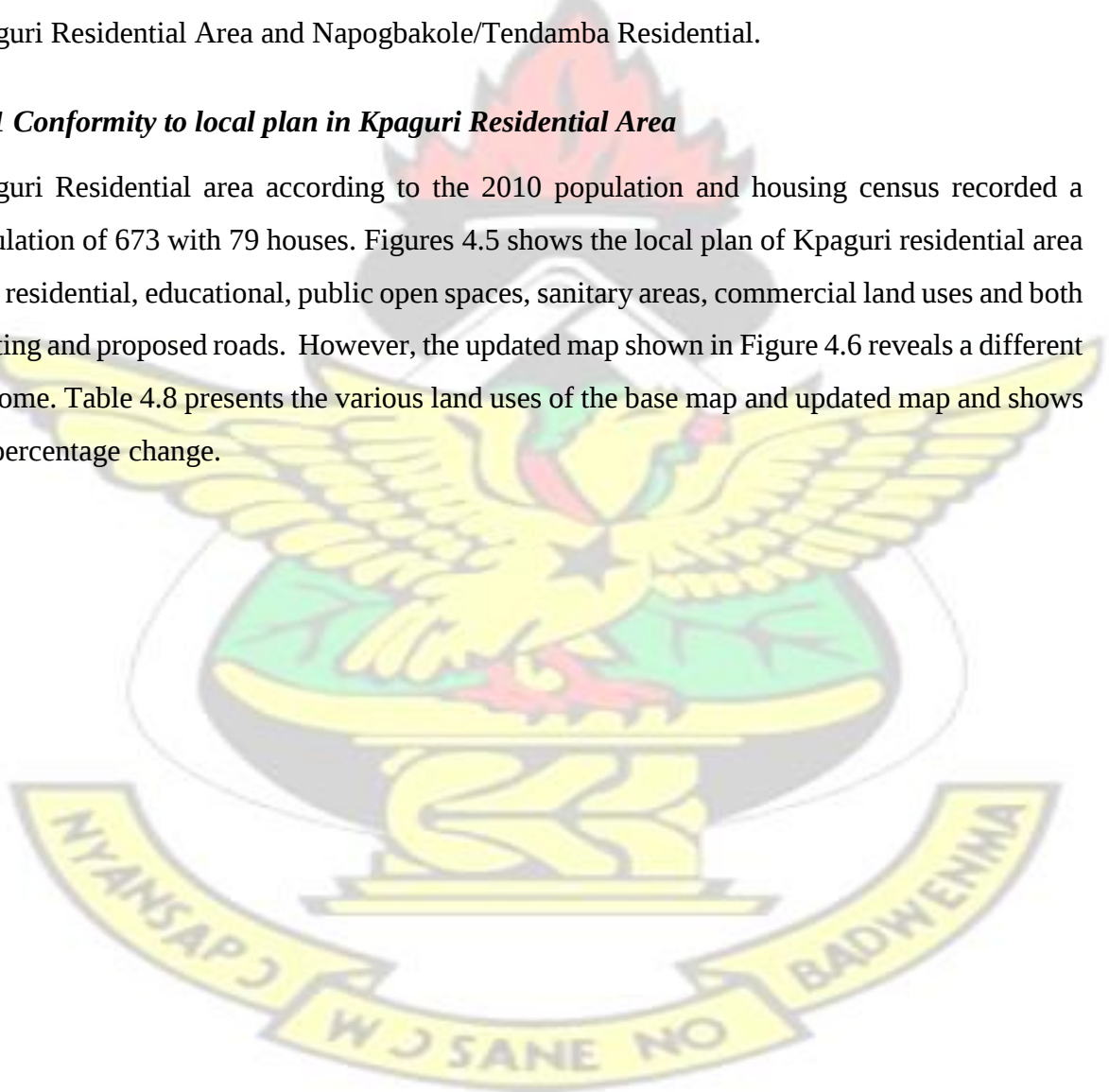
consequence is mostly ventilation and accessibility difficulties due to haphazard orientation and limited spaces between buildings.

4.5 Compliance with local plans

This section assesses the compliance with local plans and building regulations as spelt out by the Ghana National Building Regulations (L.I 1630). As stated in the previous chapter, Kpaguri Residential area, Napogbakole/Tendamba Residential Area have local plans whilst areas such as Bamahu and Limanyiri are without Local Plans. However, findings with respect to compliance with local plans was based on the two neighbourhoods with Local Plans: Kpaguri Residential Area and Napogbakole/Tendamba Residential.

4.5.1 Conformity to local plan in Kpaguri Residential Area

Kpaguri Residential area according to the 2010 population and housing census recorded a population of 673 with 79 houses. Figures 4.5 shows the local plan of Kpaguri residential area with residential, educational, public open spaces, sanitary areas, commercial land uses and both existing and proposed roads. However, the updated map shown in Figure 4.6 reveals a different outcome. Table 4.8 presents the various land uses of the base map and updated map and shows the percentage change.



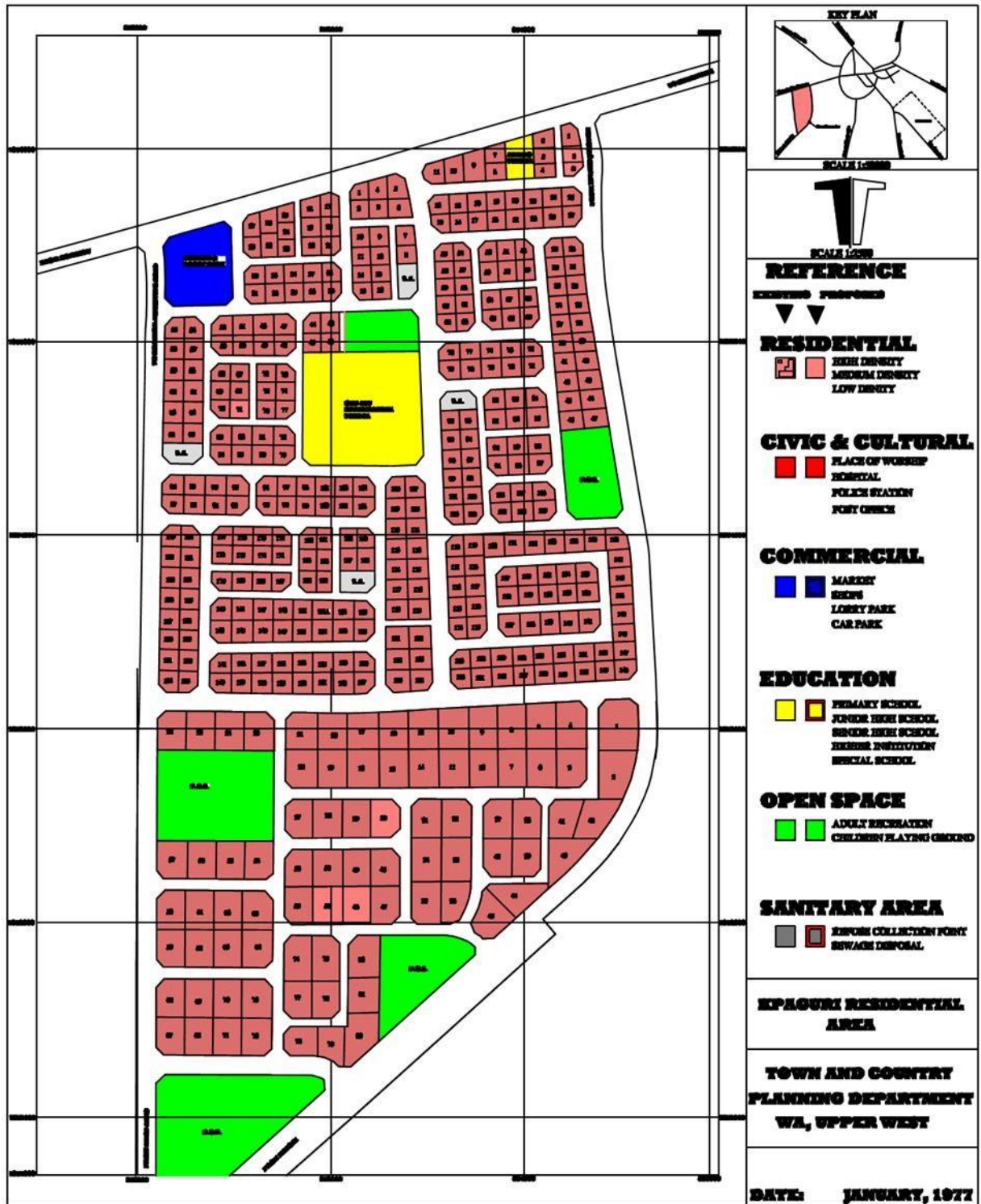


Figure 4.5 Local Plan of Kpaguri Residential Area Source: Wa Municipality, TCPD

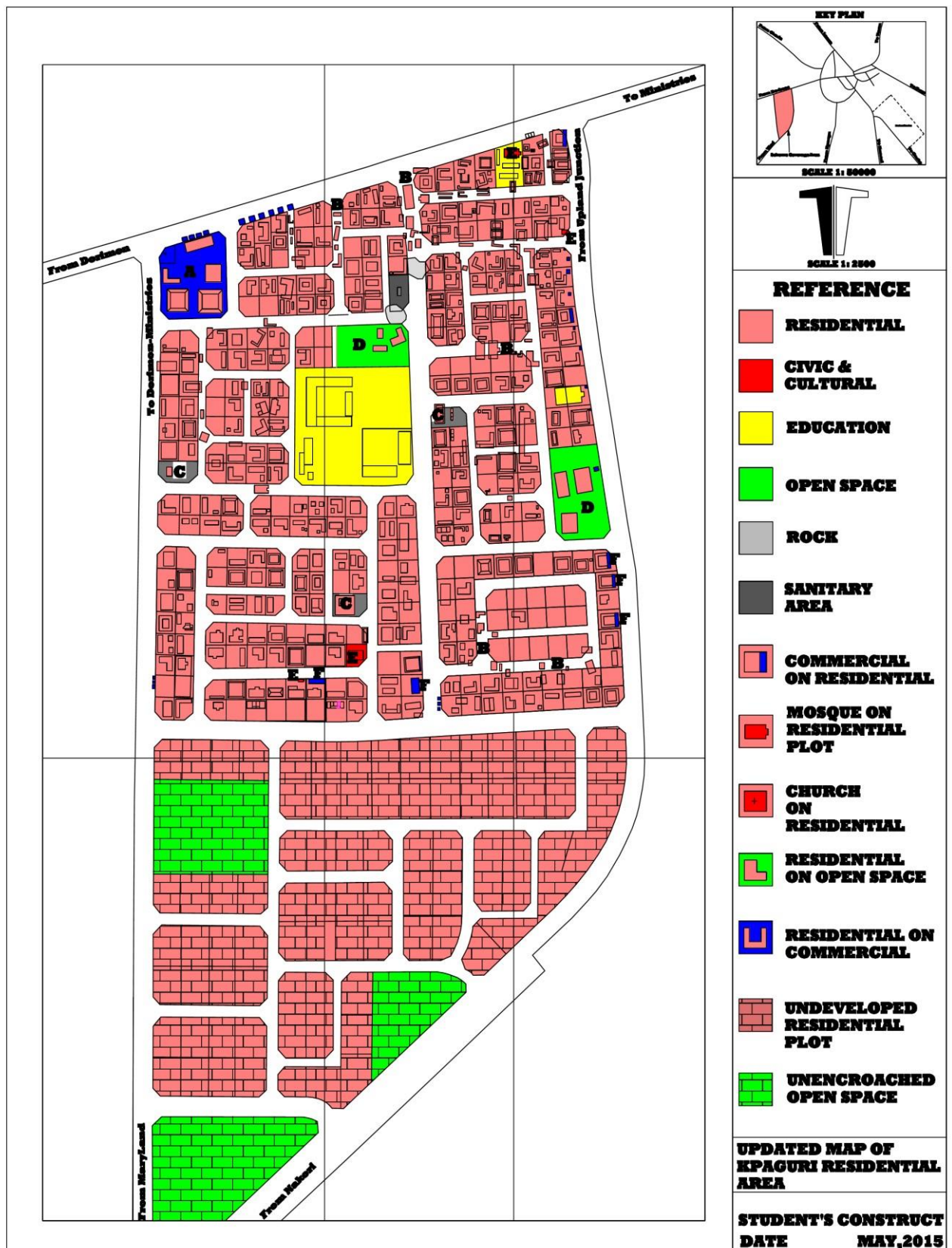


Figure 4.6: Updated Plan of Kpaguri Residential Area Source: Adapted from Wa Municipality, TCPD

Table 4.7: Acreage and Percentage change of land uses in Kpaguri

Land Uses	Local Plan		Updated Plan		Percentage Change
	Acres	Percent	Acres	Percent	
Residential	82.3	55.2	98.5	66	10.8
Commercial	3.3	2.2	0.23	0.15	-0.08
Educational	9.9	6.6	10.4	7.0	0.4
Sanitary Areas	1.8	1.2	0.23	0.15	-1.05
Open Spaces	3.9	2.6	1.14	0.8	-1.8
Civic & Culture	-	-	0.23	0.15	0.15
Roads/lanes	48.0	32.2	38.5	25.8	-6.4
Total	149.2	100	149.2	100	

Source: Author's survey, 2014

The study found that significant pockets of other land uses were completely invaded for housing purposes. For example, a place earmarked for Market and Lorry Park (marked “A”, on the figure 4.6 was characterized by co-existence of commercial and residential land uses on the ground. Another conspicuous invasion of residential land use manifested in the proliferation of buildings on lanes and proposed roads marked as “B”. Examples of this malfeasance include the blocking by residential buildings of lanes separating plot 25 and 8, as well as 17 and 1. The proposed road linking the proposed market and lorry park had been blocked due to residential structures emerging from plot 52 and between plot 47 and 32 therefore preventing the existence of the road. Moreover, glaring change of other land uses into residential in Kpaguri area relates to the conversion of almost all the proposed sanitary areas to residential purposes which is represented by “C” on the map. For example, the proposed sanitary area adjoining plot 92 and 93, 64 and 65 as well as 157 and 158 have been entirely converted to residential land use. Also, portions of all open spaces was occupied by residential buildings marked as “D”. From the updated map, areas marked “F” are commercial land uses mostly in the form of retail shops on spaces demarcated for residential land uses. Residential was the land use which increased in land use from 82.3 acres to 98.5 acres as shown in Table 4.7. This was because of the increase in demand for housing accommodation in the Municipality. Clear evidence of the changes in land uses is presented in figure 4.6 above.

