EXPLORING THE EFFECTS OF ZONING REGULATION ON LAND RIGHTS OF USE RIGHT HOLDERS IN THE CONTEXT OF CUSTOMARY LAND TENURE SYSTEM IN ASHIYIE, GHANA

EUNICE MATEY

February, 2016

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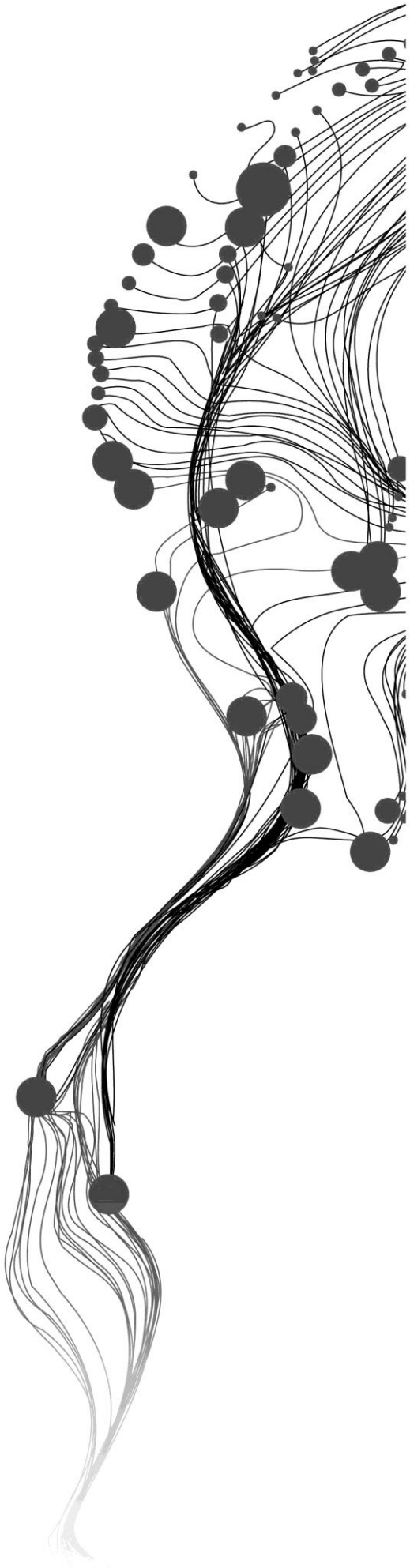

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EUNICE MATEY
Enschede, The Netherlands, February, 2016

Thesis submitted to the Faculty of Geo-Information Science and Earth Observation of the University of Twente in partial fulfilment of the requirements for the degree of Master of Science in Geo-information Science and Earth Observation.
Specialization: Land Administration and Urban Planning

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ABSTRACT

Zoning regulation is considered as a tool used by the government to control developments to ensure sustainability of landed resources. In Ghana where 80% of lands are held under customary land tenure systems, it is expected that zoning which is a government function will conflict with customary norms of landholding. Land rights issues are of global concern as it is linked to the right to food, shelter and other human rights. There has been considerable research into the effect of zoning on housing, land values and at close, on land rights of informal settlers. However, little attention has been paid to discuss the effect of zoning regulation on land rights in the context of customary tenure. This study, therefore, explored the effects of zoning regulation on land rights through compliance with residential building standards in the context of customary tenure.

A single case study approach was used to answer the research questions. Use right holders (44) were sampled from West Ashiyie in the Greater Accra region of Ghana to give their views on factors that influence compliance and how their land rights are affected by zoning. Other key informants such as the staff of the Municipality and customary land holders were interviewed on enforcement mechanisms, awareness programmes and land rights. Qualitative, quantitative and literature were methods used in data gathering. This study used GIS techniques and SPSS to analyse spatial and non-spatial data.

There is high compliance with plot sizes, type of land use and type of building. The residential standard that is least complied with use is plot coverage. This is due to large household size. Furthermore, use right holders on customary lands do not risk losing land rights due to non compliance with zoning regulation as the worse that can happen is the payment of fine. Land right is therefore perceived to be secured due to one's membership of the landholding community, by having a land title certificate/indenture as well as financial commitment. As a result, plots are being subdivided and merged at will and with the help of customary landowners. There is the need to review laws governing zoning and land acquisition in Ghana to involve planners in the land transfer process if zoning regulation is to be effective on customary lands. It is recommended that further study is carried out on state-owned lands to see how land rights are affected by zoning regulation since regulations in such areas are more rigid.

Keywords: *Zoning regulation, Residential standard, Customary land tenure system, Land right, Compliance*

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MMDA's	Metropolitan-Municipal-District Assemblies
SDF	Spatial Development Framework
GCP	Ground Control Point
GPS	Geographical Positioning System
SPC	Statutory Planning Committee
GIS	Geographical Information System
EPA	Environmental Protection Agency
LUMP	Land Use Planning and Management Project
LI	Legislative Instrument
GIS	Geographic Information System (Science)
EPA	Environmental Protection Agency
HH	Household
J.H.S	Junior High School
S.H.S	Senior High School

1. INTRODUCTION

1.1. Background and justification

Land tenure systems are set by the laws governing land in a country. This can be statutory, common law or customary. Many at times, a mixture exists in a country. Ghana has a dual system where statutory and customary land tenure systems run parallel in urban, peri-urban and rural areas. Customary lands constitute about 80% of all lands in the country whiles the remaining 20% is owned by the state (Adu-Gyamfi, 2012). Customary lands are managed by chiefs, skin and family heads in trust for the people. Every member of the stool, clan or family have a right to use the land whiles the management right rest with the custodian (chief, skin and family head). Members of the land owning group as well as settlers (those who acquire leasehold title) have a number of rights; the right to use, right to alienate and right of away. In recent times, customary land tenure systems have changed profoundly by colonial and post independence interference by government. According to Arko-Adjei, (2011), many African countries have sought to replace customary land tenure system with formal land administration systems (land titling and registration). This has rendered Customary authorities ineffective in managing and regulating land use (Cotula & Chauveau, 2007) as this has been taken over by formal land administration systems.

Formal or conventional land administration system is defined by UNECE (1996) as the "*process of determining, recording, and disseminating information about the ownership, value, and use of land when implementing land management policies"*. Williamson et al, (2010) identified four main functions of land administration namely tenure, value, use and development. Land tenure is concerned with the process and the institutions that grant access to use rights, control and transfer of land and also the responsibilities and restrictions that come with it. Land value on the other hand, assesses the value of land and associated properties through taxation and valuation and adjudication of disputes that come with it. Land use is the process and institutions that control land use by adopting land use policies and regulations; enforcement of land use regulations; and managing adjudication of land use conflicts. Land development implements construction plans or development proposals for building new urban neighbourhood; change of land use through granting of planning permissions and building permits.

Land use planning is a regulatory component of the land administration paradigm (Williamson et al, 2010). It is used to efficiently and effectively manage land and ensure its sustainability for future generations. Land use planning seeks to present a development approach that contributes to the prevention of land use conflicts, the adaptation of land uses to physical and ecological conditions, the lasting protection of land as a natural resource, the lasting productive use of land and a balanced use that fulfils all social, ecological and economic requirements (GIZ, 2012).

Zoning, a component of land use plans, typically specifies the areas in which residential, industrial, recreational or commercial activities may take place (Onsted & Chowdhury, 2014). Zoning regulation is a form of control by the responsible land governing agency on the physical development of land and the kind of use to which each individual property may be put. It regulates setbacks, minimum parcel size, permissible uses in a zone, type of buildings and maximum occupancy rate among others. Although zoning regulations ensure compatibility of land uses to minimize health hazards, ensure that land is put to its highest and best use and also to conserve natural resources; it may restrict the enjoyment of land rights.

Individual land owners and use right holders are required by statutes to implement these regulations. This may limit how land rights can be exercised.

The main law backing land use planning in Ghana is the Town and Country Planning Ordinance, CAP 84 (1945). Sections 9 and 10 states that when an area is declared a planning area, use right holders within the planning area shall not carry out any development be it construction, demolition, alteration, repair or renewal until a final scheme is prepared and approved and planning permission granted. According to the ordinance, individual land owners in a planning area cannot use their lands except in accordance with the scheme (da Rocha & Lodoh, 1999). This law is assisted by National Building Regulations, (LI 1630, 1996). LI 1630 regulates all physical developments in Ghana and addresses the issues such as the acquisition of permit prior to development, setback, plot area, the orientation of building among other things. The Local Government Act (Act 462), which was passed in 1993, decentralized planning by making Metropolitan-Municipal-District Assemblies (MMDA's) planning authorities in their jurisdictions. MMDA's can therefore, prepare and enforce their local plans. This implies that, although customary land owners sell land to individuals, the preparation and approval of planning schemes, enforcement and sanctions are carried out by the government (MMDA's).

Primary and secondary rights such as the right to use, right to dispose of, right of way, right to exclude and right to manage are restricted by zoning regulations. Article 18 of the 1992 constitution of the republic of Ghana states that *"every person has the right to own property"*. The National Land Policy of Ghana (1999) also advocates for the protection of land rights. Residential building standards implemented through local plans however may interfere with this right by limiting the extent to which use right holders can exercise their right over their land. Eventhough there has been a number of researches relating to zoning regulations (Arimah & Adeagbo, 2000; Ayyoob, Yoshihiro, Kohei, Satoshi, & Akito, 2014; Baffour Awuah & Hammond, 2014; Burby, May, & Paterson, 1998), the focus was more on determinants of compliance with zoning regulations and how to improve it. Other studies (Alnsour & Meaton, 2009; Baffour Awuah, Hammond, Lamond, & Booth, 2014) showed some benefits and factors affecting compliance with residential regulations. Little is known of the effects of zoning regulations on the enjoyment of land rights in Ghana in the context of customary tenure using residential building standards as a unit of analysis. This study looks at how zoning regulations interferes with land rights through compliance and conformity to prescribed requirements.

1.2. Problem statement

Zoning has been identified as one of governments 'police power' (Fischel, 2000). Zoning regulations ensure compatibility of land uses, minimize health hazards, ensure that land is put to its highest and best use and also conserve natural resources. It may however restrict the enjoyment of land rights by intruding into private property right which interferes with the operation of property market as well as limiting the amount of land available for residential uses (Fischel, 2000). This can have an effect on land values and housing prices (Quigley & Rosenthal, 2005). Restrictions such as subdivision requirement and type of building material can have an effect on the cost of housing construction, thus increasing the price of residential houses. Other restrictions such as maximum plot coverage and maximum number of rooms also have the potential to affect supply of housing thereby increasing rental prices. UN Habitat (2008) estimates that 5 million people are displaced every year worldwide due to force eviction. It further states that some of these forced evictions are due to developmental projects and planning frameworks.

There has been considerable research into effect of various forms of land use regulations on urban form, prices of housing and pattern of development. So far studies have not paid much emphasis on how zoning

regulation affects land rights of use right holders. This study therefore investigates how compliance with residential building standards affects land rights of use right holders in the context of customary tenure system.

1.3. Research objective

The main objective of the research is to explore the effects of zoning regulations on land rights of customary use right holders, focusing on compliance with residential standards in Ashiyie, Accra.

1.4. Sub-objectives

The following sub-objectives will be met to realize the main objective.

1. To identify factors that influence compliance with zoning regulations.
2. To identify spatial changes that reflects compliance with zoning regulation.
3. To analyze how zoning regulation affects land rights

1.5. Research questions

The following research questions will be answered to achieve the main objective.

1. To identify factors that influence compliance with zoning regulations

    a) What motivates use right holders to implement zoning regulations?
    b) How does enforcement influence use right holders to implement permitted uses?
    c) What actions do people take to implement the permitted uses?

2. To identify spatial changes that reflects compliance with zoning regulations.

    a) What spatial changes reflect conformity to plan?
    b) What spatial changes reflect compliance with residential standards?

3. To assess how zoning regulations affects land rights.

    a) How are land rights affected by zoning regulations?
    b) How do use right holders defend their land rights against prohibited uses?
    c) To what extent can use right holders implement permitted uses?

1.6. Conceptual framework

This is an explanation showing the main ideas (concepts, variables) to be studied and the relationship between them (Miles & Huberman, 1994). There are four main concepts to be studied namely; residential standards, land rights, land use change and factors that influence compliance as depicted in Figure 1.1. Residential standards that are permitted and prohibited causes land use change. Land use change comes about as a result of conformity of residential buildings to the local plan and compliance by land owners to lay down standards. Socio-economic factor, motivation, enforcement mechanisms and administrative practices do not only influence compliance but also influence land owner's decision to change land use. It has been established in literature that enforcement of residential standards restricts land use thus may affect land rights such as right to use, right to sell, right to benefit from land among others. However, the extent to which the implementation of residential standards restricts land rights in Ghana in the context of customary land tenure has not yet been established in existing literature. This study therefore investigates

how compliance with residential building standards interferes with land rights of use right holders in the context of customary tenure system.