Another important feature is the emergence of civic and culture land use on the updated plan of the study area. On the local plan prepared for Kpaguri, there was no area zoned for civic and culture uses however, the evidence appeared differently on the ground. On the updated plan which is marked as “E”, civic and culture occupied 0.23 acres (0.15% see table 4.7) of the total land area. This was because some residential plots had been converted to mosque and a

Pentecostal church. Educational land use increased from 6.6 percent to 7 percent with a percentage change of 0.4 percent because of the establishment of an Arabic school on a residential plot.

Commercial, sanitary areas, open spaces and roads/lanes reduced in land uses on the updated plan because of proliferation of other uses on zones earned for these land uses. From table 4.8, commercial land use constituted 3.3 acres (2.2%) on the local plan but reduced to 0.23 acres (0.15%) on the updated plan. The reduction of commercial land use was as a result of the construction of residential buildings on part of a zone earned for lorry parks and market in Kpaguri. Secondly, areas demarcated for sanitary land use reduced from 1.8 acres to 0.23 acres on the updated map which was as a result of complete encroachment of residential buildings on the ground. Open spaces also lost (from 3.9 acres to 1.14 acres) to residential.

In Kpaguri residential land use invaded majority of other land uses and all these changes occurred without the permission of the Town and Country Planning. According to one of the planning officials, these were encroachments as a result of some land owners selling vacant public lands.

Further analysis of the physical development in Kpaguri presented in figure 4.6 also revealed that apart from the changes in land uses, it was also found that about 50 buildings were not placed within their subdivisions. Most of such buildings had extended to lanes, spaces for proposed roads and other plots hence also reducing the total acres for roads and lanes. This gives an indication that in the study areas, space reservations were not properly observed in scheme areas. Finally, from the findings, it can be deduced that there is a clear picture of nonadherence of the local plan in Kpaguri due to the fact that several changes occurred in the updated map defying what was proposed in the local plan.

This happened as a result of the weaknesses identified in the planning process and weak enforcement of development controls. The weakness in the planning process identified was the fact that landowners were responsible for preparing local plans hence influence the entire process by reducing the required size of plots for open spaces in the quest of landowners to make money. This situation is also attributable to Weakness in enforcement of development control (local plan). This is because the availability of the local plans for the neighborhood must be coupled with proper enforcement procedure, to ensure that all physical development that occur are in line with the land use indicated in the local plans.

4.5.2 Conformity with Building Regulations in Kpaguri Residential Area

The study assesses compliance with building permits and space reservations (setbacks). The Ghana National Building Regulations, 1996 (LI 1630), spells out clearly in Part I, Regulation 2 that:

“Any person who intends to erect any building; or make any structural alteration to any building; or execute any works or install any fittings in connection with any building shall apply for a building permit from the district planning Authority of the district where the building or structure intends to be”

Home builders are therefore required to apply for permit and must be granted permission before undertaking construction works. The second aspect is on Part II (Plot Development) sub-part I (Location of building) of the regulations. Specifically Regulation 17 which looks at boundary lines. According to the Ghana National Building Regulations, 1996 (LI 1630); *“Where a building adjoins a lane either at the rear or on the side, the building lines in each case shall be not less than 3 metres.”* Secondly, the front wall of a building shall not be less than 5 metres from the edge of a major road nor 3 metres from the edge of a minor road. In this instance the regulation on minor road was applied.

According to Ripley (2006), implementing mandatory building codes and permit systems is a major step to prepare for natural disaster. Wang (2014) reiterates this assertion by saying that, earthquakes with similar strength in California killed few people than in some developing countries because the state had strict enforcements of building codes and permits among developers. This underscores the importance of compliance to building regulation during natural disaster such as flooding in the case of Wa. Out of the 26 sampled home builders in Kpaguri residential area, about 46 percent applied for building permit while the majority (54%) did not apply for permit before building. This to an extent is a violation of the building regulation among home builders in Kpaguri because it is stipulated that whether a person intends to erect any building; or make any structural alteration to any building; or execute any works or install any fittings in connection with any building shall apply for a building permit. Secondly, from the survey, out of the permit applicants in Kpaguri it was found that only 27 percent of home builders were granted permit. This implies that if the regulation on building permit was effectively enforced, about 73 percent of home buildings houses in Kpaguri would be recognised as unauthorised.

Another assessment of regulations was on setbacks between buildings in Kpaguri Residential area where a total of 40 houses were studied. The study focused on these aspects of the building regulations because according to Gallent & Kim (2001), one major advantage of using stricter building codes is that it could lead to the alleviation of overcrowding and enhance environmental quality. In Kpaguri residential area it was found that about 40 percent of home builders reserved spaces less than 6 metres (1.2m as minimum) while the majority (50%) left space above 6 metres (8.3m as maximum). Additionally only 10 percent of spaces reserved were exactly 6 metres. Judging from the regulation that building adjoins a lane either at the rear or on the side, the building lines in each case shall be not less than 3 metres, it can be concluded that the majority (60%) of building lines in Kpaguri were 6 metres and above. This implies home builders in this area complied with space reservation between buildings for easy access into the neighbourhood especially during disasters like fires.

Further analysis on setbacks between buildings to minor roads within the study area found that with a sample of 20 measurements in Kpaguri most (65%) recorded below 3m, about 10 spaces reserved were exactly 3m while 25 percent were above 3 metres. This indicates that majority of home builders in the study area did not comply with the regulations which stated that, the front wall of a building shall not be less than 3 metres from the edge of a minor road. The implication of this is the fact that vehicles could accidentally run into buildings close to minor roads hence causing accidents and loss of properties.

In Kpaguri residential area out of 26 homebuilders, majority (81%) acquired lands through purchase with the least (19%) through inheritance. Kpaguri residential is a first class residential area and a neighbourhood preferred by most middle class people in the Municipality hence explains why the majority of home builders purchased lands in this study area. The implication is that most home builders in this study area obtained all required documents in relation to purchasing land which forms the basis for satisfying regulation.

However, non-compliance to setbacks was evident in this study area though it had a local plan because building inspectors who are supposed to monitor compliance are weakened with respect to both human and logical constraint. This makes planning ineffective in this study area.

4.5.3 Conformity with local plan in Napogbakole/Tendamba Residential Area

The total population of this study area is 1, 128 with 374 houses. Figure 4.7 shows the major land uses in the local plan of Napogbakole/Tendamba Residential. All land uses on the scheme prescribed what may be done in each zone and what may not be done hence serve as a tool in controlling physical development.

The neighbourhood had experienced a lot of physical development over the decades since the plan was formulated. However, in order to establish whether home builders adhere to local plans or not the output of physical development is compared to what was envisaged for the study area. From the local plan which is updated (figure 4.8) with the physical developments in the study area, it can be deduced that there had been several changes which is discussed subsequently. Table 4.8 below presents statistics on acreage and percentages of land uses in both the local and updated plan with the percentage changes for the study area.



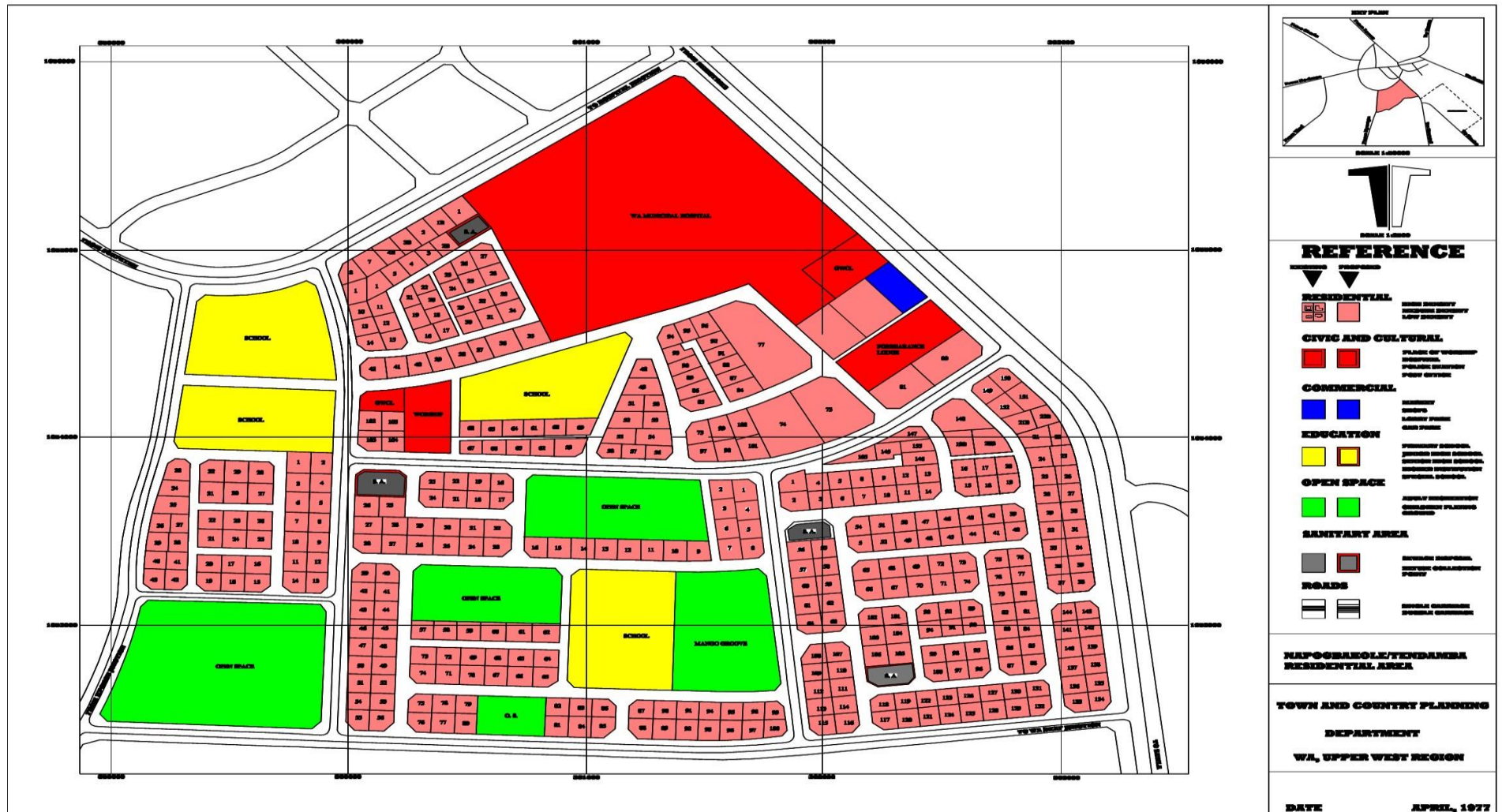


Figure 4.7: Local Plan of Napogbakole Tendamba

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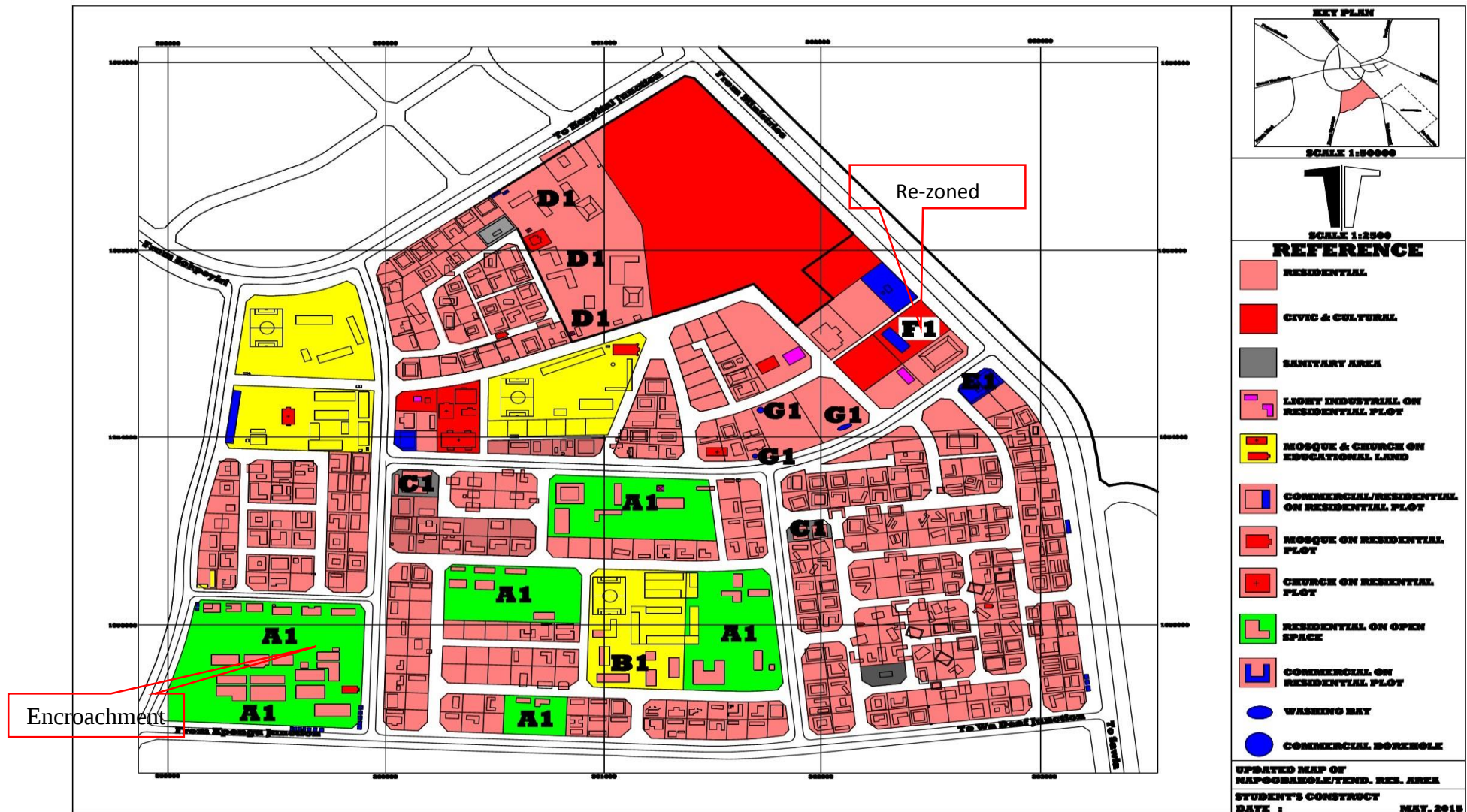


Figure 4.8: Updated Plan of Napogbakole/Tendamba Source: Wa Municipality, TCPD

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KNUST



From table 4.8, it can be deduced that there has been a general change in land uses from the local plan considering the updated plan. However, land uses such as residential and commercial increased in the number of acres while the others reduced. From table 10, there was a 4.8 percentage increase in residential land use because the number of acres increased from 114.8 (39.7%) in the local plan to 128.8 acres (44.5%) on the updated plan. From figure 4.8 (updated plan) it can be observed that parts of the zoned areas on the local plan meant for public open spaces (green) had been occupied by residential buildings marked “A1”, some educational lands (Yellow) had also been used for residential purposes especially the space around St. Andrews School located in the Southern part of the scheme and Anglican Primary and Junior High School in South-Western part of the study area shown as “B1” on the map. Additionally, almost all the spaces demarcated on the plan for sanitary purposes (black) had been taken over by residential development represented by “C1” on the map. This explains why there was evidence of indiscriminate waste in the study area. Another explanation for the increase in residential land use was attributed to the fact that part of the regional hospital (civic & culture) lands had been re-zoned to residential (“D1”) and given back to the landlords because government acquired a different site for the construction of a new regional hospital.

Secondly, commercial land use increased from 0.4 percent (1 acre) on the local plan to 0.9 percent (2.9 acres) on the updated plan due to the areas marked on the map as “E1”, “F1” and “G1”. The increment in land use was as a result of the re-zoning of some residential plots for Excel petro filling station (commercial) marked “E1” due to the site closeness to the WaKumasi road, the re-zoning of a civic & culture land use (forbearance lodge) for Union oil filling station (commercial on civic and culture marked “F1”) and part of some resident plots have been used for home-based enterprises, washing bay and the construction of a commercial borehole to earn a livelihood (G1). According to the Town and Country Planning Official interviewed, the two filling station change in land use were regulated and permits were acquired which imply the owners applied for re-zoning which was granted. The other changes could be described as encroachment. Figure 4.8 presents a vivid picture of the changes in land uses as discussed.

The study found that there was a decrease in civic & culture land use from 10.2 percent to 8.3 percent due to the re-zoning of portion of the regional hospital land to residential by the TCPD. Though some portions of residential plots have been used for mosque and a Pentecost church, the change was quite insignificant as compared to what had been lost. Another land use which reduced was the spaces demarcated for open spaces which changed from 10.6 percent (30.8

acres) to 8.4 percent (24.3 acres). This was because all the open spaces were encroached for residential buildings. Open spaces are left unprotected by the Assembly therefore lands lords are usually tempted to sell these vacant land for prospective home builders due to higher market value in the built area. There was a -0.3 percentage change in sanitary areas because one of the four areas demarcated had been re-zoned into residential land use while another had been encroached. Educational land use was also reduced because from figure 9, parts were used for commercial activities, a mosque and a church without permits. However, the change was on a Presby school land while the mosque existed on Kabanye English/Arabic school land. Proposed roads and streets were also taken over mostly by residential land uses therefore contributed to a reduction as well.

From the analysis above, it can be deduced there was non-compliance with local plan of Napogbakole considering the physical development on the ground. This is because all the land uses changed either by increasing or reducing in acreage. Though on the local plan of Napogbakole, there was a “place for everything” just as in the case of Kpaguri residential area, on the ground everything was not in its place hence defying the objective of the local plan.

Table 4.8: Acreage and Percentage change of land uses in Napogbakole/ Tendamba

Land uses	Local Plan		Updated Plan		Percentage Change
	Acres	Percent (%)	Acres	Percent (%)	
Residential	114.8	39.7	128.8	44.5	4.8
Commercial	1.0	0.4	2.9	0.9	0.5
Educational	24.9	8.6	24.4	8.4	-0.2
Civic & Culture	29.6	10.2	23.9	8.3	-1.9
Sanitary Area	1.8	0.6	0.9	0.3	-0.3
Open Spaces	30.8	10.6	24.3	8.4	-2.2
Roads/Lanes	86.3	29.9	81.7	28.3	-1.6
Total	289.2	100	289.2	100	

Source: Field Survey, 2015

4.5.4 Compliance with Building Regulations in Napogbakole/ Tendamba

Give us the total housing and total population before you start; do that to all the four areas

The study with respect to complying with applying for building permit found that in

Napogbakole, majority of home builders constituting 62.5 percent did not applied for building permit while only few (37.5%) appllied for permit before building. This finding however provides an indication of non-adherence of the building regulations because all home buildings in this neighbourhood had buildings yet the majority never applied for building permit. Yet considering the regulations, application of permit is paramount and applies to any person who intends to erect a building or make structural alterations.

From the study, unlike in the case of Kpaguri, findings on spaces between buildings in Napogbakole/Tendamba was different. From a sample of 60 measurement of spaces between two buildings, it was found that the majority (62.5%) were below the required 6 metres, about 15 percent of spaces reserved were exactly 6m while above 6 metres recorded 22.5 percent. This shows that the majority of home builders did not comply with regulation because most (62.5%) of spaces were below the requirement with the least observed and recorded space of 0.5m. This finding implies that in Napogbakole, there would be serious concerns about emergency situations and ventilation issues because according to Payne and Majala (2004), though regulations such as setbacks from the side or rear of residential plots do not enable residents to fully develop their plot, such standards might be based on the concern of emergency situations such as fire hazards and ventilation issues.

According to the Municipal Building Inspector and a home builder interviewed, majority of space left between buildings were below the minimum requirement of 3 metres in each case because land is a scarce commodity which home builders are bent on making maximum use of and therefore leaving a dimension of 3 metres of land is sometime they cannot afford. Additionally, during an interview with the Building Inspector, he narrated why a lot of spaces between houses are below the minimum requirement in the building regulations as follows;

“it is difficult to ensure home builders adhere to standards like this because most developers don’t apply for permit before building. It is even difficult to enforce the regulations on the few who apply for permit before they develop because we the Inspectorate Unit are to visit the site before construction, during construction of every phase of the building and after construction to ensure that what was indicated in the plan is actually what is done on the site especially in relation to the use of building materials and the space reservations but then we are only two people with one

motorbike in charge of the entire Municipality so is not possible to supervise constructions”

In Napogbakole out of the 40 measurement recorded, close to 72.5 percent of spaces reserved between buildings and minor roads were below 3m. Exactly 3m was 7.5 percent spaces recorded and above 3m was 20 percent. Also, from the statistics it can be concluded that regulations of leaving a minimum of 3 metres between a building and a minor road was not also complied among the home builders in Napogbakole/Tendamba because only 27.5 spaces reserved were 3m.

The study found that, to an extent home builders from both Kpaguri and Napogbakole Residential areas did not comply with local plans and building regulations on setbacks and permit application therefore distorting the orderly development envisaged for the two study communities. However, face to face interview with the Building Inspectorate Division disclosed this *“Unfortunately in reality, much has not been done in enforcing building regulations and standards in the Municipality. This is as a result of the fact that, the entire Municipality have only two Building Inspectors who are expected to monitor each construction before, during and after apparently that is way beyond our capacity”* Therefore home builders do what they want once they acquire land (Building Inspectorate Official). This however have consequences on the built environment.

The above analyses shows that violations of the Local Plans were generally common in all two study areas with severe socio-economic and environmental effects such as congestion, high rate of crime, disasters such as fire outbreaks which were not arrested in time among others the lives of the people. This was attributed to the ineffective enforcement by the responsible institutions. For instance, the conversion of the sanitary land use to house the residents marked “C1” in figure 4.7, have translated into indiscriminate disposal of solid waste in the area. The ultimate effect is the insanitary nature of the area that serve as health risk for the inhabitants. Evidence of indiscriminate disposal of solid waste on a residential plot is presented in Figure 4.9

The invasion of proposed roads and pavements reduces accessibility within the area. In the event of fire outbreak, the area is likely to record serious damage since channels for accessibility by fire fighters is traded off by individual egoistic gains. This can lead to a drain on the Assembly’s resources for relief and recovery, and frustrate development efforts. Figure

4.10 provides example of inaccessibility in one of the study areas while figure 4.9a presents a vivid picture of solid waste disposed on a residential plot.



Figure 4.9: Solid waste on a residential plot



Figure 4.10: Poor access in a residential area

4.5.5 Physical Development in Study areas without Local Plans

Due to the fact that Limanyiri is an indigenous neighbourhood, lands acquired was mostly based on inheritance. This area had no local plan but housing development is best described as housing transformation specifically extension of already existing houses. New family members develop new buildings by simply extending existing ones, therefore in their opinion there was no need for the acquisition of permits before physical development which is a deviation of what is required in the national building regulations. In Bamahu, land acquisition is the most important aspect of building and once that was obtained, physical development begins without any due considering to what is referred to as public interest. However, due to the absence of a control tool in this neighbourhood, planning officials are not capable of enforcing strict regulations.

In Ghana planning layouts are prepared for either old parts of towns for the purposes of regeneration/revitalization, redevelopment, urban upgrading or urban consolidation. Limanyiri can be categorised as an old part of Wa because it is one of the indigenous neighbourhoods and required a planning layout for redevelopment. On the other hand, Bamahu, fit in the category of developing part of town which have begun to develop and has no scheme. From the above categorization, Bamahu and Limanyiri are supposed to have local plan as the basic tool to control physical development

Bamahu has a population of 3, 448 with 108 houses. There is poor accessibility in the neighborhood. There is only one feeder road in addition to the major road that passes through the neighborhood (indicated as “Y” on figure 4.12). This coupled with lack of clearly defined access lanes pose accessibility challenge within the neighborhood, particular for vehicle owners and motorists. There are no access routes to even public places such as the Bamahu clinic in the area so currently undeveloped plots are used as access routes to the clinic and properties in this part which is the western part of the Community.

In addition, commercial structures such as kiosks and stores have sprung along the major road. There are also small scale food venders selling different types of foods along the road. Similarly, the downtown area of the neighborhood are cluster of stores selling mostly convenience and complementary goods taking advantage of the existence of students. The general environmental condition of the area is bad. Pockets of undeveloped lands within the neighborhood are recognized as avenues for open defecation and indiscriminate refuse dump sites. Similarly, increasing use of pure water has resulted in proliferation of plastic wastes all over the area.

An The strange finding was that, about 14.3% home builders applied for building permit in Bamahu however, an interview with the planning official suggested that it was not possible for home builders from areas without local plans to apply for permit. He emphasised that:

“Some friends applied for permit and approached me to assistant in granting the permits in areas like Bamahu and I tell them is not possible because such areas have no scheme but they applied for permit thinking they could use their friendship with me to bend the rules in their favour which didn’t work.”

This narration is what justified the few who applied for permits in in an area without scheme. This shows that in an attempt to comply with regulations, developers turn to illegal means to get authorities responsible for enforcement to turn a blind eye (Payne and Majale, 2004). In this situation, home builders in Bamahu expected to use their social capital (friendship with planning officials) to obtain building permits which was not possible.

As a planning official lamented that *“A badly planned area is far better than an unplanned area, Bamahu is an example and I tell you that what we see now will be worse off in the next 10 years because that area has no scheme”*

The resultant effect is that development in this neighbourhood is not regulated therefore orientation of buildings is left to the discretions of masons and home builders, buildings spring up anyway and there are no roads or access roads for vehicles as shown in the aerial photo shot from google earth (figure 4.12) and picture taken during the study (figure 4.13).

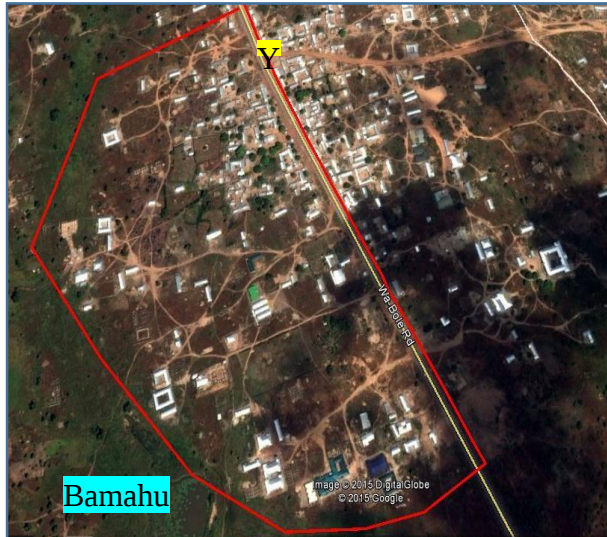


Figure 4.11: Aerial View of Bamahu (As taken from Google Earth)



Figure 4.12: Physical Development in Bamahu (as taken during field survey, 2015)

Limanyiri is located at the Central Business District (CBD) of Wa Municipal as seen in figure 4.1 with a population of 1, 275 with 60 houses. Limanyiri is unanimously believed to be the first area in Wa where the first settlers of the land dwelled, hence the location of Wa-Naa Palace in this suburb. The community is inhabited only by the indigenous people (natives) themselves and the houses found in this area are made up of family houses. Since the community is inhabited by natives from one descendant or ancestor, access to land in the area is by virtue of inheritance from relatives. Besides, due to its location at the Central Business District, there is no land or open space currently available for acquisition, sale or development.