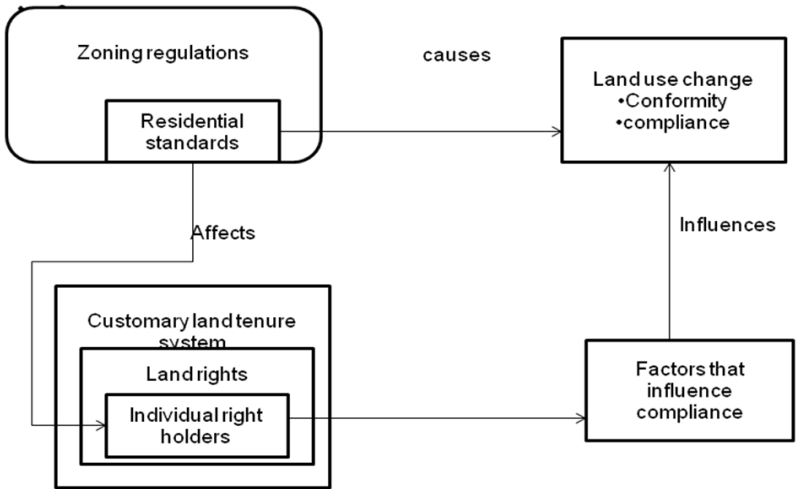


Figure 1.1: Conceptual framework

1.7. Thesis structure

The thesis is organised into 5 main chapters as described below.

Chapter 1: Introduction
This chapter comprises of the background, justification, research problem, objectives, research questions and conceptual framework. This specifies the aim of the research and what will be achieved.

Chapter 2: Literature Review
Literature related to land rights, land tenure systems, land use planning in Ghana, zoning regulations on customary land as well as factors that influence compliance with residential standards are some of the key concepts reviewed in this chapter**.**

Chapter 3: Research Methodology
The research design and methodology, sampling techniques, sources and method of data collection will be the focus of this chapter. This chapter consists of how field data was analysed and limitation faced in data collection.

Chapter 4: Results and Findings
This chapter presents results and findings from the field data and secondary data. This includes opinions and views of respondents and officers interviewed as well as observation.

Chapter 5: Discussion of Findings
In this chapter, the findings are discussed in line with literature for agreement and discrepancies in order to know the effects of zoning regulations on land rights on customary lands.

Chapter 6: Conclusion and Recommendation
The answers to the research questions are summarised in this chapter and recommendations made for further studies.

2. LITERATURE REVIEW

This chapter reviews key concepts underlying the research. Concepts reviewed include land rights, land rights under customary land tenure, land use planning and zoning regulations, effects of zoning regulation and compliance with residential standards.

2.1. Land tenure systems

Palmer et al., (2009) defines land tenure as rules that define how property rights to land are allocated within society, how access is granted to rights to use, control and transfer and also the responsibilities and constraints. Land tenure systems can be broadly categorised into four: private ownership; communal ownership; state ownership; open access (Giovarelli & Hanstad, 1999; GIZ, 2012)- (Figure 2.1)

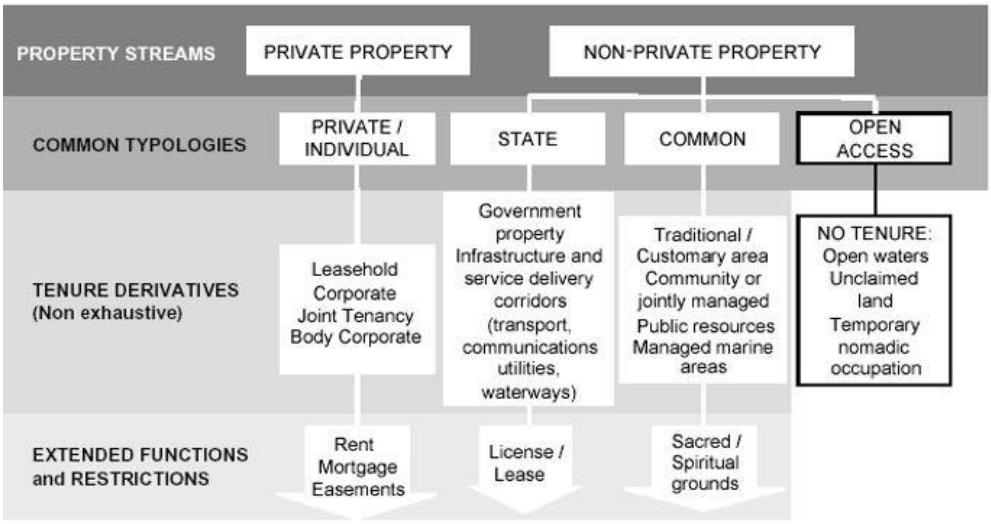


Figure 2.1: Common land tenure systems (Dalrymple, Wallace, & Williamson, 2004)

GIZ, (2012) describes the various tenures as follows:

- **Private tenure:** These are tenures held by individuals or legal entity which can be restricted by regulations imposed on them by the state. It fosters local and global investment when well formulated (Ostrom & Hess, 2007).
- **State tenure:** This denotes tenure held by state agencies on behalf of government. These tenures can be transferred to individuals through leaseholds. The management lies on the government and its use is highly restricted (Giovarelli & Hanstad, 1999).
- **Communal tenure:** This includes collective, group and other customary forms of ownership in which a leader designated controls the rights. This kind of tenure dominates in Africa, rural china and parts of south pacific (Giovarelli & Hanstad, 1999). This is the kind of tenure where rights are held by the community. These rights are enjoyed by members under rules and procedures. It belongs to a stool, tribe, clan or family. Non members of this group may acquire leaseholds for a specific duration.
- **Open access:** These are cases when property rights are not assigned. Access to resources is not regulated. Although open access does not exist anymore, state lands that are not well managed tend to become openly accessible.

Most countries practice all tenure types simultaneously but one tenure system always dominates. In Africa and most developing countries, communal or customary tenure is dominant. Land tenure is therefore formal (legal) or informal (customary) rules invented by society to regulate how people relate to land. Land tenure issues are important to ensure planned growth of urban and peri-urban areas as lands needed for developments are governed by rules of tenure.

2.2. Land rights

Land rights have been described as the backbone of land tenure system (Cotula, 2006). It is defined as the right a person has over landed property (FAO, 2002). Right to land is linked to right to food, shelter and other human rights (De Schutter, 2010; UN Habitat, 2008). In practice, multiple rights to land can be held by different persons. Jacobus (2003) likened land rights to a bundle of sticks where ownership is a compilation of rights depending on the type of stick held. Rukum (1998) identified four sets of land rights: Use right are rights to grow crops, make permanent improvement, harvest trees etc; right to transfer are rights to transfer land or use rights, that is right to lease, mortgage, sell, rent; exclusion right is that right by an individual or group to exclude others from the right to use and transfer; enforcement rights refer to legal rights held by institutions and administration to guarantee. The main rights, however, are limited to use property, right to receive income by contracting with others and the right to transfer ownership of land either through sale, gift or mortgage.

There are restrictions and responsibilities/obligations associated with land rights(Bennett, 2007; FAO, 2002). Williamson et al (2010), argues that land policies should not only focus on land rights of landowners but consider responsibilities and restrictions to achieve sustainability. Restrictions on rights are means of ensuring effective management of land use, provide utilities and infrastructure and ensure sustainable development (Enemark, 2007). Restrictions are how the government deal with conflicting land uses and provide public goods such as right of way, open spaces (recreational centres), water and electricity lines (Deininger, 2003). Restrictions applied through zoning, growth controls, development fees, building regulations and standards affects how landowners exercise their land rights. In most countries, the onus lies on the buyer to check the suitability of the land for their intended purpose before buying it (Bennett, 2007). But this does not happen in most cases and buyers are faced with the challenge of complying with rigorous regulations before enjoying their land rights.

2.3. Land rights under customary land tenure system

Customary tenure refers to land held on the basis of community and individual rights and the mechanisms for using these rights arises as a result of accepted custom practices (Cotula & Chauveau, 2007). Cotula, (2006) observed that these practices are based on customary laws whose legitimacy can be found in tradition applied over time immemorial. Customary land tenure system is the major mode of land holding in Ghana (Arko-Adjei, 2011; Nkwae, 2006). According to da Rocha & Lodoh, (1999) the custodians (chiefs, skin and family heads), hold the highest title in land (allodial title). The allodial title holders, as summarised by Kasanga & Kotey (2001) are custodians holding the land in trust on behalf of the community. These custodians confer use rights on individuals through leasehold and freehold title. Individual lands (leasehold/freehold) are lands that have been acquired by an individual from customary authority as private property. Leasehold is granted to a person to occupy land for a specified period. Freehold, on the contrary, is held for an indefinite period. Under either title, the leaseholder or freeholder has use rights including right to grow crops and make permanent improvement on land and also right to receive income by contracting with non-owners. However these use rights are subject to restrictions and obligations as imposed by the laws of the country, in this case, zoning regulations. The individual land owner has an obligation to implement zoning regulations in accordance with the planning scheme of the

area. In other African countries like Rwanda, security of tenure is affected by restrictions on land uses through zoning regulation. By law, use right holders can only have freehold after completing developments in accordance with planning and zoning regulation (Mukahigiro, 2015).

Most peri-urban areas in Ghana and sub Saharan Africa operate in a pluralist environment where statues and customary laws, government and indigenous institutions, traditional norms and corporate values run parallel. Whiles the access to land is controlled by customary land owners, management through planning comes from the District Assemblies (Section 46 of Act 462). The mode of land alienation and tenure system can therefore have implications for planning (Yeboah & Obeng-Odoom, 2010).

2.4. Land use planning and zoning regulation

Land use planning are processes and decisions taken to ensure sustainable use of land as a natural resource. Fischel (2000) describes zoning regulation as a property right by the Municipality to shape residential environment. It therefore creates the conditions required to achieve an environmentally sustainable, socially just, desirable and economically sound land use and ownership type (GIZ, 2012). According to Pressman & Wildavsky (1973), as cited in Loh (2011), the purpose of planning is to control future development, therefore, if this is not achieved then planning has failed.

Over the years, zoning regulations have been used as a tool to promote efficient utilization of land. Zoning is the allocation of parcels of lands to satisfy a unique need that is not otherwise against stipulated regulations. Furthermore, zoning is based on the infrastructural developments that can the established in a particular land zone. In the peri-urban setting, zoning is categories into five major divisions: residential, mixed residential-commercial, commercial, industrial, and special (e.g., power plants, sports complexes, airports, shopping malls etc.). Zoning regulations seek among other things to protect residential areas from being invaded by commercial and industrial activities and also promote the orderly development of industrial and commercial areas. For developers to adhere to zoning regulations according to agreed permits there are a number of regulations that bond the allotting and use of lands. Such regulations among others prescribe; the land coverage, the form of constructions, the housing density, maximum building heights, environmental protection requirements etc. This is to provide adequate light, good air circulation, protection from fire, overcrowding on land etc. However, as population increases, pressure on land also increases. This has an effect on plots allocated for various land uses including residential as they become smaller in size (De Schutter, 2010). This implies that minimum plot sizes stipulated by zoning regulation would have to be revised from time to time to adapt to demands of society.

Proponents of Zoning argue that it adds value to real property when buildings are improved and when land uses are changed from residential to commercial, agricultural to residential (Fischel, 2000). This may affect people's right to use land. Arguments against zoning are associated with additional cost, delay housing production and lengthen construction process (Mayer & Somerville, 2000; Quigley & Rosenthal, 2005). This comes through requirements such as building permit and standards. Another argument put up by UN Habitat (2008) is that land use and zoning affects land rights of people especially those in informal settlements as they are forcefully ejected to pave way for developmental projects because they do not have title to land and means to implement new regulation. Thus land rights and tenure security can be affected by zoning regulations.

2.5. Land use planning in Ghana

Land use planning in Ghana has evolved over the years to adjust to a dynamic society. This evolution is reflected in changes in implementation instruments and methods (Šliužas, 2004). The master plan

approach was the basis of use planning in Ghana in the early 1960's. However, it was unrealistic in assessing needed resources to implement plan (TCPD, 1991). Much emphasis was not placed on local economy and social development to generate wealth, expertise and needed resources for a better environment. The master plan has been described by Turkstra (1998) as static and hindrance to development rather than encouraging it. Other shortcomings of the master plan identified include longer preparation time; the need for a strong administrative system to oversee it; lack of coordination among developing agents at different levels of government and the private sector.

These challenges led to the adaptation of a three-tier planning system in Ghana. This system is made up of the Spatial Development Framework (SDF), Structure Plan and Local Plan (TCPD, 2011). The SDF can be at national, regional and district level. It describes where the structure plans should be undertaken. Structure plan based on SDF coordinates land uses in areas where development is taking place and be legally enforceable; local plans describes developments on each plot and must be accurate to +/-0.3m. It is the basis for permit application and street naming (Figure 2.2).

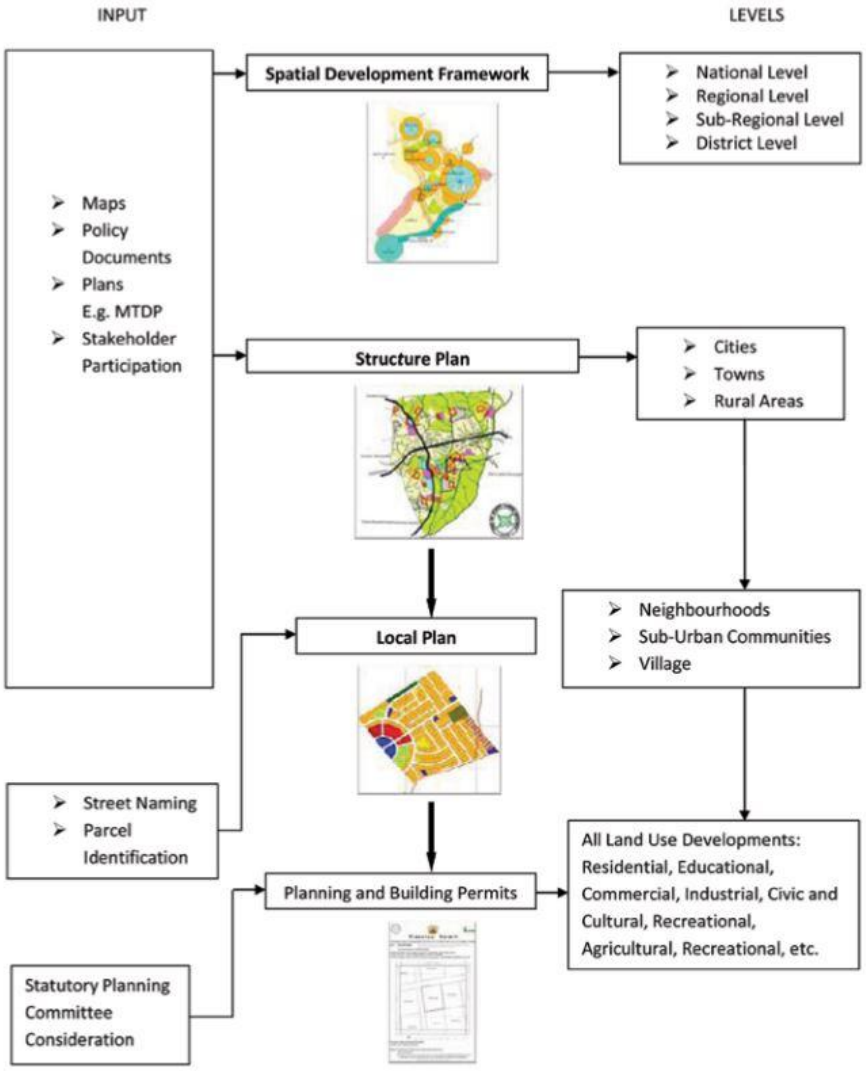


Figure 2.2: Three-tier planning system in Ghana (Source: TCPD, 2011)

The local plan defines plot sizes, permissible uses, heights, densities, coverage on each plot in relation to planning regulations, types of building, shows right of way for roads and footpaths, drainage, electricity etc (TCPD, 2011).The local plan is prepared at the district level and sets out details on land uses and forms

the basis of development control as landowners are obliged to conform to the plan (Šliužas, 2004). Plans are made for individual plots in the short or medium term. This plan is prepared with inputs from all stakeholders including representatives from the land owning community. Local plans may be prepared for new residential areas, commercial, industrial mixed use and slum upgrading areas. The aim is to increase efficient use of land, reduce urban sprawl, and provide accessibility among others.

In line with local plan, prospective developers are required to obtain building permit from the appropriate authorities (MMDA's) prior to developing their lands. The reason for the building permit is to screen proposed developments to ensure that it's in line with standards (Baffour Awuah et al., 2014). In spite of these provisions, there is mass disregard for planning regulations in urban areas in Ghana (I. E. A. Yeboah, 2003). Areas with some form of order in planning also have some levels of unauthorised land use conversions. Baffour Awuah & Hammond, (2014) notes that Lands Commission pecks land use conversions on Prime government residential areas such as Airport, East Legon, Roman Ridge and Achimota at 20%. This weakness has been adduced to lack of awareness of zoning regulations, high cost of compliance, political interference and under resourced planning institutions (Larbi, 1996). Studies by E. Yeboah & Obeng-Odoom (2010) revealed several inefficiencies in the planning system in Ghana including inflexible land tenure system. It revealed instances where plan implementation was left to customary land holders with no guarantee that plans will be adhered to.

In view of the above problems, the Land Use Planning and Management Project (LUMP), a reform initiated by the government of Ghana as part of USD 55 million multi-donor funded project under Land Administration Project (LAP) was initiated in 2007 (GOG, 2015). LUMP aimed among other things to streamline and provide a sustainable land use planning in Ghana by involving all stakeholders in planning. Some objectives of LUMP include but not limited to developing and testing process of land use planning and controls in partnership with communities and customary land owners as well as public awareness campaigns.

2.6. Conformity of land use plans

Planners continually search for ways to evaluate implemented plans. This is due to the amount of money and time spent in making plans only to have them on shelves without being implemented. Non-conformity is an issue for planners as it indicates plan failure or a problem in the development process Two approaches used in evaluating plan implementation are conformance-based and performance-based (Laurian et al., 2004; Loh, 2011). Conformance based looks at outcomes and links to plans in relation to development. There is conformity if development patterns meet policies and regulations (Laurian et al., 2004). Non conformance occurs when plans do not match with actual land uses. This can be as a result of breakdown or variations in the planning process (Loh, 2011). It assumes that development should be guided by policies, thus, the degree to which development conform or depart from the plan can be measured. Performance based on the other hand considers the plan as a guide for future planning decisions and not just a blue print (Laurian et al., 2004). In this case, the plan is considered implemented if consulted at decision making process. Performance based approach is based on the assumption that plans are dynamic, thus, deviation from the plan may still be considered implemented.

The conformance based is the most relevant and preferred since it measures the outcomes of development and influences development (Burby et al., 1998). According to Talen (1996), as cited in Loh (2011), physical development plans call for unique methods to evaluate conformance. Following the critiques from Talen, GIS tool has become the preferred choice to assess land use changes and conformity. It helps to analyse the difference between plans and their outcomes.

Studies conducted by Loh (2011) in four communities in Southeast Michigan Council Of Governments showed that urbanizing towns had much percentage of non conformity than rural communities. This is as a result of development pressure due to rapid urbanization (Brody & Highfield, 2005).

2.7. Compliance with residential standards

Low adherence to regulations by use right holders has been attributed to the implementation process of local plans by the responsible stakeholders. Such attributes include; weak enforcement mechanism, complex bureaucratic procedures, Limited resources and qualified staff (Payne & Majale, 2004; Goodfellow, 2013). This can lead to poor enforcement. Administrative practices such as administration culture and enforcement mechanisms are therefore important for managing and controlling residential development. The culture of Municipality as a whole, as well as behaviours and values of individual staff, help to control and manage urban development. It is in the power of local authorities to enforce residential standards. Alnsour & Meaton, (2009) argue that enforcement of regulations in most developing countries is influenced by negative manifestations such as favouritism, corruption and nepotism. Studies conducted in Jordan by Alnsour & Meaton (2009) showed that the behaviour and values of individual staff negatively affect compliance with residential standards. Municipal culture is therefore factor in managing development.

Enforcement mechanisms such as notice of removal, fine and demolishing can compel user right holders to adhere to regulations. Enforcement, therefore, requires a change in administrative culture and mechanisms. Studies have been carried out to distinguished between enforced and voluntary compliance (Boamah, 2013; Burby et al., 1998). Enforced compliance calls for better trained personnel and more resources. This is because this influence the task of enforcing compliance; poorly or not at all. Voluntary compliance on the other hand calls for communicating standards to use right holders by persuading them to comply, offering incentives to those who comply and only persecute repeated violators. Planners are therefore faced with either improving their staff base and resources to detect or correct violations or create conditions under which violations are unlikely to occur. Specific task include capacity to detect developments that do not adhere to residential buildings standards, detect buildings without permit, assessment of building plans for compliance with residential standards inspection of buildings during construction for compliance and prescribe appropriate corrections for non compliance (Schilling & Hare, 1994). Sanctions such as 'stop work', fines and demolishing are sometimes used to bring compliance and how the absence of such enforcement mechanism led to non-compliance (Arimah & Adeagbo, 2000; Burby et al., 1998). Compliance with regulations has also been linked to seeking authorisation before developing land (Boamah, 2013). This authorisation takes the form of building permit. Boamah (2013) suggests decreasing time and cost to process permit in order to increase compliance.

Studies conducted by Arimah & Adeagbo, (2000) in Nigeria showed that the most violated of building standards are plot coverage, setback stipulation and the complete change of use from residential to home-based enterprise. On the aspect of land owners, ignorance of regulations and lack of appreciation of the benefits of compliance are some of the reasons cited for non-compliance (Arimah & Adeagbo, 2000). Studies have also shown that in some cases non-compliance by land owners is actually deliberate (Baffour Awuah & Hammond, 2014). Quite apart, in areas where there is compliance with zoning regulations, it is relatively high among the elite due to the low cost of compliance and the need to provide evidence of compliance for other transactions such as bank loans (Baffour Awuah & Hammond, 2014).

For this study, Compliance with residential standards is defined as the planning standards specified for residential zone B (according to Zoning Guidelines and Building Regulation of Ghana, 2011). This relates

to minimum plot size, maximum plot coverage, type of buildings permitted (detached, duplex, compound houses) and prohibited uses. Plot sizes ranging from110m² (zone C) – 500m² (zone A); maximum plot coverage ranges between 60% (single storey detached) - 70% (single-storey semi-detached). Permitted uses include detached, duplex, row houses and compound houses, local shop, basic education and childcare centres, public open spaces, community facilities. Prohibited uses include commercial and industrial development, sports facilities, animal husbandry, warehouse and cemeteries.

2.8. Factors that influence compliance with residential standards

Factors that influence compliance or non-compliance with residential standards include socio-economic factors, administrative practices and uncertainty of residential standards. According to Alnsour and Meaton (2009), land owners income, educational level, household size and awareness of zoning and residential regulations can affect compliance. Prevalence of these factors may show willingness and intention to implement or not to implement regulations. Household income can be defined as the total income from all sources, including salaries, wages, incomes from informal sector and business as well as income from investments (Alnsour & Meaton, 2009). Household income can be linked directly to some aspects of the construction process such as area of the house, design and quality (Fekade, 2000). In developing countries including Ghana, where incomes are generally low, it is expected that extent of compliance is positively related to level of income (Alnsour & Meaton, 2009). According to Ghana Statistical Service (2012), Household size is defined as a person or group of persons who live together in the same house or compound. Members may not necessarily be related by blood or marriage. Studies have by Fekade (2000) argued that bigger households demand more space and are therefore unlikely to comply with standards.

Level of education is defined as the highest level of formal education attained by a person (GSS, 2012). Studies in Ibadan, an urban area in Nigeria showed that educated people are more aware of residential standards, thus are in a better position to comply with regulation. Awareness is information provided to the public about zoning regulations and standards. The extent to which people are aware of the existence of standards can impact on compliance. Studies have shown that awareness may not necessarily lead to compliance as non compliance maybe deliberate attempt by use right holders to flout regulations.

2.9. Conclusion

Existing literature on key concepts in this research have been reviewed in this chapter. Literature from various researchers was reviewed to provide various perspective on land right, customary tenure, the effects of zoning regulation, factors that influence compliance and conformity. Factors that influence compliance include household size, household income, awareness, education among others. The various forms of land tenure were identified as state, customary, individual and open access. Individuals in Ghana derive their land rights from either the state or customary landowners. However, restrictions in the form of zoning and residential standards come from the local government. Effect of zoning is also seen as increment in the price of housing, delays in constructions and loss of land rights when people are unable to comply. It has set the scene to explore further effects of zoning regulation (focusing on residential standards) on land rights in the context of customary land tenure system.