Building arrangement in Limanyiri can be described as nucleated. The study area has no local plan for controlling development as buildings and other structures were already developed before the introduction of planning schemes in the Municipality. As a result, buildings (houses) are developed very close together in a nucleated form with limited spaces between them as illustrated in figure 4.13. This is because, originally the ancestors who first settled in the area built their homes (houses) very close together for companionship, service sharing and for safety and security (to protect themselves against enemies and wild animals). Because it has been impossible to enforce building regulations/standards like setbacks and to grant building

permits, current development which is more of extensions continue to be nucleated in nature taking advantage of very little space. This area was also described by one of the respondents as *“We have built like one compound without spaces between us making it impossible to enter your property without entering in someone else’s own”* (home builder, Limanyiri).



Figure 4.13: Congested houses (Building Arrangements) in Limanyiri

The congested nature of the area makes the distribution of utilities such as water and electricity a challenge in the community as there are no or limited spaces between them. As a result of that, the community are only served with boreholes and external stand pipes sited at the far ends of the community. This is because there are no spaces between buildings to extend pipe lines to individual houses in the community.

Besides, most parts of the community are connected to the national grid without the use of poles. That is electricity is extended from house to house without the use of electrical poles. This is done because houses are built very close together (nucleated, crowded and compacted building) with little or no spaces to erect electrical poles for effective wiring and supplying electricity to houses in the community. Also, most houses in the community lack basic facilities such as toilets and baths. This is because most houses lack spaces to construct such facilities hence, 83% of the inhabitants depend mainly on public toilet facilities the far ends of the community.

Most of the buildings (96%) in the area are in the form of crowded compound house buildings. They are built with landcrete and its external parts cemented and roofed with zinc.

The survey revealed that most of the buildings (houses) in the community were constructed years ago, hence their structures and roofs are in deplorable states that need maintenance or renovation. It is however common to see buildings in the community built with landcrete and blocks. This is because most of the buildings (houses) are compound houses which are owned collectively by family members and as such members with high income break their parts (landcrete) and replace that with blocks and new zinc.

The major challenge confronting Limanyiri is getting access into and within the community. The community lack roads due to the nucleated settlement pattern. Houses are built very close together without spaces for commuting. Hence inhabitants only move in and within the community by foot, bicycle and motorcycles. Currently, vehicle can't get access into the community due to lack of roads and residents who own vehicles normally park them along a road that serves as a boundary at the eastern end. The road is normally filled with vehicles in the evening serving as a parking lots for the inhabitants. Besides, some residents who own motorcycles can get access to their houses and has to be keeping them with friends and relatives who live close to the main road. The settlement pattern in the community is a major safety concern because in times of fire outbreak, most parts of the community are likely to be destroyed (burnt) completely as there are no or limited spaces between building and roads for fire service intervention.

Though Limanyiri is situated at the Central Business District in Wa municipality, there is no major commercial land-uses or activities in the community. All lands in the community are used for residential purposes. No shops are located within the community as there are no spaces to put up such structures. However, most residents are engaged in commercial activities in the community. They travel to the central market daily to conduct their business and return. Others also have their shops located along the main road serving as a boundary at the eastern part of the community, hence residents who need certain provisions have to walk to the road side before getting access to some retail shops. Generally, Limanyiri can be described as a slummy community with poor housing conditions, poor access roads, and with limited access to facilities and utilities. As a result, there is the need to take cognitive measures in the community to help improve the living environment.

However in Limanyiri, from the survey the study found that no (0%) home builder applied for permit. This was attributed to the fact that most of the buildings were constructed before the

introduction of local plans to guide development in the Municipality. Secondly though housing alterations and extensions require building permit, home builders were ignorant about that. This conclusion is derived from some of the reasons provided by home builders in Limanyiri for not applying for permit. Some home builders stated clearly that they had no idea they had to apply for permits with others that they simply continued their fathers building so they did not need permit while others mentioned the land on which they build or extended was family property and the first person to build on it had no permit so was not necessary for them either.

Findings on sources of land acquired for building in Limanyiri showed that, majority (63%) of home builders acquired lands through inheritance, 21 percent through purchase while 16 percent was through gift. Limanyiri shows quite a unique finding with most lands obtained through inheritance. However, this was as a result of the fact that it is one of the indigenous communities and most of the youth are still reluctant to purchase lands in other neighbourhoods to develop since the existing land were inherited and passed on from generation to generation. Majority of home builders acquiring land through inter-generational transfers (inheritance) sometimes possess difficulties in attempt to apply for building permit. This is as a result of lack of documentations required to apply for permit which is usually absent with transfer of properties like land to subsequent generations hence supports OwusuAnsah & Braimah (2013) findings.

The study found that, in areas without planning layout/schemes, it has been impossible to enforce building regulations/standards like setbacks and to grant building permits hence that had reflected in the haphazard nature of physical development that was observed in Bamahu and Limanyiri. An official lamented that *“A badly planned area is far better than an unplanned area, Bamahu is an example and I tell you that what we see now will be worse off in the next 10 years because that area has no scheme”* (Planning Official). To authenticate this finding a recent aerial photography (2015 version) and a pictures of Bamahu and Limanyiri showing how haphazard and congested these areas without schemes are viewed and observed during the field study are presented below. The pictures 4.14 and 4.15 of Limanyiri provides a vivid outlook of how haphazard development in the neighbourhood is with lack of access to properties which poses danger to home builders especially during disasters like fire and flood. Bamahu, however, is not yet congested because it is a new developing area but then from the pictures it can be seen that buildings are constructed haphazardly and without roads.



Figure 4.14: Aerial View of Limanyiri



Figure 4.15: Compact development in Limanyiri

4.6 Capacity Assessment of Planning Institutions in Wa Municipality

Section 52(1) and 64(5) of Act 462 empowers the planning authority to prohibit, abate, alter, remove or demolish unauthorised developments and recover any expenses incurred in such an enforcement exercise from the developer. Also, section 52(3) of Act 462 empowers the planning authority to issue an enforcement order demanding an immediate stoppage of unauthorised development. However, the above analyses has shown that Local Plans and building regulations were generally not adhered therefore resulting in unauthorised and haphazard physical development outcomes in the study area. Additionally, it was found that unauthorised buildings are ignored by the Town and Country Department and the Building Inspectorate Division because of the “human face” in planning. Some officials have the opinion that everything is difficult especially the economy so when an individual toils and struggles to put up a building and the only offence is because he has no permit, officials are expected to find a way around the non-compliance rather than demolishing. According to some officials from Lands Commission and TCPD, the only grounds to demolish in the Municipality is if only the land encroached belongs to another person or is a government land.

Secondly, the Assembly lack the political will to enforce regulations. There was a perception among the builders, even among the highly educated and politically connected ones, that the laws governing physical development did not apply to them. A frustrated planning officer lamented that : *“I know of some politicians in this Municipality who developed without permit but if am to stretch this issue, the next day OA a transport service company operating Wa-Kumasi-Accra would come with a transfer letter from Accra or the worse is that i will get a*

call to vacate post so why bother”. According to the Planning official there have been instances where two hotels in the Municipality developed without permit but nothing was done because the Municipal Chief Executive interfered and stopped the Planning Unit from insisting they produced permits.

The success of every planning activities lies strongly with the institutions that carry out planning functions. Based on this background the study explored the human, logistical and technical capacity of institutions responsible for managing physical growth in the Municipality. In as much as the fragmented land ownership in the Wa Municipality is one of the constraining factors to ensuring orderly development, institutions such as the TCPD, Lands Commission specifically survey and Building Inspectorate who are to manage lands and control physical development are lacking adequate capacity to match up with development as well in the Municipality. This finding is not peculiar with this study but several other research by Yahya et al (2001), Tipple (2001), Payne & Majala (2004), Dissanayake (1989), Mila (2006), Sheuya (2004) and Obabori et al (2007) in separate studies indicated that local government are weaken in a number of aspects including inadequate revenue, quality of staff, logistics and adequate staff to aid in managing physical growth hence affect enforcement of planning regulations. This conclusion is derived from the institutional capacity analysis revealed during the study among all the institutions interviewed. Limited resources in the form of personnel and logistics revealed is a course to worry about the future of planning in the Municipality because according to Yeboah & Shaw (2013), the quality and quantity of human resources responsible for managing the planning process accordingly has consequences for planning processes.

4.6.1 Town and Country Planning, Building Inspectorate and Lands Commission

The Town and Country Planning Department is the main body responsible for orderly development by ensuring that Local Plans are prepared to guide physical development in their area of jurisdiction and to ensure that every structure whether permanent or temporal have the permit to be constructed. Lands Commissions with its respective divisions are responsible for managing land, Building Inspectorate Unit is to ensure that home builders adhere to regulations in physical development while the Customary Land Secretariat keep upto-date records on land owners and land transactions in the study area. However, it can be said that much has not been achieved in the various responsibilities of these institutions because of a limitation in the human resource capacity in these institutions. This is a problem to the various institutions because Alluko (2011) and Rizwan & Obaidullah (2006) argued that, there is general lack of dedicated

and competed staff to enforce regulations therefore, planning authorities always compromise on illegal structures which is much evident in the Municipality.

The study found that, all the institutions responsible for managing physical growth in the Municipality require a total of 49 professionals to carry out their responsibilities effectively but currently just half (24) exist. TCPD has only one Town planner and two technical officers currently responsible for the entire Municipality. Implying that only one planner is expected to visit proposed sites to ensure land uses proposed in permits conform to what is zoned in schemes and carry out other functions such as spearheading the preparation of schemes in other areas which is highly impossible because the Municipality require 7 extra personnel (4 planners and 3 technical officers). Building Inspectorate is the basic unit at the local level in enforcement of development controls. According to the Local government Act 462 section 53, the District Assembly is mandated to “....*prohibit, abate, remove, pull down or alter so as to bring into conformity with the approved plan, a physical development which does not conform to the approved plan*” In the Wa Municipality, The Building Inspectorate is charged with the responsibility of ensuring that this section of the Local Government Act is carried out effectively to ensure orderly development. However, the study revealed that the Building Inspectorate Unit is highly impossible to enforce regulations because of the strain on their human resources. The entire Municipal Unit has only two building inspectors yet required 5 Building Inspectors for effective supervision of constructions but presently have less than what is required. The building inspectors are required to visit the site before construction begins, during construction and after a building is completed to ensure that building standards are adhered but such responsibilities cannot be carried out by only 2 professionals. Findings on human resource strength of Lands Commission is not different because there is inadequate staff as well. The entire Commission require division required a total of 32 staff to effectively manage lands, prepare land documentations, site plans and other responsibilities. The existing staff is only 18 leaving a backlog of 14 staff for the Survey and Mapping Division and the Land Valuation Division. Table 4.9 shows the human resource strength of the institutions responsible for managing physical development in the Wa Municipality.

Table 4.9: Human Resource Strength of Planning and Land Institutions

Institution	Position	Existing	Required	Backlog
TCPD	Planner	1	5	4
	Technical Officers	2	5	3
	Total	3	10	7
Building Inspectorate Unit	Building Inspectors	2	5	3

	Total	2	5	3
Lands Commission	Survey	6	10	4
	PVLMD	7	7	-
	Land Valuation	5	15	10
	Total	18	32	14
All Institutions	Total	23	49	24

Field Survey, 2015

4.6.2 Quality of Human Resource

The problem with the human resource in the various institutions is not only the inadequacy but also the quality of planning and land sector professionals. According to Yeboah & Obeng Odoom (2004), to be effective, one requires the ability to respond to growing societal challenges and a good understanding of socio-cultural, demographic and cultural issues to be competent in their analysis. To man a Municipality, a Planning Officer is expected to have the qualification of a master's degree but the planner is currently a degree holder. The Municipal Building Inspectors level of qualification is diploma certificate while the minimum requirement is a bachelor's degree. Except for PVLDM staff of Lands Commission who all had the required qualification of a bachelor's degree, the remaining staff in Survey and Land Valuation all lacked the required qualification. This implies that almost all the professional staff of the various institutions studied lacked the required qualifications for their positions which can be problematic in analyzing, understanding issues and designing strategies to address contemporary issues. This finding confirms Dissanayake (1989) studies which indicated that no matter how appropriate plans and regulations are, little can be realized without suitable qualified staff to ensure enforcement. A planning officer account of this problem is revealing:

“Required qualifications to man a Municipality is at least second degree in planning for the planner or with long service experience. Currently the Municipal Planner is a degree holder and the technical men must have at least an HND certificate. When their qualification is too low they become untrainable hence you happen to have human beings but you do not have people to effectively carry out their duties as expected”.

Table 4.10 present's staff qualification both existing and required for the institutions understudied.

Table 4.10: Existing and Required Qualifications of Staff in Institutions Studied

Institution	Position	Existing Qualification	Required Qualification
TCPD	Planner	First Degree	Masters
	Technical Officers	HND And Certificate	HND
Building Inspectorate Unit	Building Inspectors	HND	First Degree

Lands Commission	Survey	HND	First Degree
	PVLMD	First Degree	First Degree
	Land Valuation	Diploma	First Degree

Source: Field Survey, 2015

4.6.3 Assessment of Logistics for Institutions

Obabori et al. (2007) also shares the view that, every effort should be made to have adequate and replace obsolete logistics and equipment in various departments and units with new and up to date type to enhance productivity, save time and improve the quality of end results. With respect to logistics, the Town and Country Planning Department currently have one vehicle and it is interesting to state that the one vehicle is used by all four planners in managing eleven (11) district. Town Planning required 5 vehicles but the existence of only one implies that little can be done because if a planner needs to go to the field and the vehicle is occupied by another, then one must postponed work till the vehicle is accessible. Building Inspectorate Unit is challenged with a similar situation with inadequate logistics. The entire Municipal Unit had only one motor bike but required 5 vehicles and 2 motorbikes for regular site inspection. Apparently, the Inspectorate Unit is also unable to carry out their responsibilities in the Municipality as expected due to the limited number of logistics at their disposal. An official revealed that

“Building inspectorate do not have personnel or logistics to enforce regulations they are only two with one motor bike so anytime you see stop work notice then either the home builder wrote it or the Building Inspector had an intrinsic interest” (Planning official). An official from the Building Inspectorate also in support of the view of the Planner, narrated his frustration as follow; *“There are no vehicles at all for monitoring with one motorbike so is even not possible to do any effective site inspection because buildings spring up every day here in Wa”*

(Building Inspectorate Official).