3. METHODOLOGY

This chapter gives an introduction to the city of Accra and the study area, West Ashiyie. It also explains the kind of customary land tenure in the study area. The chapter further describes the techniques and research methods that were used in answering the research questions. A description and justification of sample size and how spatial and non- spatial data were analysed is presented. The limitations in collecting and analysing data are also outlined.

3.1. Research approach

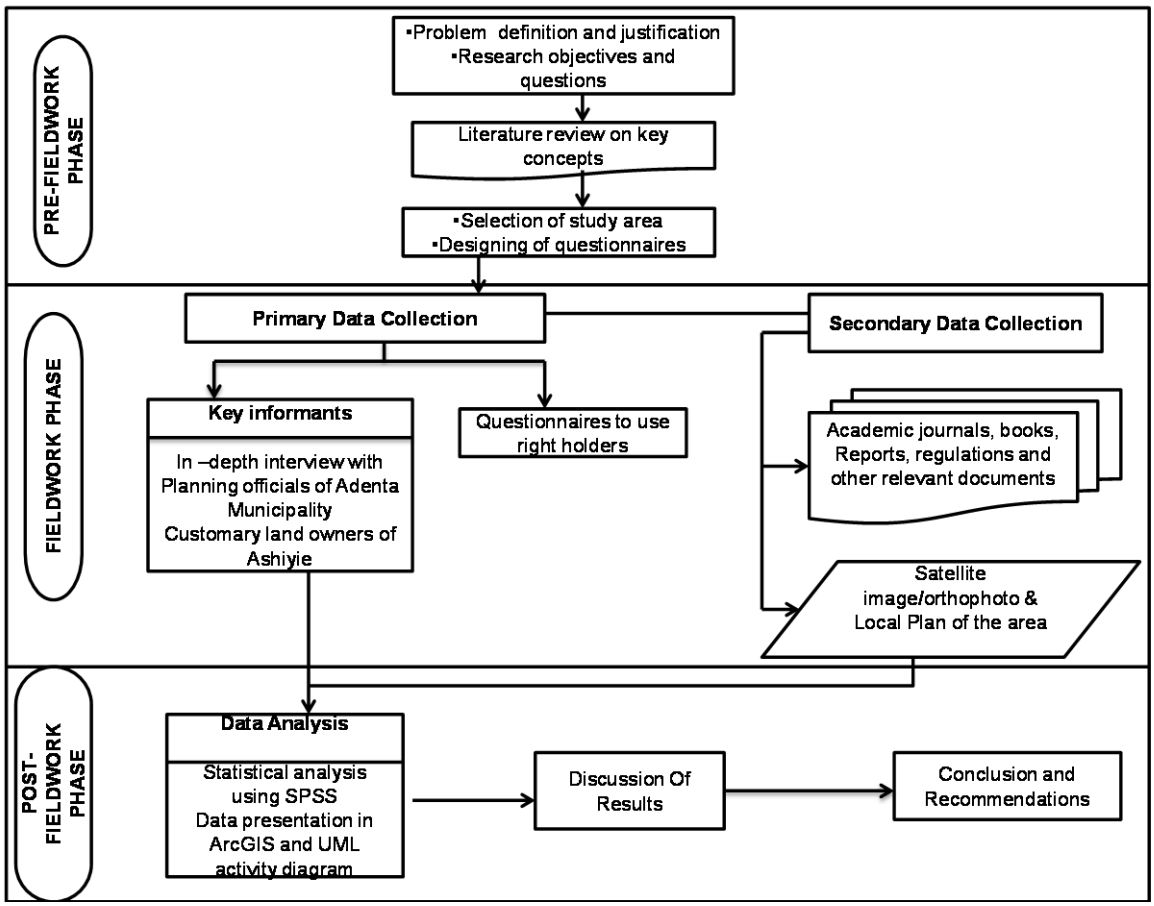


Figure 3.1: Flowchart of research phases

Case study approach was used to assess the effects of zoning regulations on land rights. This method was chosen to study a social phenomenon by analyzing an individual case to give the actual situation and to provide basis for the application of ideas in different context (Kumar, 2005; Yin, 2013). The socio-economic and cultural issues that come with zoning regulations makes the case study approach the most appropriate for this study. Therefore, a single case study approach has been used to get deeper insight into the case being studied.

The various phases of the research are the pre-fieldwork stage which comprises an introduction to the research, identification of the research problem, literature review and development of variables and indicators to be measured. Data collection took place at fieldwork phase. At the post field work phase, data collected is analysed and from the results, discussion, conclusion and recommendations drawn

(Figure 3.1). Approaches for data collection involved structured and semi structured interviews, field observations, statues, regulations and reports.

Change detection method was applied in answering the research question on spatial changes that reflect conformity to local plan in the study area. This was through determination of changes that has occurred since implementation of the plan with 2008 and 2014 images. Spatial analysis was done using GIS techniques. Other analytical aspect of spatial data was done using statistics from SPSS and field observation. Research matrix detailing the variables and methods used is shown in Appendix H.

3.2. Study area selection

Accra is the capital city of Ghana. This city, though the smallest of all ten administrative regions in terms of area, is the second most populated (4,010,054 out of 24,658,823) accounting for 15.4% of the total population (GSS, 2010). It is the most densely populated with 1,236 persons per square meter. This is an indication of the excessive pressure on land and its related resources in this region. There is therefore an increasing demand for peri-urban lands as the cities get crowded (Arko-Adjei, 2011). Developments are fast springing up in peri-urban area as people try to escape the frustrations in the city (traffic congestions, high rents, expensive land etc). This rush for peri-urban lands coupled with lack of development controls can result in various spatial problems (Alnsour & Meaton, 2009). These problems include haphazard development that does not fully comply with residential standards, overcrowding, air and water pollution (Meaton & Alnsour, 2006).

The greater Accra region has been divided into 16 administrative districts which include Adentan Municipality. The Adentan Municipality has a mandate under CAP 84 to prepare, implement and enforce local plans in its jurisdiction since the master plan of Accra, prepared in 1958 did not cover that district (only Accra-Tema)-(TCPD, 1991).

Study area

Ashiyie, one of the 17 communities in the Adentan Municipality is the focus of this study. It is a fast developing peri-urban community with a total population of about 4,236(7th populous in the Municipality) with 561 houses as at 2010. It is 11.5km from Accra city thus most residents commute to the city to undertake daily activities. It is home to a number of real estate companies such as Morgan Properties and Ampomah Estate. The study area is shown in Figure 3.3.

Lands in Ashiyie are managed by chiefs and family heads under the customary land tenure system. Ashiyie lands which cover a total area of 12,000 acres is under the Labadi stool. Lands are owned by the Odumanye clan of Mnali We (Figure 3.2). Individual Land owners and estate developers who acquire lands from the chief and family heads (customary land owners) have 99 year leasehold interest which comes with use rights, right to benefit, right to transfer (structure shown in Figure 4.21). Whiles their right to use is restricted by Municipality regulations through residential standards; their right to transfer is restricted by customary land owners. Individual land owners cannot transfer land to a third party without informing customary landowners.

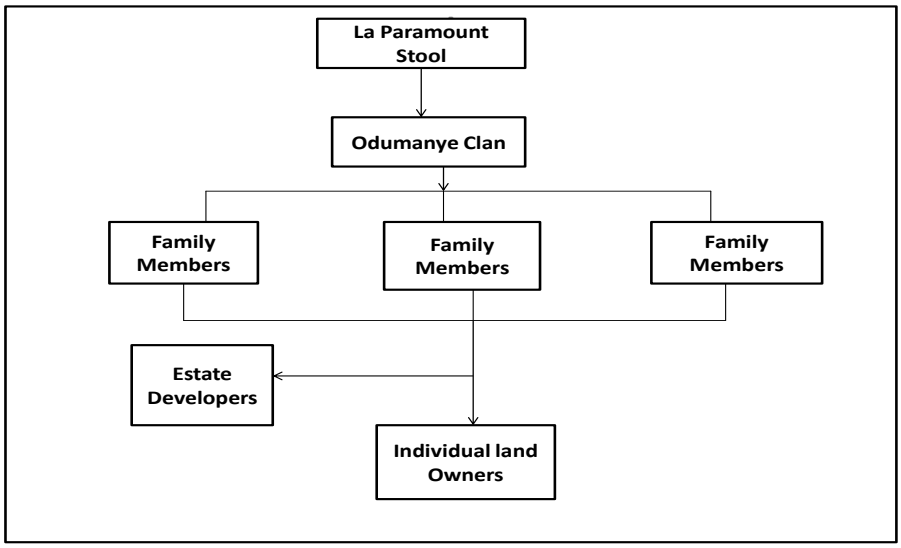


Figure 3.2: Land ownership structure in Ashiyie (Author's construct)

The West Ashiyie planning scheme was prepared in 1990. It is one of the few areas in Ghana to be planned ahead of development (refer to Appendix E) with just a few buildings. Ideally, rezoning is to be done every 5 years to meet demands of a dynamic society. However, this has not been done due to financial constraints. In 2008, a new zoning regulation (formalised/documented in 2010) was implemented. This however did not come with a new plan but a continuation of the 1990 plan. The new regulation document only placed the Municipality as a whole into various land use zones.

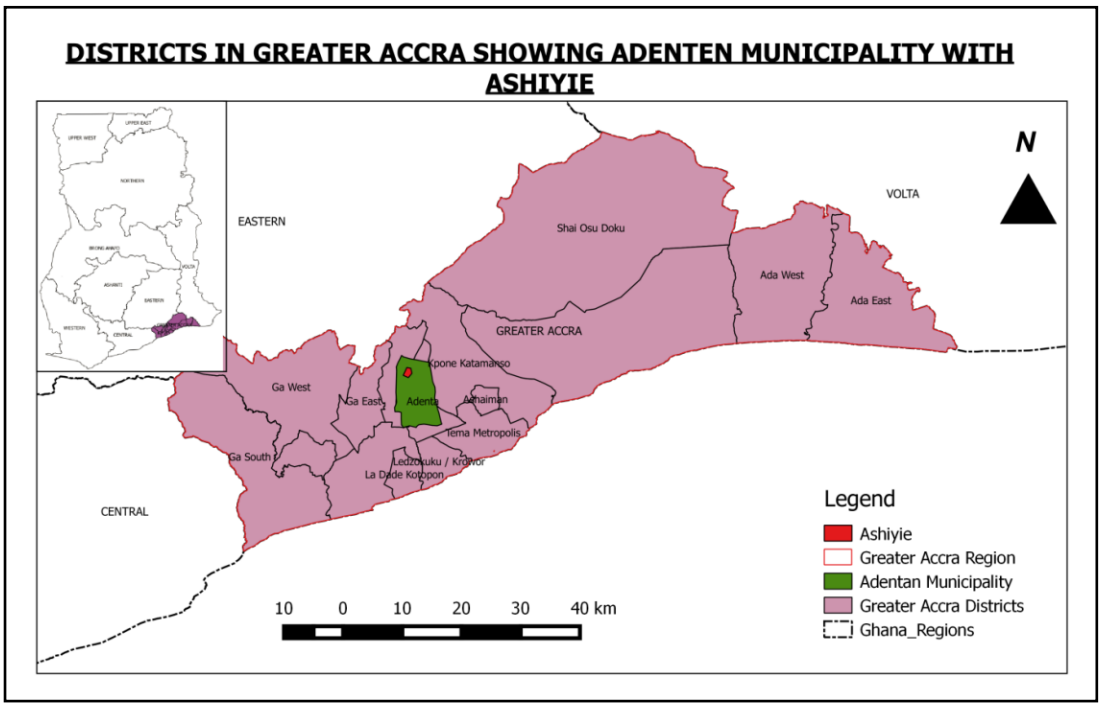


Figure 3.3: Study area

The zones in the Municipality have varying standards. Zone A (Re A), is a low density (10-15 dwellings/hectare) with detached houses as the dominating development on plot sizes of not less than 500m² and maximum plot coverage of 60-70% and is meant for mainly high income earners. Zone B (Re B), meant for middle and low income earners, provide a variety of residential uses at net densities between 16-30 dwellings/hectare. It comprises a mixture of detached, semi-detached, row and compound houses

on minimum plot of 450m^2. High density block of flats and institutional buildings, as well as Commercial, industrial and mix uses, are prohibited in both zones A and B. Zone C (Re C), intended for intensive residential development has densities in excess of 30 dwellings per hectare. The minimum plot size is 110m^2. It is meant for the deprived and cash trap. Zone D (Re D) is to be used for intensive multi-storey flats and apartment. Developments should be centrally located on the plot. Zone E (Re E) is intended for barracks, hostel and institutional housing.

Individual use right holders in zone B were considered because it includes both middle and low income earners. This will provide informed opinions of effects of zoning on land rights from different classes of respondents.

3.3. Sources and methods of data collection

Data collection took place in Ashiyie. The study focused on residential use right holders (at West Ashiyie), Planning and the Works Engineering departments at the Adentan Municipality. The specifications for residential building standards for zone B in Ashiyie and images were used as a proxy to assess the effect of zoning regulations on land rights.

3.3.1. Primary Data

- **Semi-structured and structured interview**

Structured, open and closed ended questions were used to source in-depth information from use right holders on factors that influences them to comply with zoning regulations and how zoning regulations affect how they use land (objective 1 and 3). This data comprised of Socio-economic data such as public awareness of the regulations, household (HH) income, HH size, confidence and capacity to implement the standards required and if they are affected by these standards. Semi-structured open ended questions were used to interview the Municipal Planner, Works Engineer, the Assemblywoman and 2 family heads (secretaries in the Palace) in the absence of a substantive chief (the chief passed away in 2008). The Planner and Works Engineer provided information on the planning and permitting process, monitoring and enforcement of regulations and challenges and limitations faced in the process. The Assemblywoman for the area was interviewed on awareness programmes and challenges faced by landowners in implementing regulations. The family heads were also interviewed on the role of customary authority in planning, the size of land owned and their perception of urban planning regulations existing in the area. These face to face interviews were recorded. Table 3.1 summarizes key informants selected for the interview.

Table 3.1: Key informants purposively sampled

Key informant	Role of key informant	Number of interviews
Municipal Planner	Physical planner	1
Works engineer	Monitoring and enforcement of regulations	1
Assemblywoman	Represents residents at the Municipality	1
Traditional Authority	The allodial owners of Ashiyie lands	2

Figure 3.4: Interviewing of use right holders at West Ashiyie (Source: Author, 2015)

3.3.2. Secondary data

Secondary data include images from Google Earth, Orthophoto, legal documents and policies, reports and local plans (Planning scheme of the area), books, articles and other published work relevant for this research. These data were used to augment data collected from the field and provided answers to residential building standards that affect land rights in the study area.

3.3.3. Field visit and observation

Homes of use right holders were visited to access current situation on the ground with respect to spatial changes in adherence to residential standards such as plot coverage, type of building and minimum plot size. Handheld GPS and measuring tape were used to record positions and dimensions of some land uses.

3.3.4. Spatial data

Raster image (2008) of Ashiyie was obtained from Google Earth Pro at a resolution of 0.5m. The shapefile of West Ashyie which was converted into *kml file was used to locate the study area in Google earth. This image was saved in *tiff format and exported to Arcmap where it was georeferenced. A raster orthophoto from December 2014 for the study area (obtained in 4 tiles) was obtained from Survey and Mapping Division of Lands Commission. The image is in *tiff format with a resolution of 0.2m. It shows the current situation of parcels and buildings in the study area. These images were selected based on their availability and resolution of (0.5m and 0.2m) for the study area. The orthophoto tiles were mosaiced using the mosaic tool in ArcGIS. The mosaiced orthophoto was used to clip the extent of the study area boundary.

Local plan (parcel land use data) in a raster *jpg format was provided by the Adenta Municipality. GCPs were measured with handheld GPS. Their coordinates which were in *txt format were converted into *shp format. The points were then used to georeference the raster local plan. The boundaries of the polygons

(parcel) were digitized in ArcMap to get a vector data. Field measurements were taken of 2 parcel boundaries and buildings using tape and GPS where access was granted. However, tape measurements were considered more accurate because the accuracy of the handheld GPS (eTrex Garmani) is 3m which is considered low compared to the measuring tape.

3.4. Sampling size and sampling technique

The Sample size of the study was considered not only within time and cost constraints but also because it influences the accuracy and reliability of the outcome of the study. The Alain Bouchard sampling formula was used to arrive at the sample size as shown in equation (1).

$$Sample\ Size = \frac{\left(\frac{Z_\alpha}{2}\right)^2 \times P(1-P) \times N}{[(E^2) \times N] + \left[\left(\frac{Z_\alpha}{2}\right)^2 \times P(1-P)\right]} \quad (1)$$

$$Sample\ Size = \frac{1.96^2 \times 0.5^2 \times 1{,}376}{[0.15^2 \times 1{,}376] + [1.96^2 \times 0.5^2]} = 44$$

Where;
N = Total population size (1,376 for this study); this is the total number of parcels in the plan
P = The estimated frequency for the sample size N-Proportion of success (50% for this study);
E = Tolerable/margin error (15%); this is the amount of error one is willing to accept in the calculation.
$Z_\alpha/2$ = value given to the confidence interval according to precision desired (1.96).

Sampling methods

Per the formula above, 44 landowners within West Ashiyie were interviewed. A local plan of the area was then used to identify parcels and systematic random sampling used to select parcels to be considered for the interview (Figure 3.5). Parcels were systematically sampled by using parcel ID's from attribute table in ArcGIS. The total population divided by sample size gave the width of the interval. Therefore, every 30th parcel was chosen to be interviewed. However, in areas where the plan does not fall on an exact property on the field, the property with greater proportion in the parcel on the plan was chosen. Also, immediate neighbours were chosen to replace absentee land owners (4 of such cases were experienced). Figure 3.6 shows parcels that were sampled for the interview.

The Municipal Planner, Works Engineer, Assemblywoman and family heads were purposively selected as they are in a better position to provide needed answers on zoning regulations, residential standards and enforcement, tenure systems, land rights and restrictions and awareness creation programmes.

3.5. Data analysis

Qualitative and quantitative data were entered into an electronic database and analyzed using Statistical Package for Social Sciences (SPSS) version 23. Variables were summarized using frequency distributions presented in tables, pie and bar charts. According to Field, (2009) missing data can be ignored by giving them specific code. In this research, missing values were given the code 999. Direct observation and interviews were used to access level of compliance.

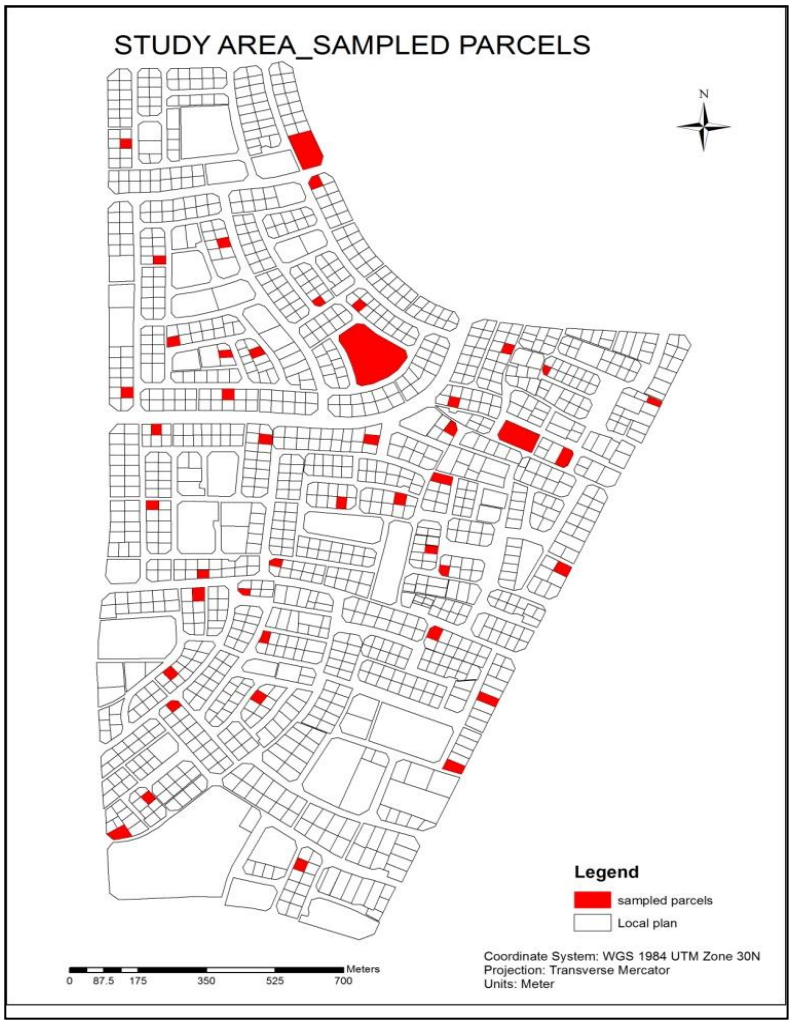


Figure 3.5: Selected Parcels in West Ashiyie

Spatial data were analyzed in ArcGIS by comparing future land use plan with current land use data (Loh, 2011). To achieve this, Images from 2008 and 2014 were visually assessed to distinguish between the changes that have occurred over that period of years. Changes in land use, changes in the shape of parcels, as well as the percentage of changes, were visualized in ArcMap. Some Plot sizes were measured on the field and compared with the area of the vector data in attribute table. The area for each parcel was computed using the 'compute geometry' in ArcGIS. Parcel boundaries were digitized over the images from 2008 and 2014 at a scale of 1: 500. Fence wall and hedges were used as a guide in digitizing parcel boundaries.

Evaluating land use change and level of conformity was done by overlaying vector data (parcel plan) on images over different periods (2008 and 2014 layers). This was done by visual interpretation of the digital orthophoto, the satellite images and the provided local plan. All images were projected to UTM Zone 30 N. An attribute join was performed in the shapefiles. After this, the field calculator in ArcGIS was used to calculate the difference in sizes (area) and percentage of changes. The result was then exported to excel. The process is depicted in Figure 3.7.

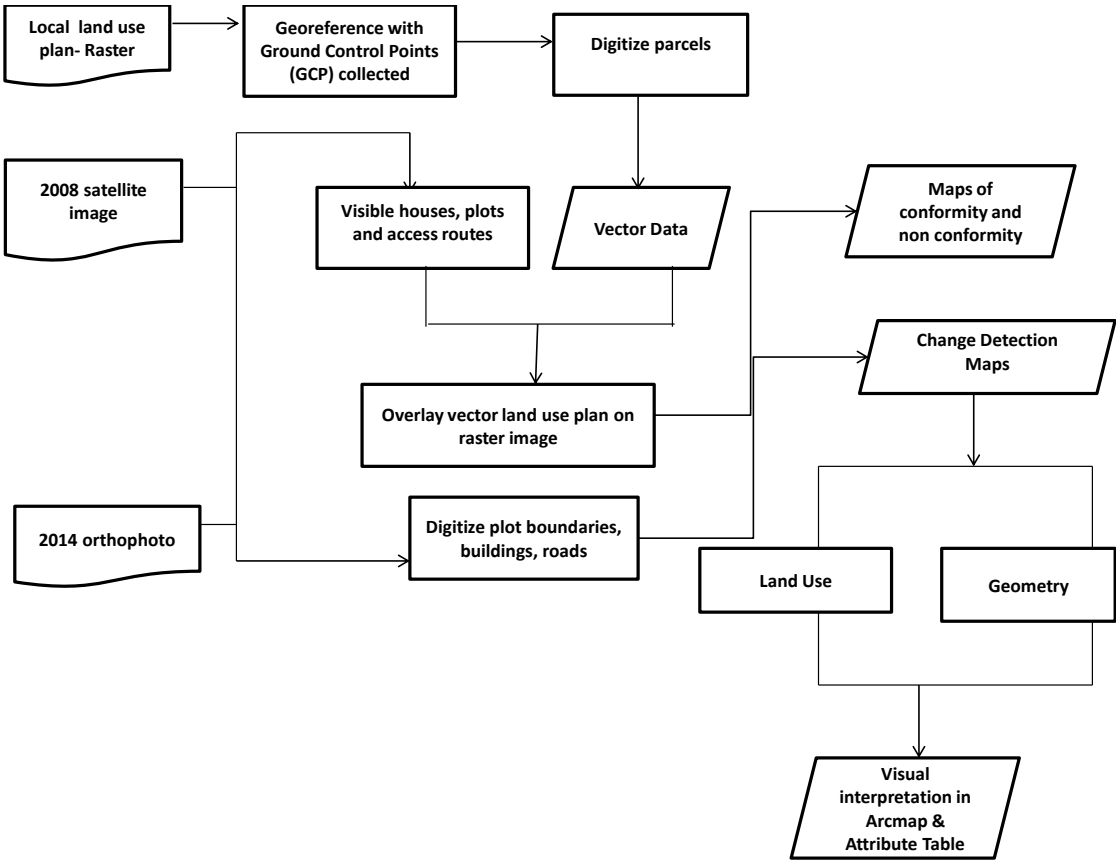


Figure 3.6: Workflow of satellite image and orthophoto datasets

3.6. Limitations of data collection

The absence of land owners on the field was a problem. Time was therefore spent in looking for these landowners. Interviews also took place in the evenings when landowners had returned from work. This was a problem as use right holders wanted to rest after work.