Land Commission required 18 laptops, 5 digital theodolites and 6 GPS receivers to effectively function with a backlog of 3 theodolites, 3GPS receivers and 17 laptop. The inadequate logistics revealed from the backlogs identified indicates that, Lands Commission especially the Survey Division are unable to provide satisfactory services to clients which is resulting in the use of fake surveyors in preparing site plans. Finding on inadequate logistics in all the institutions responsible for managing physical growth does not deviate what was found by

scholars such as Dissanayake (1989) and Musogo (2001) that a country can be sure of orderly development if there is effective and qualified human resource with the appropriate logistics. Indicating that these two are prerequisite for ensuring orderly development which are both inadequate in TCPD, Lands Commission and Building Inspectorate Unit hence possess the question as to whether much can be achieved in ensuring orderly development in the Wa Municipality.

The study on resource assessment of all the institutions studied revealed weakness in the strength and quality of the human resource base and logistics needed for effective enforcement of development controls (Local Plans, Building standards and permits) in the Municipality. This finding also confirms a study by Tipple (2001) and Payne and Majale (2004) that in order to effectively enforce building regulations and standards it takes political will and resources which is sometimes problematic in developing countries especially with respect to adequacy of personnel and logistics. However, human resource and logistics in institutions are crucial in set objectives because Milla (2006) explained that London was ranked and has maintained first place among successful cities due to availability of qualified staff.

4.6.4 Funding

Funding was found to be a major problem across all the institutions studied. In fact, the Town and Country Planning Department lack of funds is the genesis of the mess in physical development. This is due to the fact that, the Assembly is unable to release funds to prepare Local Plans hence resulting to landowners financing the process and dictating the pace. With respect to the Building Inspectorate, they solely rely on Internally Generated Funds of the Municipality which was described as “always empty” hence difficult to request for funds for fuel and paint for monitoring. Lands Commission use to receive funds from their mother institution directly on monthly basis but these funds are not regular and sometimes major activities must be on hold till funds are received. According an official from Lands Commission, delay in release of funds for the commission is likely to get worse because unlike before when the funds was released from headquarters of Lands Commission for the local level, now the Ministry of Finance is responsible for release of funds and the bureaucracy involved would delay funds from reaching the lower level on time.

This implies that generally, all planning and land sector agencies are financially constraint which affect enforcement of regulations in the Municipality. Funding as a problem was already

detected by Sheuya (2004) who noted that local governments are weak in a number of aspects including inadequate funding to manage physical growth in Tanzania. Studies by Gardner (2007), Musogo (2001), Yeboah and Obeng- Odoom (2010) and Obabori et al (2007) all argued that another important factor which can influence enforcement of controls positively or negatively is financial resources. In this study, inadequate financial resources influence enforcement negatively because TCPD are unable to prepare Local Plans for all neighbourhood to guide physical development, Building Inspectorate lack funds to purchase paint and fuel for regular inspection of buildings with or without permits and Lands Commission inability to prepare site plans on time for all clients are all contributory factors to haphazard development in the study area.

4. 7 Social Factors that influenced Adherence to Development Control

It must be noted that there are other factors that influences people's adherence to development regulations. Baffour-Awuah & Hammond (2014) indicated that the mere existence of policies, rules and regulations is not a guarantee that prospective developers would comply to these regulations. Furthermore, Jowel, (1975), Davis (1980), Yahya et al, (2001) and Sheuya, (2004) also indicated that the non-adherence of development controls has been attributed to several reasons. Based on these statements, the study researched into some other social factors that possibly influence adherence of building regulations by developers.

4. 7.1 Place of Origin and Application for Development Permit

The study revealed there was relatively low interest in applying for permits among the natives than in-movers. From Table 4.12, close to a half of the natives (50%) applied for permit before developing while 76.2 percent of in-movers applied for permit. An in-mover asserted in an interview during the data collection process that they do apply for permits because they feel that is the only way they can safeguard their land, and have a sense of security over their properties. This findings support a study by Boamah et al. (2012) which indicated that nonadherence to building permit regulations among indigenes is high. This he attributed to their claim that they owned the lands and therefore there was no need to apply for them to apply for permit before constructing a building. However, a common reason realised from the field survey for non-adherence to building permit was the fact that most of their developmental activities took the form of either altering or extending an already existing building. This increases the propensity of continuous haphazard development among indigenes. The results

of Chi-Square Statistical Test showed that $X^2(1, 200) = 11.271, P = .000 (P < .005)$. This implies that there was a significant relationship between origin of home builders and adhering to building regulations. This therefore is an aspect to be considered in planning to achieve orderly physical development. Table 4.11 below gives a summary of place of origin and application of permit before developing.

Table 4.11: Origin of Respondents and Application for Development Permit

		Apply for Permit before Developing?				Total	%
		Yes	%	No	%		
Place of Origin	Native	70	49.6	71	50.4	141	100
	In-Mover	45	76.3	14	23.7	59	100

Source: Field Survey, 2015

4. 7.2 Level of Awareness on Planning Regulations

According to UNCHS (2008) and Arimah (1997), lack of awareness of planning regulations is a challenge in enforcement of development controls. However, the study found that there was an appreciable level of awareness among home builders in the Municipality regarding to issues of building permits. The majority (75%) homebuilders indicated that they were aware of issues related to building regulations, particularly the securing of a permit before building. The finding still conforms to what was revealed in a study by Boamah et al (2012) that there is very high level of awareness on building regulations and permits among home builders. All other things being equal, there would be compliance with regulations in the study area because majority (75%) of home builders are aware of building regulation meanwhile, Payne and Majala (2004) revealed that lack of awareness of planning regulations is a prominent reason for low compliance which is non-existence in the Municipality. However, during the face to face interviews, an official of the Lands Commission contradicted the views expressed by the homebuilders when he said that,

“People build without permits, people build without documenting the land and sometimes is not because they do not want to do the right thing but ignorance. In my opinion there are still a lot of people who are not aware they need to acquire permit before they build. Their mind is that ones you acquire the land and process the lease then you can start to develop it.” (Lands Commission).

From the analysis, it can be deduced that the problem of homebuilders ignoring regulations might not stem solely from lack of awareness on development permits, but also from the fact

that they do not understand why they need to apply for these permits. This statement confirms a conclusion made by Arimah & Adeagbo (2000) that there was low compliance with regulations in Nigeria despite high level of awareness among prospective developers.

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CHAPTER FIVE

SUMMARY OF MAJOR FINDINGS AND CONCLUSIONS

5.1 Introduction

Several scholars (Pogbekuu, 2007; Aribigbola, 2008; Yeboah & Obeng-Odoom, 2010; Owei et al., 2010) have shown that the land factor contribute immensely to planning and development control outcomes. It is therefore notable that this study also has further contributed to the body of knowledge and literature on land tenure system and development controls. The study further explored human, logistical and technical capacities of institutions which manage physical growth and further analysed the compliance of physical development processes

This present chapter highlights the major findings based on the research objectives in the previous chapter. The chapter concludes by outlining recommendations on how physical planning and development controls can be strengthened in the light of the customary land ownership practiced in the Wa Municipality.

5.2 Major Research Findings

This research have demonstrated that generally, local plans have not been prepared for all the neighborhoods in the municipality and where local plans were available, home builders do not adhere to the mechanisms used (local plans and building regulations permits) to control physical development.

5.2.1 Compliance with physical planning/Development Process and Local Plans

The objective was to assess the levels of conformity to the physical development process, the local plans and aspects of the building regulations. The study revealed that, the public stakeholder consultations and mandatory display of the plan for public comments were ignored by the planners. Local plans were only presented for comments at the Technical SubCommittee. Finally, local plans were hardly reviewed every five years in order to facilitate the incorporation of emerging changes in the existing physical plans.

The study also found that obtaining legal land documentations and acquiring building permit before developing were being viewed by homebuilders as the most frustrating stages in physical development process, which contributes to them usually been ignored. The least worrying stage to home builders was actually the final stage of satisfying building standards for occupancy permit.

Land documentation process and permit application were usually abused by home builders because the waiting time often goes beyond the ninety (90) days and consequentially increasing the cost involved in acquiring the documents and building materials.

The major finding is that in some areas there were local plan to control physical development. However, existing physical development deviates from the proposed land uses in the plans. The local plans of both areas made provisions for open spaces (for recreational purposes like children play ground). Apparently it was found that all the open spaces in both Kpaguri and Napogbakole had been encroached with residential buildings due to lack of participation in the preparation process and the rapid growth of the population. Similarly, with the areas left unprotected, all spaces demarcated for sanitary areas in both neighbourhood had been converted to residential buildings as well. It was realised that land owners, who financed the preparation of these local plans, often go back to sell these spaces if they realize after some time that those spaces were not being developed based on the earmarked purposes. Only some smaller portions of residential plots were used for commercial purposes usually homebased enterprises for livelihoods. Finally, in both neighbourhoods, a lot of buildings were not located within their legal subdivisions.

It was difficult to control physical development in neighbourhoods without planning schemes like Bamahu and Limanyiri therefore the decision as to what use a land is put, decisions on direction of houses for ventilation and the quality and quantity of building materials used was determined by a home builder and a mason. As a results building regulations could not be enforced therefore development had occurred haphazardly in these areas.

After studying the compliance to regulations on setbacks between buildings and minor roads in Kpaguri and Napogbakole, it was found that the majority of home buildings did not adhere to building regulations on setbacks between buildings considering the fact that majority of home builders set aside spaces less than what is required between buildings and between buildings to minor roads.

The study found that land ownership and control in Wa has moved from the original allodial owners like the Tindana to family ownership and private individuals. Therefore the role of the Tindana is becoming extinct in land transactions but only performs only ceremonial roles. Previously an individual whether a native or an in-mover was required to provide only colanut and one bottle of schnapps or two fowls to acquire land. In recent times due to the increasing demand

for building lots in the Municipality negotiations on land is monetary which is based on the market value and allocated to the highest bidder. This has had several implications.

The responsibility of initiating and financing the preparation of planning schemes to guide physical development has been shifted from the Municipal Assembly to land owners because of inadequate funds. Apparently, the fragmented land ownership in the hands of several family heads and individuals have created instances where even with the smallest portion of land it is owned by several families and all these land owners must agree and be ready to contribute before a scheme can be prepared. Secondly, Land owners in their effort to minimize cost involved in scheme preparation prefer to use unprofessional people who pose as planners to prepare schemes for their area of jurisdiction on which basis lands are sold to prospective buyers. However, such schemes are not recognized by Town Planning and when brought to their notice, permit applications from that area are usually not considered.

The study revealed that there is generally lack of adequate staff in Town and Country Planning Department, Lands Commission and Building Inspectorate Unit. TCPD has a backlog of five planners, the Building Inspectorate Unit did require extra three Inspectors while Lands Commission needs fourteen (14) professionals to be able to enforce regulations with respect to land and physical development within the Municipality. The limited qualified technical staff in these institutions did not only affect enforcement of regulations but also contributed to the emergence of illegal middlemen in land transactions, surveying, permit applications and the preparation of local plans, creating room for corruption in the process. With respect to quality of existing staff, most of the available staff do not possess the minimum qualification for the portfolios they currently occupy.

The study exposed that all the institutions are logistics constraint due to the limited number of vehicles and motorbikes. Due to this, building inspectors have become incapacitated in supervising and monitoring physical development, due to the presence of a single motorbike, which is woefully inadequate to ensure effective supervision.

Funding was found to be a major problem across all the institutions studied. In fact, the Town and Country Planning Department lack of funds is the genesis of the mess in physical development. TCPD and the Building Inspectorate Unit rely solely on Internally Generated Funds of the Municipality which was described as “always empty”. Therefore, the Municipal Assembly is unable to finance preparation of planning schemes and is difficult to request for

funds for fuel and paint for monitoring by Building Inspectorate Unit. Furthermore unlike before when funds were released from headquarters of Lands Commission for local level activities, now the Ministry of Finance is responsible for release of funds and the bureaucracy involved would increase delay of funds from reaching the lower level on time.

5.3 Recommendations

The fragmented land ownership contributed to double sale of lands and the challenge of achieving a unified agreement to finance the preparation of local plans could be addressed by strengthening the Customary land Secretariat to keep records of all lands and their respective owners. The CLS then becomes the only source of leasing out lands to prospective home builders but make payments to landowners to avoid the double sale of land. Furthermore, the Municipal Assembly should liaise with CLS not to sell lands in unplanned areas and then TCPD step in to prepare local plans for all these areas after which TCPD can factor the cost of preparing the local plan into the process of preparing lease document. By so doing, funds spent on schemes can be recouped from prospective home builders.

Some home builders still hold on to old perceptions of permit processes to be lengthy, cumbersome and costly though the Municipal Assembly have put several measures to reduce the waiting period for permit decisions after the introduction of the land administration project. Some of these strategies adopted are that, signatories to permit application decisions were reduced to the planning officer and the engineer because it was no longer necessary to have each member of the Technical Sub-Committee sign on the permits like before, waiting period before a decision was made on permit applications reduced to 30 days instead of 90 days. Therefore, it is necessary to strengthen education by the Municipal Assembly liaising with the radio stations in the Municipality. This can be done monthly whereas all the necessary planning and land sector agencies take turns in educating the public on new developments such as changes and requirements in the various sectors. Additionally just as practised in Singapore, planning officials should request for telephone numbers and e-mail addresses of permit, lease or site plan applicant to enable home builders regularly receive updates on the status of their permit applications and other important information by e-mail and text messages

The limited human resources, logistics and funds of all the institutions responsible for managing physical growth in the study area negatively affects the regular monitoring of construction processes by the Building Inspectors, site inspections by Planners and Lands

Commission, making them unable to satisfy the many clients in the Municipality. The research recommends that, for effective monitoring, inspection and satisfaction of clients on time, it is necessary for the capacities of the institutions responsible for managing physical development to be enhanced. This can be done by ensuring that all students from tertiary institutions who studied courses such as land economy, real estate, development planning, settlement planning and building technology are posted to planning and land sector institutions for national service. With a three month on the job training, they can undertake site inspections and monitoring with little supervision which fills the gap of inadequate and limited qualified staff. Additionally, staff should be granted study leave without pay on the grounds of obtaining scholarships to develop their skills and learn new strategies to solving contemporary planning problems. This would be accepted because in recent times, most staff are willing to further their education without pay if only their jobs are secured. However, both would not require extra funding from government because National service Personnel are already on government pay roll. Enforcement of sanctions such as fines and demolishing should be carried out by the Building Inspectorate and TCPD and monies acquired from the fines can be used to acquire logistics such as vehicles, motorbikes and paint for regular visits to sites. Finally there is still need for much efforts in collaboration of all institutions involved in the planning process with clear separation of powers to avoid duplication of responsibilities especially with respect to Lands Commission and the CLS.

In the quest to make a living, some home builders used housing in ways that differ from the intention of the plan usually for home-based enterprises which is one of the reasons for non adherence of local plans. Though separation of land uses is to control the negative externalities such as noise, it is also necessary for planning authorities to use their discretion to allow for supplementary uses as addition to the main uses. This is because neighbourhoods usually provide certain minimal commercial services for their residents, hence these activities are best planned in integration, as opposed to special allocative planning.

5.4 Conclusion

In conclusion, the extent to which effective local plans are prepared in a participatory approach, and effective enforcement of these plans to guide settlement development is imperative for the fast-tracking of the overall development of any settlement. What planning and policy makers must take note is the fact that, achieving orderly development and well planned cities does not

entirely depend on the different control mechanisms (TDRs, covenants, zoning, building codes, permit systems and urban growth boundaries) adopted in a country. This is because despite the existence of local plans and building regulations in the Wa Municipality, physical development occurs without considering these mechanisms. Apparently the type of land ownership practiced in an area is the foundation and a strong determinant of how physical development would be organized in space hence must be addressed appropriately. Resource constraint of institutions and the processes involved in enforcing and adherence to controls does contribute tremendously to how the built environment of urban towns will be organized to achieve the principles of spatial planning. Furthermore, the Municipal Assembly ought to play a major role in generating funds to finance the preparation of schemes which is their core mandate instead of shifting that responsibility to Landowners who make use of quake planners and surveyors in the entire process. Currently in describing physical development and development controls in the Wa Municipality, it is simply defying Fischel (1999) “public good-housekeeping rule because there is actually a place for everything, but surely everything was not in its place.

REFERENCES

- Abubakari, A. and Dinye, R. D. (2011). Urbanisation and the challenges of development controls in Ghana: A case study of Wa Township. *Journal of Sustainable Development in Africa* 13(7) 210 - 235.
- Adinyira, E. and Anokye, P. (2014). Illegal Appendages to Residential Buildings in Kumasi, Ghana –A Case Study of North Suntreso. *Journal of Construction Project Management and Innovation* 3 (1) 511 - 529
- Adjei- Mensah, C., Acheampong, P.K. and Antwi, K.B. (2010). Living in Beehives: The Growth of Unauthorised Structures in the Kumasi Metropolis, Ghana. Department of Geography and Regional Planning, Faculty of Social Science, University of Cape Coast. Accessed on 8th February 2015 from <http://www.eur.edu/uaps2011.princeton.edu/papers/110464>

- Alexander, E. R. (2001). A Transaction-Cost Theory of Land Use Planning and Development Control: Towards the Institutional Analysis of Public Planning. *Liverpool University Press* 72(1): 45 – 75
- Allen, A., Nilvo, L. A., and Corubolo, E. (1999). Environmental Problems and Opportunities of the Peri-urban Interface and their Impact upon the Poor, Peri-urban Research Project Team Development Planning Unit University College London. Accessed on 10th November 2012 from [Http:discovery. Ucl.ac.uk/37/1/DPU_PUI](http://discovery.ucl.ac.uk/37/1/DPU_PUI).
- Alluko, O. (2011). Development Control in Lagos State: An Assessment of Public Compliance to Space Standards for Urban Development, Department of Urban & Regional Planning. *International Multidisciplinary Journal* 5(5): 169 - 184
- Amler B. and Betke D. (1999). Land Use Planning Methods, Strategies and Tools. *Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH* Eschborn, Germany
- Amos, F.J.C. (1980). Development Control Reappraised In Value for Money in Development Control, University of Birmingham. Accessed on 12th November, 2012 from www.oecd.org/development/effectiveness
- Amuwo, A. (2005). Towards Endogenising Africa's Development, *CODESRIA Bulletin*, 3(4): 29-31
- Aribigbola, A. (2008). "Improving urban land use planning and management in Nigeria: The Case of Akure". *Theoretical and Empirical Researches in Urban Management* 3 (9): 1 - 14
- Arimah, B. C. and Adeagbo, D. (2000). Compliance with Urban Development and Planning Regulations in Ibadan, Nigeria. *Habitat International* 24: 279-294
- Baffour-Awuah, K.G. and Hammond, F. N. (2014). Determinants of low land use planning regulation compliance rate in Ghana. *Habitat International Elsevier* 41: 17-23
- Barrett, D. and Ward, H. (2010). Why planning and zoning? *Oklahoma Cooperative Extension Service*. Oklahoma State University, accessed on 13th February, 2015 from <http://osufacts.okstate.edu>
- Bennett, J., Ainslie, A. and Davis J. (2013). Contested institutions? Traditional leaders and land access and control in communal areas of Eastern Cape Province, South Africa. *Land Use Policy* 32(2013): 27 – 38
- Boamah, A. N, Gyimah C. & Nelson J. K. B. (2012). Challenges to the enforcement of development controls in the Wa Municipality. *Habitat International* 36 (1): 136 - 142.
- Boamah, A. N. (2010). Housing affordability in Ghana: A focus on Kumasi and Tamale. *Ethiopian Journal of Environmental Studies and Management* 3 (3): 1 - 11
- Boamah, A. N. (2010). Urban Land Market in Ghana. A case study of the Wa Municipality. *Urban Landmarks Conference* 3(3): 1 – 17.

- Brunick, N. (2003). The Impact of inclusionary zoning on development. *Business and Professional People for the Public Interest* Accessed on 13th February 2015 from www.bpichicago.org/documents/impact_iz_development
- Ching, S. and Fui, Y. (2002). Contestability of the Urban Land Market: An Event Study of Hong Kong Land Auctions. School of Economics and Finance, the University of Hong Kong. Accessed on 15th March 2015 from http://www.hiebs.hku.hk/working_paper_updates/pdf/wp1046a.pdf
- Chipungu, L. (2011). Insights into Urban Development Control Challenges: A Case Study of Operation Murambatsvina/ Restore Order in Zimbabwe. *The Built & Human Environment Review* 4(2): 17 - 32.
- Dale, P., Mahoney, R. and McLaren, R. (2006). Land Market and the Modern Economy. London, UK. *Royal Institution of Chartered Surveyors (RICS)* accessed on 15 February 2015 from http://www.knowledge.co.uk/Papers/Land_markets.pdf
- Davies, H. W. E., Steeley G. C., Finney, J. and Suddards, R. W. (1980). The Relevance of Development Control. *Liverpool University Press* 51(1):5 - 24
- Dissanayake, L. (1989). Effectiveness of the Development Control System for the City of Colombo, Sri Lanka. *Working Papers No. 36* accessed on the 12th December 2013 from <https://www.bartlett.ucl.ac.uk/dpu/publications/latest/.../dpu.../WP36.pdf>
- Djokoto G. and kyeretwie O. (2010). Land Tenure in Ghana: Making a Case for Incorporation of Customary Law in Land Administration and areas of Intervention by the Growing Forest Partnership. 1:1-19
- Dung-Gwom, J.Y. (2001). Delay in Obtaining Planning Permission by Private Developer in Jos, Nigeria. *Journal of Environmental Sciences* 5(1): 103 - 124
- Ellickson, R.C. (1973). Alternatives to Zoning Covenants, Nuisance Rules, and Fines as Land Use Controls. *The University of Chicago Law Review* 40(4): 681-781
- Environmental Support Services, LLC. Accessed on 3rd October 2012 from www.oecs.org/publications/ssdd/opaal/70-oecs-protected-areas.../file
- Essein, G. A., Musa A. and Yacim J. A. (2009). Development Control as a Tool for Sustainable Management of the Federal Capital Territory Abuja .Accessed on 7th October 2012 from <http://www.scribd.com/doc/20682227>.
- Farvacque-Vitkovic, C., Raghunath, M., Eghoff, C., and Boakye C. (2008). Development of the Cities of Ghana: Challenges, Priorities' and Tools. *African Region Working Paper Series* accessed on 3rd December 2014 from <http://www.worldbank.org/afr/wps/index.htm>.
- Fischel, W. A. (1999). Zoning and Land Use Regulation. Professor of Economics, Dartmouth College accessed on 3rd December 2013 from <http://encyclo.findlaw.com/2200book.pdf>

- Fischel, W. A. (2001). An Economic History of Zoning and a Cure for Its Exclusionary Effects. Department of Economics Dartmouth College. Hanover, NH 03755 Accessed on the 3rd December 2014 from <https://www.encyclo.findlaw.com/2200book>.
- Gallent, N. and Kim Kwang S. (2001). Land zoning and local discretion in the Korean planning system. *Land Use Policy* 18 (2001) 233–243
- Galster, G., Hanson, R., Ratcliffe, M. R., Wolman, H., Coleman, S., and Freihage, J. (2001). Wrestling Sprawl to the Ground: Defining and Measuring an Elusive Concept. *Housing Policy Debate* 12(4) 681 - 717.
- Gardner, L. (2007). OECS Protected Areas and Associated Livelihoods Project. Review of the Policy, Legal and Institutional Framework for Protected Areas Management in St. Lucia
- Geurts, E. (2009). Working on Cities: An Experience from Kumasi, Ghana. A Design Studio for Architects and Urban Management Students. The Institute for Housing and urban development Studies (IHS) Rotterdam, the Netherlands *African Perspectives*. Accessed on 12th October 2013 from <http://archivedpublicwebsite.up.ac.za/sitefiles/file/44/1068/.../GEURTS>
- Ghana Statistical Service (2005): 2000 Population and Housing Census: Special report on 20 largest localities / Republic of Ghana. - Accra
- Ghana Statistical service. (2005). Population data analysis Report, socio-economic and demographic trends analysis (Analytical Report), 1: 2
- Gutzon L. H. & Lund-Hansen, A. (2008) Gentrification – Gentle or Traumatic? Urban Renewal Policies and Socioeconomic Transformation in Copenhagen. *Urban Studies Journal Limited*, 45(12): 2429 - 2448
- Gyampo, R. (2008). ‘Direct Election of District Chief Executives and Mayors – A Tool for Effective Decentralization and Political Stability in Ghana. *Ghana Policy Journal* 38: 70 - 92
- Henger, R. and Bizer, K. (2010). Tradable Planning Permits for Land Use Controls in Germany. *Land Use Policy* 27: 843-852
- Higgins, N. (2001). Transfer Development Rights. Seattle, Office of Housing, Transferable Development Rights (TDR) & Bonus Programs, Seattle.gov, accessed on 13th December 2013 from <http://www.seattle.gov/housing/2001/TDR-BonusPrograms>
- Hiraskar, G.K. (1993). Fundamentals of Town Planning. Dhanpat Rai and Sons, Delhi
- Holway, J. M. and Burby, Raymond J. (1990). Private Markets, Public Decisions: An Assessment of Local Land-Use Controls for the 1990s. *University of Wisconsin Press* 66(3): 259 - 271
- [http://spyGhana.com/Ghana-general news/Regional news/Wa township- crowded with unauthorised structures](http://spyGhana.com/Ghana-general%20news/Regional%20news/Wa%20township-crowded-with-unauthorised-structures). Accessed on the 4th of September 2012

- Hughes, W. T. JR. and Turnbull, G. K. (1996) Uncertain Neighbourhood Effects and Restrictive Covenants. *Journal of Urban Economics* 39(8): 160 – 172
- Hui, E. C., & Ho, V. S. (2003). Does the planning system affect housing prices? Theory and with evidence from Hong Kong. *Habitat International* 27 (3), 339-359
- Israel, G.D. (2013). Determining Sample Size, University of Florida. IFAS Extensions
- Janssen-Jansen, L. B. (2008). Space for Space, a Transferable Development Rights Initiative for Changing the Dutch Landscape. AMIDSt (Amsterdam institute of Metropolitan and Development Studies), Universiteit van Amsterdam. *Landscape and Urban Planning* 87:192 - 200
- Jowell, J. (1975). A Two-Class System: Dobry on Development Control. *Published by: Wiley on behalf of the Modern Law Review* 38(5): 543 - 553
- Kaplowitza, M. D., Machemerb, P. and Pruetzc, R. (2008) Planners' Experiences in Managing Growth using Transferable Development Rights (TDR) in the United States. *Land Use Policy* 25: 378–387
- Karbo, E. P. (2002). The Development of Town and Country (Urban) Planning System in Ghana. Module1. Ghana Institute of Management and Public Administration
- Kasanga, K. And Kotey, N. A. (2001). Land Management in Ghana: Building on Tradition and Modernity. *International Institute for Environment and Development, London, Russell Press.*
- Kasanga, K. R. (2008). Land Policy and Land Management from the Traditional Perspective in Ghana, a Paper Presented at the University of Leeds.
- Kendie, S.B. and Martens, P. (2008). Governance and Sustainable development. Centre for Development Studies, University of Cape Coast. *Marcel Hughes Publicity Group.*
- Kironde, L. J. M. (2000). Understanding land markets in African urban areas: the case of Dar es Salaam, Tanzania. *Habitat International* 24 (2000) 151 - 165
- Koroso, N. H. (2011). Assessment of Urban Land Market from Governance Perspectives. Enschede, the Netherlands. Thesis Submitted to Faculty of Geo-Information Science and Earth Observation of the University of Twente. Accessed on 15th April 2015 from https://www.itc.nl/library/papers_2011/msc/la/koroso,2014
- Kremzner, M. T. (1998). Managing Urban in China. The Emerging Legal Framework and its Role in Development. *Pacific Rim Law and Policy Association* 7(3): 612 - 655
- Kunbourn B. (2009). Law and Decentralized Development in Northern Ghana. *Agape Printing Press Accra, Ghana.*
- Lai, L.W.C. and Ho, D.C.W. (2001), Unauthorised structures in high-rise high-density environment and Property Management. *China Resource and Energy Economics* 36: 209–228