Measurements with tape could not be taken on the field due to resistance from landowners**.** Hence, only 2 were taken. The study was also limited to West Ashiyie due to non availability of planning schemes (Local Plan) for other areas in Ashiyie. Also, data could not be collected from other zones in the Municipality for comparison due to time constraint.

The local plan used was prepared in 1990. Adenta Municipality did not prepare a new plan to suit the new regulation and rezoning due to financial constraint and land disputes. Also, plot coverage could not be measured on the image since the orthophoto provided was not in 3D.

3.7. Conclusion

The methods and sequence of techniques used in this research were presented in this chapter. It showed why case study was chosen as an approach to study the topic. It also gives details of the sources of data how they were collected, processed and analyzed bearing in mind the objectives of the research. It also showed the basis on which the study area was selected and an overview of the study area.

4. RESULTS

This chapter presents findings from data gathered from interviews and observations from fieldwork. Issues investigated include socio-economic factors that influence compliance, the role of customary authorities in the planning process, enforcement mechanisms and limitations faced in implementing zoning regulations, how land rights are affected by zoning regulations and restrictions that respondents are affected by most. The findings provide answers to the research objectives and questions.

4.1. Factors that influence compliance with zoning regulations

Factors that influence compliance can be determined by indicators such as motivation to comply or not to comply with residential standards, enforcement mechanisms, and response to regulation. Factors that motivate landowners to comply or not to comply with residential standards can be answered by variables such as awareness of residential standards, socio-economic data such as the size of households, household income and education levels. These are measured with numbers who are aware of zoning regulation and how they came across this information, number that has ever seen regulation document. Administrative practices were used to answer enforcement mechanisms and were measured by frequency of visits by enforcement team and sanctions or penalties given. The results for each category are shown using graphs and tables from SPSS. Findings show that motivational factors differ from respondent to respondent and from standard to standard. This difference can be linked to respondent's income level, education, awareness, household size and penalties received.

4.1.1. Awareness of residential standards

Less than half of respondents (17) were aware of residential standards (Figure 4.1). This indicates low public awareness creation as few people were informed by the Municipality. Sources of information on residential standards mostly came from general knowledge on radio and experiences from other communities. These standards may or may not be applicable to West Ashiyie. Others are made aware by neighbors, friends/spouses, education by Municipality and from customary landowners during purchase of land. According to the family heads, they try to give out some information on zoning in general during sale of land but only upon request by the buyer. These accounts for higher awareness of permitted uses (Table 4.2).

The Planner indicated that regulations and standards are posted on notice boards at the Assembly. However, none of the respondents interviewed has ever seen the regulation document. This mode of communicating to use right holders is not effective thus creates uncertainty regarding residential standards. There is therefore high dependence on hear- say which may not be true. This does not augur well for planning authorities considering the amount of money invested in preparing a physical plan.

According to the planner, use right holders are required to check the zoning status and standards of lands they want to acquire before going ahead to pay for land. However, none of the use right holders interviewed was aware of this process thus acquire lands and build with no regards to zoning regulation and residential standards. The only process that is well known in the land acquisition process among respondents is verification of title document (search at Land Title Registry) before buying land. A situation the Planner blames on the Lands Commission inability to help educate people on the land acquisition process since planning regulation is also part of the land acquisition process and the first thing to be checked.

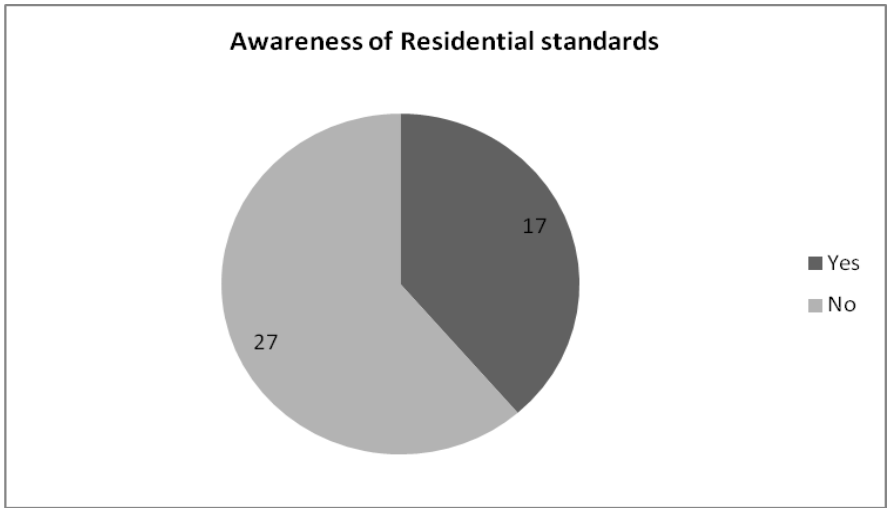


Figure 4.1: Awareness of residential standards

Interviews with respondents show that awareness of other restrictions such as setback is also high in the area. Respondents indicated that this information is provided to them by their masons and building contractors. Thus setback is highly adhered to for their own safety. On plot size, respondents indicated that it's prohibited to build on 'quarter plots'. But this is not concrete awareness of plot sizes (exact dimension) as land sizes keep changing. The standard that is least known is plot coverage. Respondents indicated they use their own discretion to cover as much as they want whiles giving allowance for air circulation.

Table 4.1: Residential standards and level of awareness

Residential Standards	Awareness	
	Yes	**No**
Permitted uses	14	30
Maximum Plot coverage	6	38
Minimum Plot size	10	34
Type of building	11	33

4.1.2. Socio-economic factors that motivate compliance

The socio-economic characteristics of the study population are shown in Table 4.2. The modal age group among respondents was aged above 60 years followed by 51-60 years. The gender is dominated by male (n=34). Thirty seven (37) respondents attained secondary education or higher whiles four had no formal education. Majority of respondents had an income of GH¢ 500- GH¢ 1,000 (n=21). At the time of data collection, the minimum wage in Ghana was GH¢ 7 (GH¢ 210 per month). The average exchange rate during data collection was 4.00 Ghana cedi per 1 euro. Almost all respondents earned more than the minimum daily wage in Ghana. The modal household size belongs to 3-5 (n=17). The average household size was 3.7 (GSS, 2014). Nearly half of respondents were pensioners (n=16) with private employment constituting 15 whiles three respondents were unemployed.

Table 4.2: Summary of Socio-economic data in frequency

Age		**Education**		**Household Size**		**Household income (GH¢)**		**Occupation**	
Category	**Freq.**	**Category**	**Freq.**	**Category**	**Freq.**	**Category**	**Freq.**	**Category**	**Freq.**
18-30	2	Illiterate	5	Less than 3	4	Less than ¢500	2	Civil servant	4
31-40	4	J.H.S	2	3-5	17	¢500- ¢1000	21	Laborer	3
41-50	9	S.H.S	13	5-7	8	¢1000- ¢1500	11	Trader	12
								Unemployed	3
51-60	10	Middle school	17	7-9	7	¢1500- ¢2000	3	Pensioner	16
Above 60	19	Post S.H.S	7	More than 9	8	More than ¢2000	7	Other Professions	6

4.1.2.1. Education on residential standards

The main platform used by the Municipality to create awareness is through Residents Association Meetings held in the community. These Meetings are organized monthly by the Assemblywoman and Unit Committee members (political representatives of the residents at the Assembly) to educate residents on the Assembly's developmental projects and other matters. According to the Assemblywoman, these meetings are rarely attended because it's not compulsory to be a member and also not all use right holders reside in the area. Therefore, information from the Municipality is not well circulated.

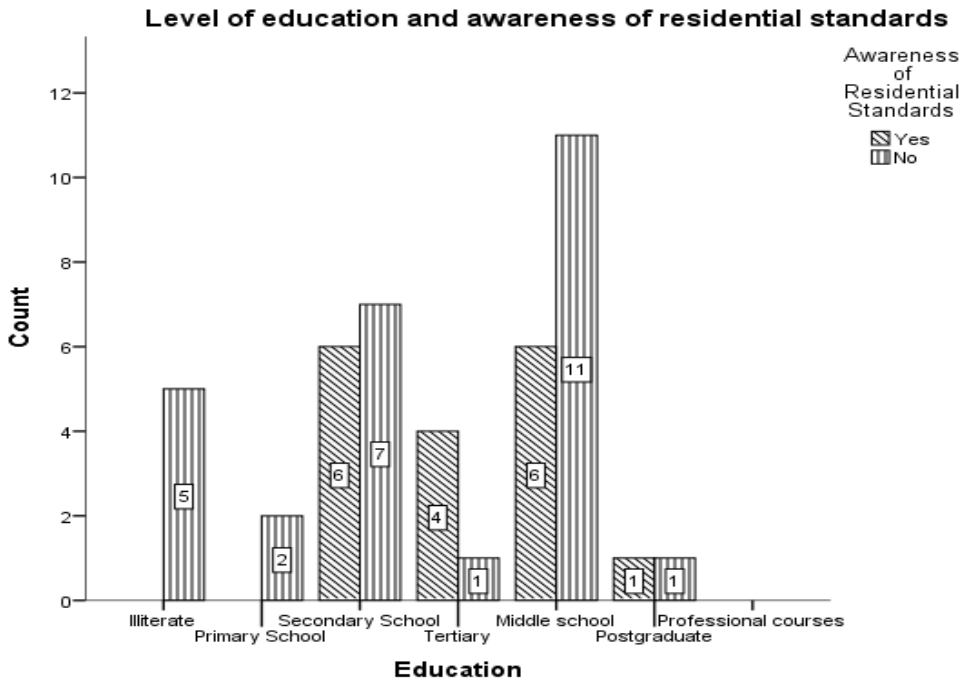


Figure 4.2: Level of education and awareness of standards in frequency

Cross tabulation was used to find out if there is any relationship between education and awareness. Results as presented in Figure 4.2 show that all 17 respondents who were aware of residential standards were educated while those without education or with just basic education to the Junior High School (7) have no idea what the standards are. This suggests that education has an impact how much information a person and as such motivates them to comply. The type of land use and plot size, according to the family head is indicated in the indenture (a written instrument that conveys interest/legal title in land), but it is only those

who can read appreciate it and ask questions where need be. This accounts for high awareness of permitted uses as seen in Table 4.1. This also implies that the Municipality has to intensify its education on residential standards and such education programmes should be tailored to meet all educational needs in order to have high compliance.

4.1.2.2. Influence of household size on plot coverage

Cross tabulation in Figure 4.3 shows that household size has direct negative impact on compliance with required maximum plot coverage (60%-70%). Majority of respondents with an average household size (8) fall within the accepted plot size of 60%-70% whiles those with households exceeding five have larger coverage exceeding the maximum required. Respondents indicated the need to shelter relatives compel them to maximize available space on their compound. This is an indication that the need to accommodate larger families calls for more space. On the contrary, smaller households tend to build within the accepted coverage. Therefore, household size can negatively motivate landowners to comply with residential standards.