- Leduka, Resetselemang C. (2010) Lesotho Urban Land Markets in southern African Cities, prepared for *Urban Land Mark and UN-HABITAT, Pretoria*. Accessed 15th March 2015 from www.urbanlandmark.org.za/.../scoping_study_gov_ulm_lesotho,
- Leke, O. (2009). Challenges of Sustainable Physical Planning and Development in Metropolitan Lagos. *Journal of sustainable Development* 2(1): 159 - 171
- Lerise F, Lupala J, Manoris M. and Kiunsi, R. (2004). Managing Urbanisation and Risk Accumulation Processes: Cases From Dares Salaam. Tanzania, University College of Lands and Architectural Studies.
- Levinson, A. (1997). Why Oppose TDRs? Transferable Development Rights can Increase Overall Development. *Regional Science and Urban Economics* 27(1997): 283-296
- Liberty, R. L. (2003). Abolishing Exclusionary Zoning: A Natural Policy Alliance for Environmentalists and Affordable Housing Advocates. Boston College. *Environmental Affairs Law Review*, 30(3):581 - 603
- Lowry, I. S. and Fergusson, B. W. (1992). Development Regulations and Housing Affordability Washington, D. C.: ULI-the Urban Land Institute accessed on 5th October, 2012 from www.brookings.edu/es/urban/publications/growthmang.pdf
- Mandelker, D. R., & Payne, J. M. (2001). Planning and control of land development: Cases and materials (5th ed., p. 686). New York: Lexis Publishing
- Mend, Theodora M. (2006). Customary Land Tenure and Urbanization with a Case Study of the Peri-Urban area of Accra, Ghana. Unpublished MSc. (Geo-information Science and Earth Observation in Urban land Administration) Special Study Submitted to International Institute for Geo-information Science and Earth Observation ITC Enschede, The Netherlands
- Mila, Freire (2006). Urban Planning: Challenges in Developing Countries. International Congress on Human Development Madrid accessed on 12 October 2012 from [www.reduniversitaria.es/ficheros/Mila%20Freire\(i\).pdf](http://www.reduniversitaria.es/ficheros/Mila%20Freire(i).pdf)
- Miller, C. E. (1990). Development Controls as an Instrument of Environmental Management. A Review. Published by *Liverpool University Press* 61(3):231 - 245
- Mills, David E. (1980), Transferable Development Rights Markets. *Journal of Urban Economics*, 7: 63-70
- National Development Planning Commission – NDPC (2010): “Ghana Shared Growth and Development Agenda (GSGDA)”, 2010-2013, Accra Ghana
- Needham, B., (2005). The Social Processes in Urban Planning and Management. Nijmegen, Research Group Governance and Places University of Nijmegen (International Seminar on Legislation and Urban Management, Brazilia, 1-2 June 2005).

- Nyametso, K. Johnie (2010). Improvement of Squatter Settlements: The Link between Tenure Security, Access to Housing, and Improved Living and Environmental Conditions. Unpublished Ph.D. Thesis Submitted to the University of Otago, Dunedin, New Zealand.
- Obabori, A.O. Obiuwevbi, D.A. and Olomu, J.I. (2007). Development Control an Important Regulator of Settlement Growth: A Case Study of Ekpoma, Nigeria. *J. Hum. Ecol.*, 21(4): 285-291
- Ogundele, F. O., Ayo, O., Odewumi, S. G. and Aigbe, G. O. (2010). Challenges and prospects of physical development control: A Case Study of Festac Town, Lagos, Nigeria Department of Geography, Lagos State University Nigeria. 5(4): 174 -178
- Omar, D.B. (2008). Planning Principles and Control Mechanisms of New Town Development in Malaysia. *Asian Social Science* 4 (9): 139 - 144
- Owei, O., Ede, I. and Obinna, V. C. (2010), The Challenges of Sustainable Land Use Planning in Nigerian Cities: the Case of Port Harcourt. *46th ISOCARP Congress* accessed on 12 December 2012 from www.isocarp.net/data/case_studies/1740.
- Owusu-Ansah, J.K. and Braimah, I. (2013). The dual Land Management System as an Influence on Physical Development Outcomes around Kumasi, Ghana. *J. Hous and the Built Environs*, 28: 689-703
- Palmer, D., Fricska, S., and Wehrmann, B. (2009). Towards Governance. Land Tenure System Working Paper 11
- Payne, G. (2001). Urban land tenure policy options, Titles or Rights. *Habitat International*, 25(3), 415-429
- Payne, Geoffrey and Majala Michael (2004). The Urban Housing Manual, Making Regulatory Frameworks Work for the Poor. *Earthscan London*, Sterling, VA
- Pogbekuu E. B. (2007). Land use planning as a tool for environmental management: a case of the Tamale Metropolis." Unpublished MSc. Thesis Submitted to the University of Cape Coast, Cape Coast, accessed on 20th February 2015 from www.academia.edu/
- Qian, Zhu (2009). Without zoning: Urban development and land use controls in Houston. Ontario, Canada N2L 3G1. *Cities Journal* 27 (2010): 31 - 41
- Quigley, John M. and Rosenthal, Larry A. (2005). The Effects of Land Use Regulation on the Price of Housing: What Do We Know? What Can We Learn? Regulatory Barriers to Affordable Housing Published by: *US Department of Housing and Urban Development* 8 (1): 69-137
- Read, D.C. (2008). Inclusionary Zoning: A Framework for Assessing the Advantages and Disadvantages. Prepared for Homes for Working Families. *Centre for metropolitan Studies*, accessed on 15th March 2015 from [Http://www.ssrn.com/abstract=1373540](http://www.ssrn.com/abstract=1373540),
- Republic of Ghana (1954), "Town and Country Planning Ordinance, 1945 (CAP84)", Government Printer, Accra.

- Republic of Ghana (1993) Local Government Act 462 of 1993
- Republic of Ghana (1996), “National Building Regulation 1996 (LI 1630)”.
- Republic of Ghana (2011). New Spatial Planning System in Ghana, Ministry of Environment Science and Technology, Town and Country Planning Department
- Republic of Ghana Environmental Protection Agency (2000). Guidelines Development – Volume 2 Report, Accra Ghana
- Republic of Ghana National Building Regulations (LI 1630), 1996. <http://www.GhanaDistricts.Com>
- Ripley, A. (2006). Why we don’t prepare for disaster. *The New York Times*. Accessed on 3rd December 2013 from www.jik.com/Why%20We%20Don't%20Prepare-Time%2006.doc
- Rizwan, H. and Obaidullah, N. (2006). Challenges of Implementing Urban Master Plans: The Lahore Experience. *World Academy of Science*, 24: 101 - 108
- Rowan-Robinson, J., Ross, A. and Walton, W. (1995). Sustainable Development and the Development Control Process. *The Town Planning Review*, Liverpool University Press 66(3): 269 - 286
- Ruijsink, S., Duka, I. and Toto R. (2013). Balancing urban planning in Albania. Institute for Housing and Urban Development Studies, IHS, Erasmus University Rotterdam (EUR) the Netherlands accessed on the 27 November 2014 from www.ihs.nl/research/ihs_publications/ihs_staff_publications.
- Saunders, C. (1996). Conservation Covenants in New Zealand. *Land Use Policy* 13(4): 325-329
- Scarborough Borough Council (2006). Planning Enforcement a Brief Guide, Scarborough UK accessed on 3rd October 2012 from www.scarborough.gov.uk
- Serkin, C. and Wellington, L. (2013). Putting exclusionary zoning in its place: affordable housing and geographical scale Essay. Accessed on the 3rd December, 2013 from scholar.google.com/citations?user=F9x3REwAAAAJ&hl=en
- Sheuya, Shaaban (2004). Housing Transformation and Urban Livelihoods in Informal Settlement Dar es Salaam, Tanzania. Spring Research Series N0. 45, Dortmund
- So, Frank S. and Getzels, Judith (1988). The practice of Local Government Planning. Municipal Management Series Second Edition by International City Management Association
- Tang, B., Choy, L.H.T. and Wat, J.K.F. (2000). Certainty and Discretion in Planning Control: A case Study of Office Development in Hong Kong. *Published by SAGE on behalf of Urban Studies Journal Foundation* 37(13): 2465 – 2483

- Tipple, A. Graham (2001). The Impact of Regulations on the Livelihoods of People Living in Poverty. Reader in Housing Policy and Development, University of Newcastle upon Tyne
- Town and Country Planning Department. The Planning Model, Volume 4. Local Plan. MAPLE and CERSGIS. Accessed from [Tcpghana.gov.gh/doc/localplan.pdf](http://tcpghana.gov.gh/doc/localplan.pdf)
- Tuts, R. (1996). Cost modelling for appropriate building and planning standards in Kenya. Paper presented at the Expert Working Group on Localising the Habitat Agenda, Turku, Finland.
- Ubink, J. M. and Quan, J. F. (2008). How to combine tradition and modernity? Regulating customary land management in Ghana *Land Use Policy*, 25: 198–213
- United Nations (2007). Discussion Paper on Challenges and Integrated Policy Response for Informal Settlements. Economic and Social Council, Geneva. Accessed on 5th June 2015 from www.ljemail.org/reference/ReferencesPapers.aspx?ReferenceID
- United Nations Centre for Human Settlements (2008). Reassessment of Urban Planning and Development Regulations in African Cities. The City Agency of the United Nations United Nations Centre for Human Settlements (Habitat). Accessed on 5th June 2015 from URL: <http://habitat.unchsh.org/home.htm>
- Wakchaure, A.S. (2001). An ArcView tool for simulating Land Subdivision for Build Out Analysis. MSc Thesis Submitted to the Polytechnic Institute and State University, Virginia.
- Wang, Chunhua (2013). Regulating Land Development in a Natural Disaster-Prone area: The Role of Building codes. *Journal of Construction Project Management and Innovation* 36 (2014): 209-228.
- Wang, H., Tao, R., Wang, L. and Su, F. (2010). Farmland Preservation and Land Development Rights Trading in Zhejiang, China. *Habitat International* 34: 454-465
- Ward, P. (2013). On the Use of Tradable Development Rights for Reducing Flood Risk. *Land Use Policy* 31: 576-583
- Water Aid (2009). A Study of Land Tenure in Urban Areas Report. Accessed on 12th November 2012 from www.wateraidghana.org.
- Weeks, John R. (2012). An Introduction to Population. 11th Edition San Diego State University Wadsworth
- Wickramasuriya, R., Chisholm, L. A., Puotinen, M., Gill, N. and Klepeis P. (2011). An automated land subdivision tool for urban and regional planning: Concepts, implementation and testing. *Environmental Modelling & Software* 26(2011): 1675 - 1684
- Wilkins, J., Riall, B. W., Nelson, A. C., Counts, P. and Sussman, B. (2001). Rural Georgia:

To Be or Not to Be...Zoned...An Economic Development Perspective. *Georgia Tech Research Corporation* Accessed on 15th March 2015 from <https://smartech.gatech.edu/..../To%20Be%20or%20Not%20To%20Be%2>

Williams, K. (2000). Urban intensification Can urban intensification contribute to sustainable cities? An international perspective Oxford Centre for Sustainable Development Oxford Brookes University

Wilson, R. C., Cribbs, G. and Flaum, P.C. (2000). Deed Restrictions: Protecting Historic Neighbourhoods in a City without Zoning. Historic Houston Preservation Day Symposium on the Hall of St. Thomas www.urbanland.uli.org › Planning & Design Accessed on 3rd October 2012

World Bank Report of Doing Business 2012. Accessed on the 15th December, 2013 from www.doingbusiness.org/data/exploreeconomies

Yahya, S., Agevi, E., Lowe, L., Mugova, A., Musandu-Nyamayaro, O. and Schilderman, T. (2001). Double Standards, Single Purpose. Reforming Housing Regulations to Reduce Poverty. *ITDY Publishing*

Yaro, J.A. and Zackaria, A. I. (2008). Evolution of Customary Land Tenure System and Sustainable Livelihoods in Northern Ghana. *ISSER Technical Publications Series*, University of Ghana, Legon.

Yeboah, E. and Obeng-Odoom, F. (2010). "We are not the only ones to blame: District Assemblies' perspectives on the state of planning in Ghana". *Commonwealth Journal of Local Governance* accessed on 7th October 2012 <http://epress.lib.uts.edu.au/ojs/index.php/cjlg>.

Yin, R. K. (1984). Case Study Research Design and Methods. Newbury Sage Publications

Zevenbergen, J. (2002). Systems of Land Registration: Aspects and Effects. Delft University of Technology Delft, The Netherlands. Accessed on 15th February 2015 from <http://www.ncgeo.nl/phocadownload/51Zevenbergen.pdf>

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APPENDIX I – QUESTIONNAIRE FOR HOME BUILDERS

I am Avogo Florence Abugtane a Planning Student from the Kwame Nkrumah University of Science and Technology. I am conducting a study on **An Assessment of the Land Tenure System and Enforcement of Development Control Mechanisms in Wa Municipality**. It is a study for a Master's Degree programme and the information you provide will be treated as confidential for the purpose of the study only. I will not take much of your time as just some 25 minutes will be enough. Thank you.

Building codes and Permits

1. Are you aware of satisfying regulations and acquiring permit before you develop your land a)
Yes
b) No
2. Have you applied for permits before?
a) Yes
b) No

2b. if yes where you granted permission before your built

- a) Yes
- b) No

If no why.....

If yes, did planning official ever visit your site?

- a) Yes b) No
3. What was the reason for applying for building permit?
a) Security of tenure
b) Is required by Law
c) For easy access to services
d) To live in well planned neighbourhood
e) No reason
4. If you have ever applied for permit, how long did it take for the Assembly to make a decision
a) Less than 1 month
b) Within 3 month
c) Within 9 month
d) More than 9 month
e) No Response
5. When did you start building?
a) After decision was taken
b) Before decision was made
6. What is your opinion about the permit application process
a) Cumbersome
b) Costly
c) Unrealistic demands
d) Lengthy
e) Other (specify).....

Land tenure

7. What source did you acquire the land you developed?
a) Tindanna

- b) Family Heads
 - c) Private Individuals
 - d) Lands Commission
8. Through what means was your land acquired?
- a) Inheritance
 - b) Purchase
 - c) Gift
9. Do you have land title certificate to the land you acquired?
- a) Yes
 - b) No
10. Which of the following possess greater challenge to enforcement of development controls?
- a) Land tenure system
 - b) Political interference
 - c) Inadequate human resource capacity
 - d) Corruption/bribery of planning officials
11. What do you suggest can be done to address the nature of development in this neighbourhood.....
.....
.....
12. Did you have the following documents when you were applying for permits:

Documents Obtained	Yes	No
Good title to the land		
Architectural drawing		
Site Plan		

APPENDIX II- INTERVIEW GUIDE

Lands Commission Secretariat

Date of interview

1. Position/Grade.....
2. Who owns land in Wa?
3. What is the official physical development process in Wa?
4. How does one acquire land for development in Wa?
5. What is the required procedure in securing a legal land documentation for physical development?
6. Which aspects of the physical development process frustrates home builders?
7. Which stages is usually ignored by home builders and why?
8. What is the relationship between customary land owners and lands commission
9. Do you think home builders in Wa satisfy regulations before they build? 10. Why do you think Homebuilders do not satisfy regulations
11. How is that affecting the way buildings are developed?
12. What are the challenges faced by the Commission in its role in an attempt to control physical development

Town and Country Planning Department (TCPD)

1. What is the official physical development process in Wa?
2. Which aspects of the physical development process frustrates home builders?
3. Which stages is usually ignored by home builders and why?

Local Plans

1. What is the official process in preparing local plans in Ghana?
2. What is the process in preparing local plans in Wa Municipality?
3. Which of the official stages are ignored and why?
4. When was the existing plans designed?
5. When was the last time they were updated and why?
6. How were all stakeholders involved in preparing the schemes especially landowners?
7. How do you control physical development in areas with plans?
8. Why do some areas in the Municipality lack local plans?
9. How do you control development in areas without plans?
10. Does the Municipality have a Spatial Development framework and Statutory Plan?

Building Regulations

11. What are the requirements for development/building permits?
12. Why is it necessary to have all these requirements?
13. What is your opinion about all these building regulations?
 - Opinion about the cost involved in satisfying regulations
 - Opinion about the procedure
14. How do home builders adhere to the Following regulations □ Setbacks between two builders
 - Setbacks between a building and a minor road
15. Why is it difficult for home builders to satisfy these requirements?

Building Permits

16. What is your opinion about the procedure and the cost involved in obtaining a permit?

17. Why do people develop without permit?
18. Why do you allow constructions to occur in the Municipality without Permit?

Land and Physical Development

19. What is the required procedure in securing a legal land for physical development?
20. What is the relationship between the TCPD and Customary Land owners?
21. How does the land tenure system in Wa influence physical development?

Building Inspectorate Department

1. What are some of the tools used to control physical development?
2. What is your opinion about the level of adherence to control mechanisms by home builders and why?
3. Why do you sometimes ignore home builders who develop without permit?
4. How does the land tenure in Wa influence enforcement of development controls?
5. What is the relationship between your department and the customary land owners?
6. What are the difficulties you face in enforcing development controls?
7. What can be done to ensure that physical development is orderly? Especially about on Land ownership

Land Owners

1. What do your culture say about land transactions for development?
2. How has the land transaction process changed over the years?
3. What is the required procedure in securing a legal land for physical development?
4. What role do you play in ensuring orderly development?
5. Why do you not make use of the official surveyors and rather hire the services of unqualified surveyors?
6. What is the relationship between you the customary land owners and planning Institutions?
7. Why do you not consult Town and Country or Land Commission before you sell Land?
8. What influence do you have in ensuring that plans are well implemented?
9. What is your opinion about planning officials having much control of land allocations?
How can planning officials still control physical development while you own the lands?

Human/Logistical Resource Assessment of Institutions

1. How does the current human resource strength affect enforcement of development controls
2. How does the logistics available affect enforcement of development controls
3. What is your opinion about putting having people with qualifications in the department?
4. If you have adequate staff, how punctual and available are they towards work?
5. Any tensions among staff members
6. Any funding problems?
7. How does political interference play a role in enforcement?
8. What are the existing software and hardware used to ensure effective carrying out of duties
9. What measures can be adopted to strengthen enforcement?
10. What measures can be adopted to strengthen monitoring of physical development?

Human Capacity Assessment

Position	Number Existing	Number required	Qualification	Required Qualification	Effect on Performance

Logistics and equipment Assessment

Type of logistic/ Technical Equipment's	Number Existing	Number Required	Effect on Performance

APPENDIX III: CHECKLIST

1. What was supposed to be on a particular piece of plot and what is there now
2. What type of structure is on a piece of plot
3. What use is the building put to
4. Presence or absence of sanitary area
5. Spaces left between buildings
6. Spaces left between buildings and minor roads
7. Arrangement of buildings in a study community
8. Ease of accessibility within study community
- 9.

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APPENDIX IV CODE-FILTER: ALL CODES ON INTERVIEWS

HU: MPHIL ATLAS

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Edited by: Super

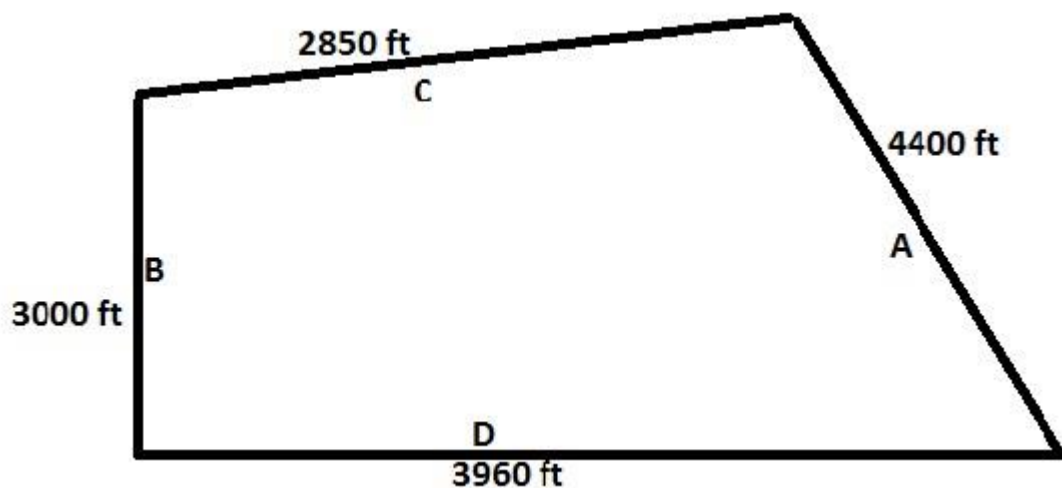
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- Development contrary to zoning regulations
- Difficulties in enforcing regulations
- Effects of land tenure on development
- Land ownership
- Official Land acquisition process
- Land acquisition process in the past
- Land acquisition process now
- Opinion about permit process
- Efforts to reduce lengthy procedures
- Existence of Fake planners/Surveyors
- Officials to blame for haphazard Development
- Political interference in enforcement
- Reasons for double sale of land
- Reasons for fragmented land ownership
- Why some constructions without permit are ignored
- Local Plans- when plans were prepared
- Stakeholder involvement in schemes
- Update of plans and reasons
- Resource capacity

- Tensions among staff and productivity
- Funding Issues
- Recommendation

APPENDIX V - LAND USE CALCULATIONS

KONTA AREA (TOTAL AREA IN ACREAGE)



SOLUTION

$$\frac{A + B}{2} = \frac{4400 + 3000}{2}$$

$$= 3700$$

$$\frac{C + D}{2} = \frac{2850 + 3960}{2}$$

$$= 3405$$

$$AB \times CD = \frac{3700 + 3405}{2}$$

$$= 289.22 \text{ Acres}$$

VARIOUS LAND USES IN ACREAGE

1. Education land uses (4)

$$\frac{440 \times 600}{43560} = 6.10$$

$$\text{a) } \frac{43560}{680 \times 300} = 4.68$$

$$\text{b) } \frac{43560}{680 \times 540} = 8.43$$

$$\text{c) } \frac{43560}{650 \times 380} = 5.67$$

$$\text{d) } \frac{43560}{\text{Total}} = 24.88$$

2. Open spaces (5)

$$\frac{740 \times 700}{43560} = 11.89$$

$$\text{a) } \frac{43560}{600 \times 300} = 4.13$$

$$\text{b) } \frac{43560}{620 \times 500} = 7.12$$

$$\text{c) } \frac{43560}{300 \times 200} = 1.38$$

$$\text{d) } \frac{43560}{800 \times 340} = 6.24$$

$$\text{e) } \frac{43560}{\text{Total}} = 30.76$$

3. Civic and culture (5)

$$\frac{780 \times 1000}{43560} = 17.91$$

$$\text{a) } \frac{43560}{600 \times 300} = 4.13$$

$$\text{b) } \frac{43560}{500 \times 300} = 3.44$$

$$\text{c) } \frac{43560}{200 \times 400} = 1.84$$

$$\text{d) } \frac{43560}{500 \times 200} = 2.30$$

$$\text{e) } \frac{43560}{\text{Total}} = 29.62$$

4. Sanitary area (4)

$$\frac{100 \times 200}{43560} = 0.46$$

Therefore: $0.46 \times 4 = 1.84$

5. Commercial

$$\frac{300 \times 150}{43560} = 1.03$$

6. Residential (499 plots of $100 \times 100\text{ft}$)

$$499 \times 0.23 = 114.77 \text{ Acres}$$

7. Streets : $289.22 - 202.90 = 86.32$ Acres

LAND USES OF NAPOGBAKOLE IN PERCENTAGES

No.	LAND USE	ACREAGE
1.	Education	8.60%
2.	Open space	10.64%
3.	Civic and culture	10.24%
4.	Sanitary sites	0.64%
5.	Commercial	0.36%
6.	Residential	39.68%
7.	Streets	29.85%
Total		100.01%

KPAGURI RESIDENTIAL (TOTAL LAND AREA)

$$\frac{A + B}{2} = \frac{5000 + 4000}{2}$$

$$\frac{9000}{2}$$

$$= 4500$$

$$\frac{C + D}{2} = \frac{2300 + 1600}{2}$$

$$\frac{3900}{2}$$

$$= 1950$$

$$AB \times CD = \frac{4500 + 1950}{43560}$$

$$= 201.45 \text{ Acres}$$

AREA WORKED ON

$$\frac{A + B}{2} = \frac{3150 + 2500}{2}$$

$$= 2825$$

$$\frac{2825 \times 2300}{43560}$$

$$= 149.16 \text{ Acres}$$

VARIOUS LAND USES IN ACREAGE

1. Commercial land use (number 1)

$$\frac{340 \times 420}{43560} = 3.28$$

2. Education (number 2)

$$\text{a) } \frac{640 \times 580}{43560} = 8.52 \text{ Acres}$$

$$\text{b) } \frac{300 \times 200}{43560} = 1.38 \text{ Acres}$$

$$\text{Total} = 8.52 + 1.38$$

$$= 9.90 \text{ Acres}$$

3. Sanitary area (number 4)

$$\text{a) } \frac{200 \times 100}{43560} = 0.46 \text{ Acres}$$

Therefore: $0.46 \times 4 = 1.84$

4. Residential land (number of plots 358)

$$\frac{100 \times 100}{43560} = 0.23 \text{ Acre}$$

Therefore, $0.23 \times 358 = 82.34 \text{ Acres}$

5. Open space

$$\text{a) } \frac{380 \times 200}{43560} = 1.74$$

$$\text{b) } \frac{460 \times 200}{43560} = 2.11$$

6. Open space

$$\frac{3.85}{149.16} \times 100$$

$$= 2.58\%$$

$$\text{7. Streets (roads) } \frac{47.95}{149.16} \times 100$$

$$= 32.15\%$$

Land use	Percentage
Residential	55.20
Sanitary area	1.23
Education	6.64
Commercial	2.20
Open space	2.58
Streets (roads)	32.15
Total	100%

KPAGURI UPDATED LAND USES

Land use	Acreage	Percentage
Residential	98.45	66
Commercial	0.23	0.15
Education	10.36	6.95
Open space	1.14	0.76
Civic and culture	0.23	0.15
Sanitary area	0.23	0.15

Streets (roads)	38.52	25.82
Total	149.16	99.98

Residential =82.34 Acres Sanitary areas =1.84 Acres Education =9.90 Acres

Commercial =3.28 Acres Open spaces =3.85 Acres

Total =101.21 Acres Total area worked on is 149.16 - 101.21= 47.95

Therefore, road network on the area worked will be 47.95 Acres

LAND USES IN PERCENTAGES

Total area worked on is 149.16 (100%)

1. Residential

$$\frac{82.34}{149.16} \times 100 = 55.20\%$$

2. Sanitary areas

$$\frac{1.84}{149.16} \times 100 = 1.23\%$$

3. Education

$$\frac{9.90}{149.16} \times 100 = 6.64\%$$

4. Commercial

$$\frac{3.28}{149.16} \times 100 = 2.20\%$$