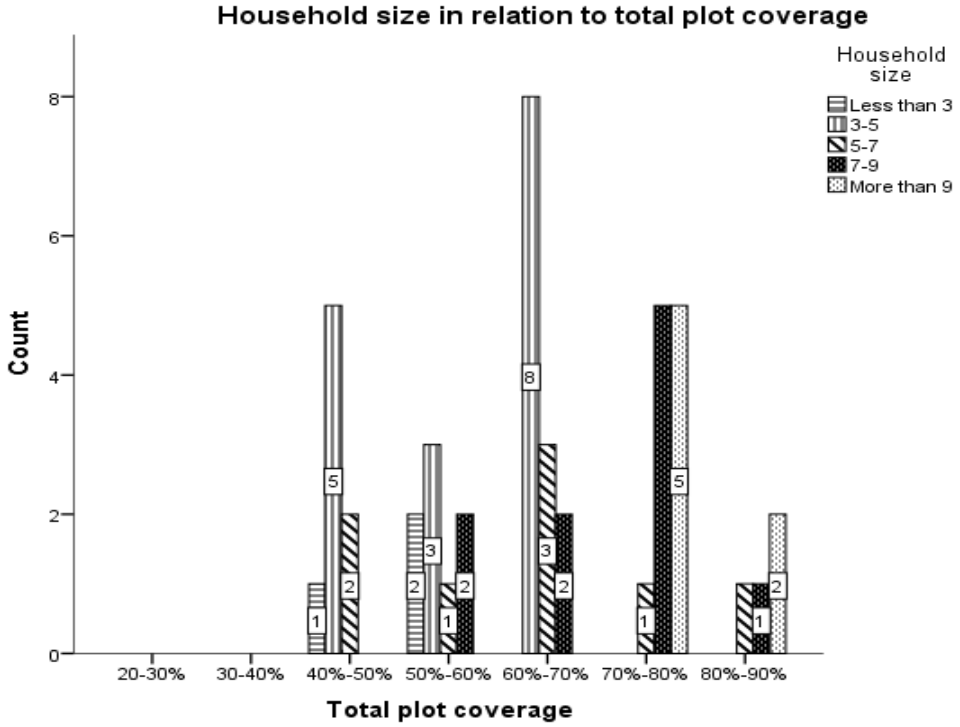


Figure 4.3: How household size influence compliance with plot coverage (in frequency)

4.1.2.3. Influence of household income on plot size

From Table 4.1, it can be seen that income levels are moderate but it does not influence compliance with plot sizes (Figure 4.4). Majority of respondents who own more than 930 m² plots are found in the GH¢ GH¢ 500- GH¢ 1,000 income bracket. This income group is dominated by pensioners aged above 60 who indicated they purchased plots from lump sum paid on retirement although they are currently earning between ¢500- GH¢ 1000. Others who currently earn below GH¢ 500 or GH¢ 500- GH¢ 1,000 have either inherited the land, received it as a gift or are indigenes. Furthermore, the arrangement of buying land when it's cheap and developing years later using the piecemeal method motivates all income groups to comply with plot sizes; otherwise they could not have afforded it now.

Currently, a "full plot" measuring 649m² (70ft x 100ft) sells for ¢20,000 whiles 'half plot' of 320m² (35ft x 100ft) sells at GH¢ 10,000. Indigenes who formally (in the 1990's) only present drinks for land, started

paying GH¢ 2,000 in the 2000's and now pay GH¢ 5,000 for a 'full plot'. According to the family head, this is due to increasing cost of preparing and processing an indenture (see Appendix D for an indenture stating land use and plot size). As plot sizes sold by customary land owners are gradually reducing from 930m² (100 ft x 100ft) before and in the early 1990's to 650m² (70ft x 100 ft) in the 2000's, land values on the contrary keep increasing. This is an indication that the required minimum plot size is currently not consistent with income levels.

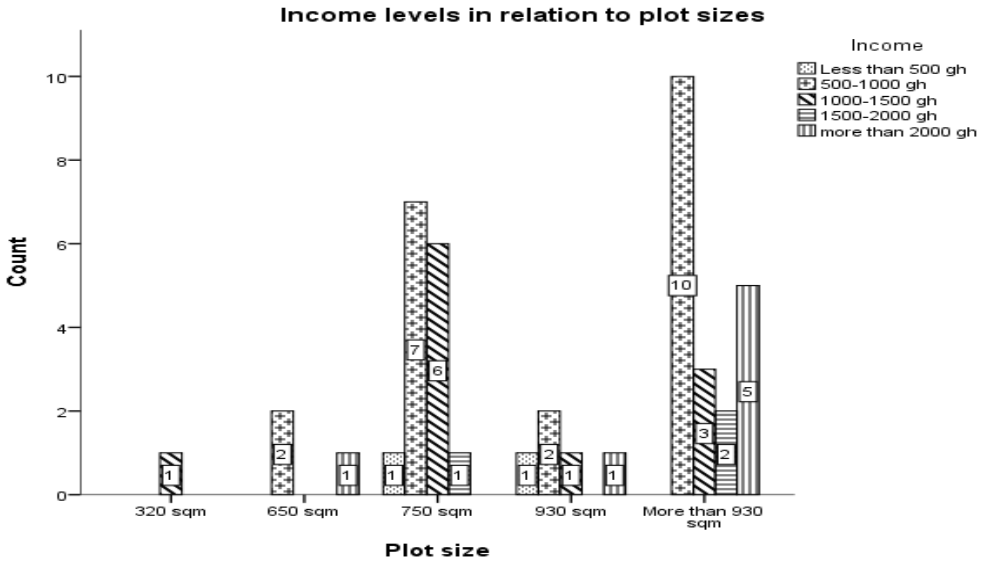


Figure 4.4: Income in relation to plot size in frequency

Increasing land values may lead to subdivision of plots into smaller plots in future to enable new use right holders afford as cost of compliance may exceed income levels. This is also an indication that the link between economic reality and residential standards has outlived its usefulness. Currently, the minimum plot size sold by customary owners is 320m² (35 ft x 100ft). This will make it easy for violations of minimum plot size to occur and the need for them to be corrected through strict enforcement in future. Thus land allocated by sellers (customary owners) has an influence on compliance with minimum plot size as use right holders cannot buy less than what is allocated irrespective of their income.

Ignorance of permitted uses, need to generate income from land through renting of rooms and houses, rigid permit requirements, time it takes to get a permit, affordability of building permit and following the status quo (what others are building) are some reasons respondents gave for not implementing permitted uses.

4.2. Administrative practices

The level of monitoring and enforcement is very low. From Figure 4.5, majority of the respondents (25) have never been visited by the task force to check if they are building according to required standards. This is due to limited staff and logistics as explained by the Planner and Works Engineer. The task force therefore find it difficult to visit a construction site more than once. According to information from the planning and engineering departments, building constructions need to be monitored at each of the 10 stages of development to ensure compliance with residential standards after issuance of building permit. However, they are unable to do this due to challenges and limitations.

There are 2 types of site inspections; the first which is part of the permitting process is verification of documents presented for permit.

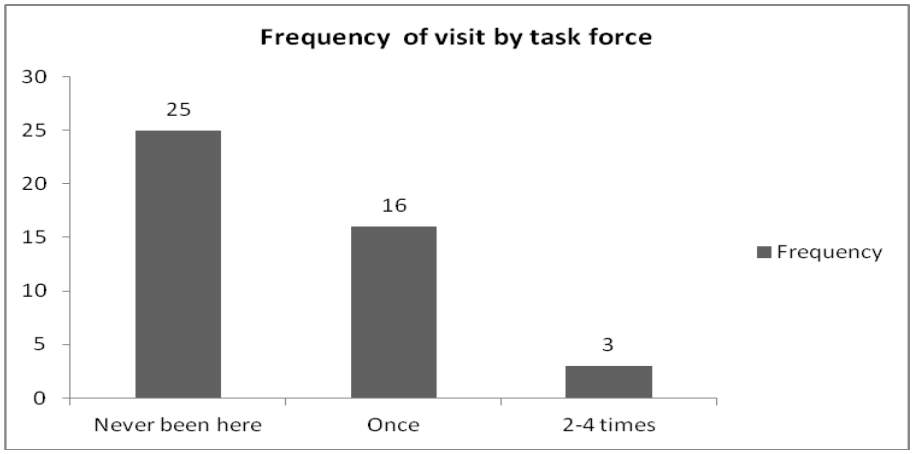


Figure 4.5: Frequency of visits by Municipality task force

The first inspection involves the technical team which consist of the planner, works engineer, structural engineers and representatives from environmental protection agency and other departments, depending on the development; the second inspection is undertaken by the Task Force Division of the Works Engineering Department, monitors construction to detect those who are building without permit and those flouting regulations.

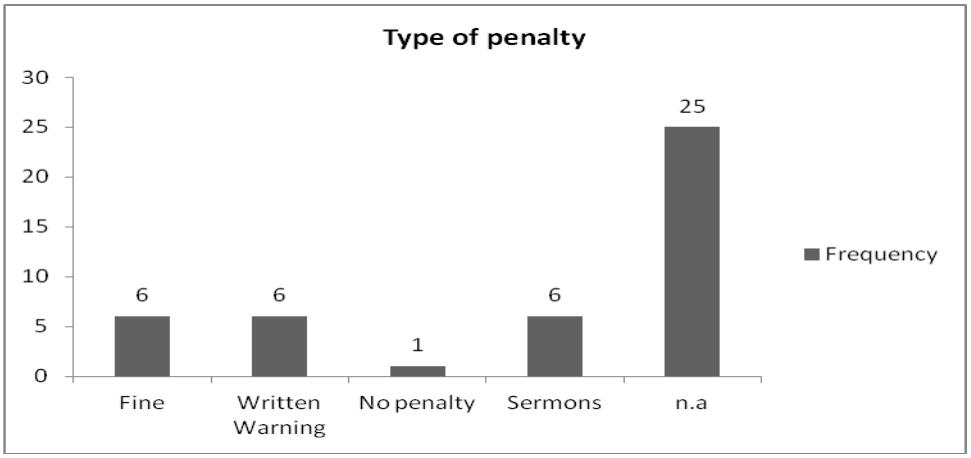


Figure 4.6: Various forms of penalties

Penalties include fines for use right holders who start building without permit (6), written warnings (6), sermons and in some cases seizure of construction tools as depicted in Figures 4.6 and 4.8. Buildings without permit or started before initiating permit process are regularised through the payment of fines depending on the stage of construction. The practice of regularizing buildings which started without building permit after payment of fines encourages use right holders to flout regulations. According to the Planner, more harsh measures such as demolishing are usually limited to buildings in right of way (road, utility) or waterway and not due to non compliance with residential standards. Penalties are very light hence not compelling people to get permits therefore not worried about losing their land rights. The fines for residential single and storey buildings are shown in Table 4.3.

Although penalties are not hash, a higher proportion of respondents complied with regulations after receiving these penalties. More than half of respondents (11) who received some form of penalty complied (Figure 4.7). The main action was going for a permit. This implies that strict enforcement can influence compliance with zoning regulations.

Table 4.3: Fines at each level of construction

Stage of Construction	**Single Storey**		**Multiple Storey Building**	
	Fine (GH¢)	**% Of Permit Fee**	**Fine (GH¢)**	**% of Permit Fee**
Up to substructure	300	50 %	500	75%
Upto first floor slab	-	-	600	Actual Permit Fee
First floor and above	-	-	700	1.5 of Permit Fees
Up to roofing	400	75%	-	-
Roofing and Finishing	500	Actual Permit Fee	1,000	Twice Permit Fees.

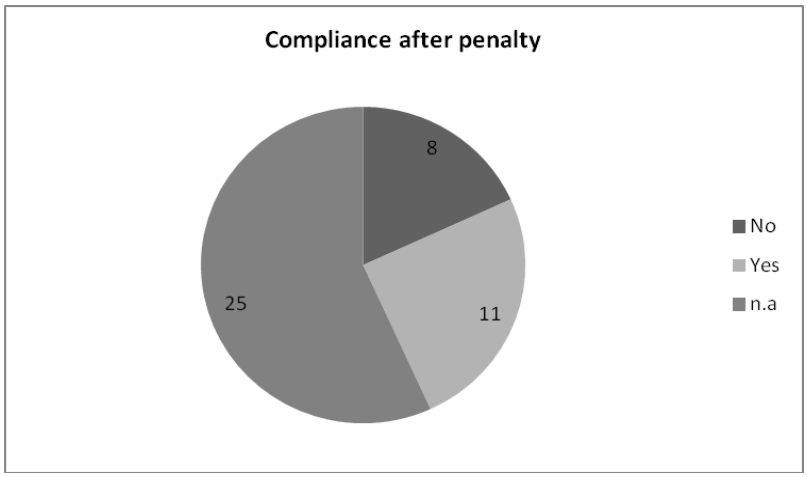


Figure 4.7: Responses to penalty (in frequency)

Figure 4.8: Some enforcement mechanisms used by the Municipality (Field data, 2015)

4.2.1. Challenges in enforcing zoning regulations (residential standards):

- Subdivisions and rezoning of plots without clearance from the planning department. Customary landowners in their quest to benefit from their land subdivide plots and allocate to individuals without the consent of the Municipality. Also, individuals convert land from residential to other uses without approval from Authorities.
- Activities of self-styled landowners and land guards allocating illegal plots in prohibited areas. Some prohibited areas include places designated for roads, open spaces and recreational centers. This accounts for buildings springing up outside parcels boundaries in the plan.
- Land disputes are a hindrance to implementation and enforcements of residential standards. Permit cannot be issued in disputed areas as one cannot get a search report or land title certificate on a litigated land. User right holders, therefore, go ahead to develop their land as quickly as possible as a way of securing their land. This makes is difficult for authorities to check the conformity and compliance of their properties to residential standards.
- District Assembly and Unit Committee members are elected along partisan, tribal and kinship lies. This makes it easy for them to interfere with enforcement of regulations.

4.2.2. Limitations in enforcing residential standards

- **Inadequate logistical support (human and equipment):** According to the Works Engineer, the Municipality lacks vehicles for field inspection. This has implication on the frequency of inspection carried out on ongoing construction works. This gives use right holders the liberty to build with no regards to regulations. Officers are therefore left with no option than to board vehicles organized by clients. This put officers in a compromising situation (to accept 'gifts'), to overlook prohibited uses. Also, use right holders may not be motivated to get building permit considering the extra cost of hiring a car for inspection. Town and Country Planning Department and Works Department overseeing 17 communities in the Adenta Municipality have 9 and 35 staffs respectively. This causes delays in permit approval and enforcing standards.
- **Limited technical knowledge of staff:** The capacity to effectively enforce compliance and work to enable use right holders voluntarily comply (apply for a permit) is missing. The task force consists mostly of people with no background in planning. Their educational levels are mostly up to S.H.S. Also, Continuous Development Programmes are not organized to keep the few Planners and technical staff abreast with current planning trend.

4.3. Actions to implement permitted uses

One action use right holders take to implement permitted uses is by getting a building permit prior to development. As shown in Table 4.4, majority of respondents (26) do not have a permit to use land. Reasons given for not having permit include high cost, long process, lack of required documents, change in Municipality and the absence of task force. Per the law, use right holder need not be there personally to apply for a permit but can also apply by appointing agents. Most landowners prefer to use the services of agents due to duration it takes to issue a permit (ideally 2 months if everything goes well).

Table 4.4: Number of respondents with permit to use land

Description	No of respondents	% of respondents
Yes	17	39
No	26	59
No answer	1	2
Total	44	100

For a development permit to be issued, it must be vetted by the works department, physical planning department, other relevant agencies such as Environmental protection agency (EPA) and structural engineers etc. The numerous agencies involved in approving permit makes the process cumbersome and take a lot of time. Permit fees ranges from GH¢ 500 for single storey and GH¢ 1,000 for multi-storeys. the high cost and time of processing a permit application does not motivate use right holders to get permit, a process by which their drawings will be scrutinized for compliance with residential standards. The permit process is outlined as follows:

4.3.1. Pre-submission process

- Check land use zoning of the plot to determine if the intended purpose meets the approved purpose on the local plan.
- If it meets the approved purpose, land can be procured and a title or any document as proof of ownership can be obtained from the Land Title Registry of Lands Commission. The minimum proof of title or ownership of land is a search report (Appendix B) from the Land Registry Division of Lands Commission. This has become necessary due to the time it takes to get a title certificate. Proving ownership of land is mandatory under section 3(1) of the Building Regulations Act. The site plan shows if the plot size is according to Municipalities' standards.
- Procure other documents such as EPA permit, fire permit, soil investigation report, hydrological report, structural audit and civil aviation permit for multi-level development. These documents describe the type of building and its use, the coverage, material for construction, setback and other relevant standards.

4.3.2. Submission process

- Applicant (land owner or his appointed agent) submit an application with necessary documents to the secretariat of the Statutory Planning Committee (SPC). The submission is checked for compliance and technical guidance provided when needed. Also, amendments may be recommended when necessary. After submission fee is received, an application form is prepared in the database.
- The application is forwarded to the Works Department, Physical Planning Department and other relevant agencies for vetting. The Works Department vets architectural drawings and structural drawings for compliance with standards (residential in this case). The Planning Department checks for zoning compliance (not all applicant go through the pre-submission process).
- The secretariat collates technical findings for site inspection.
- The Physical Planning Officer and Works Engineer lead other technical members for site inspection with applicant or his agent to ascertain if drawings submitted are same on the ground.
- The Technical Sub Committee assesses application after site inspection/report and makes recommendations to SPC.
- Applicant pays 80% of permit fees
- After payment, a statutory consideration is made by the SPC who then approves, refuse or query/defer application based on findings and reports from the Planner, Works Engineer and Technical Sub Committee.
- The applicant is notified of decision and pays remaining 20% if the application is approved.
- The secretariat prepares building certificate which is then jointly signed by the secretary to SPC and Works Engineer (Appendix C).

According to the Planner interviewed, permits issued by the Municipality are valid for a period of 5 years due to dynamic nature of society. If an applicant does not develop land within this period, there is the need to apply for a new permit at his own cost.

Another action taken is the sale of land or property though it's in the majority. Out of the 44 respondents interviewed, 1 respondent had sold his land because all houses around were of a different standard. This implies that landowners do not risk losing lands if regulations are not followed. This is because they can only be fined for non compliance. This is an indication that use right holders on customary lands are not affected by zoning regulations as they are not under duress to sell land due to inability to develop land according to residential standards.

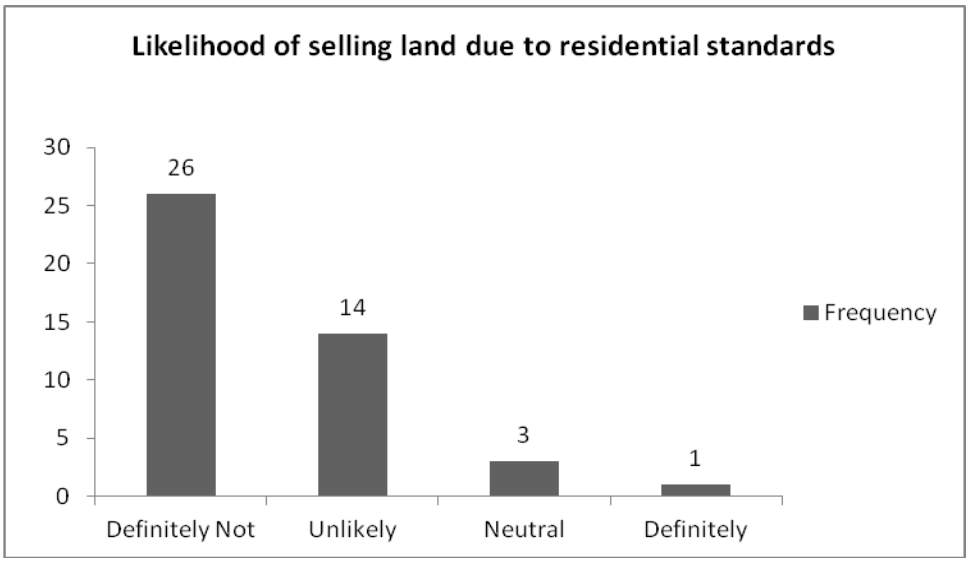


Figure 4.9: Actions taken in response to residential standards

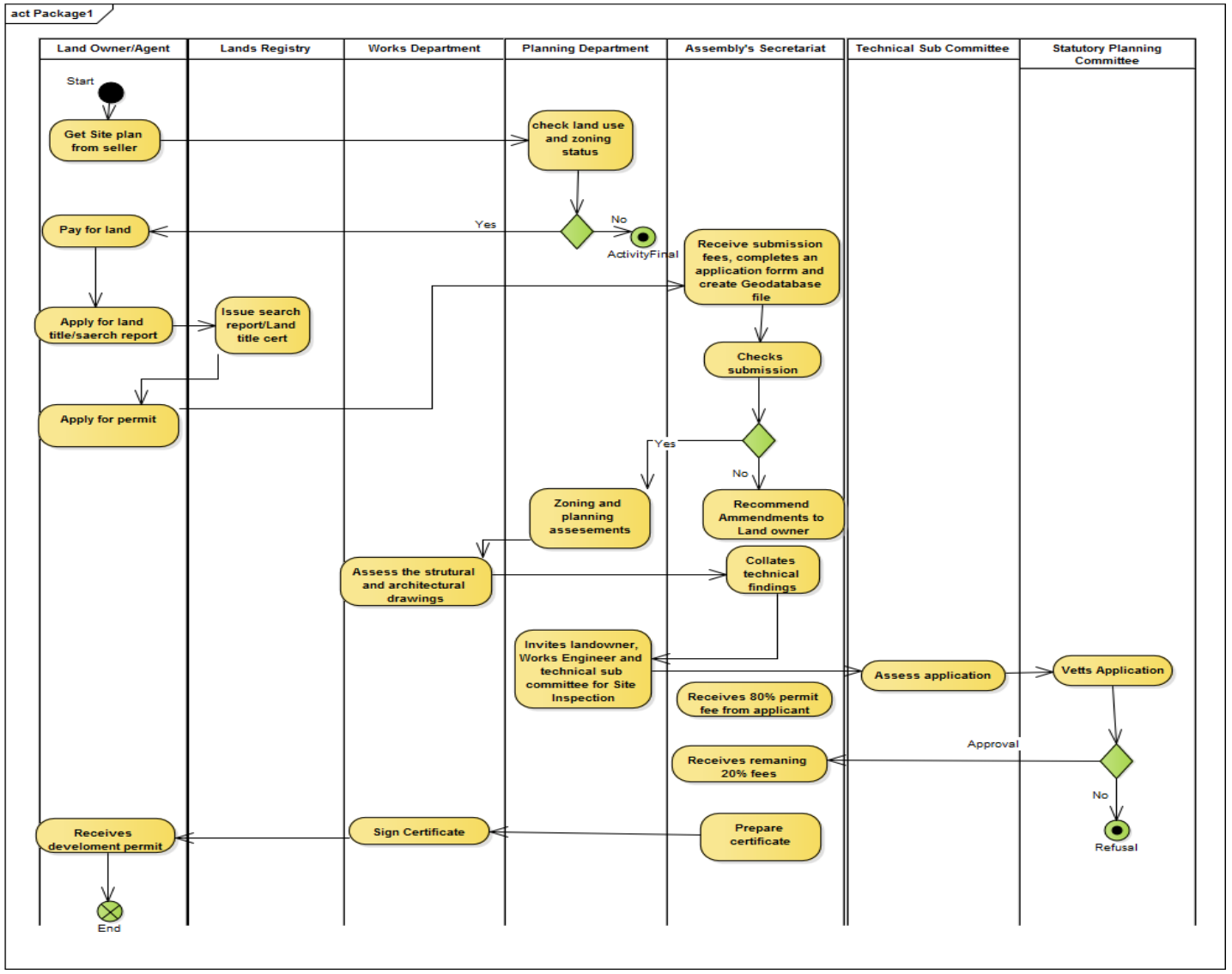


Figure 4.10: UML activity diagram of the permitting process in Adenta Municipality (Author's construct)

4.3.1. Summary of findings (sub-objective 1)

Use right holder's income levels, education and household sizes are some socio-economic factors that influence compliance with zoning regulation. The medium of creating awareness are not effective thus, most respondents are not aware of residential standards. Income levels do not impact on plot sizes under customary land tenure systems where indigenes receive land 'freely'; land is bought cheap anad deveoped later. Household size negatively influences compliance with plot coverage as larger household calls for more space. It also shows that educated people are more aware of residential standards. Results shows that enforcement is weakened by land litigations, political interferance, inadequate logistics and limited technical knowledge of staff. Nonetheless, the few respondents who were visited by the task force went for building permit to use land. This is an indication that permit acquistion affects use right holders due to cost involved.. The results also show that respondents do not sell their lands due to inability to comply with prescribed requirements. This is because they can only be fined or sermoned for non compliance.

4.4. Spatial changes that reflects conformity and compliance with zoning regulations

The responses relate to conformity and compliance with the land use plan prepared and residential standards. It also includes the nature of these changes, its causes and implications on land rights. It also relates to the role of land tenure systems in planning and how various income groups react to these changes. This is done to know if conformity is as a result of effects of zoning regulation or other factors.

4.4.1. Conformity with plan

The spatial characteristics of the houses and parcels of respondents are shown in the graphs below. According to the Municipal Planner, there is about 50% compliance with residential standards and 30% conformity with the planning scheme (Local Plan) for the area. It was observed that some houses had more than one use; mostly residential with shops in front. Others also had multiple uses; residential, commercial and worship/educational. Also uses such as garages and farmlands were temporary uses awaiting development by use right holders. Such uses were mostly undertaking by caretakers or people who have rented the plot. Thus, the Municipality pays no attention to them. However, commercial activities in containers and shops located along roads in the neighbourhood are not permitted.

Four types of non conformity were visualized in the study area from overlaying images on the local plan. These are non conformity in shape and size of parcels, shift in parcels, change in orientation and buildings which fall outside designated parcel boundaries. See Appendix G for maps of conformity.

4.4.2. Building outside plot boundaries

Due to numerous families selling lands in West Ashiyie, there is a huge deviation from the local plan prepared. The plan seems to have been thrown overboard. Most buildings as shown in Figure 4.10 fall outside the designated parcel/plot boundaries. Although planning authorities are aware of this problem, they look on helplessly. The Works Engineer noted,"*who are we to question the chief; we cannot take them to court over this issue*". This is due to power wielded by customary authorities and respect given them.

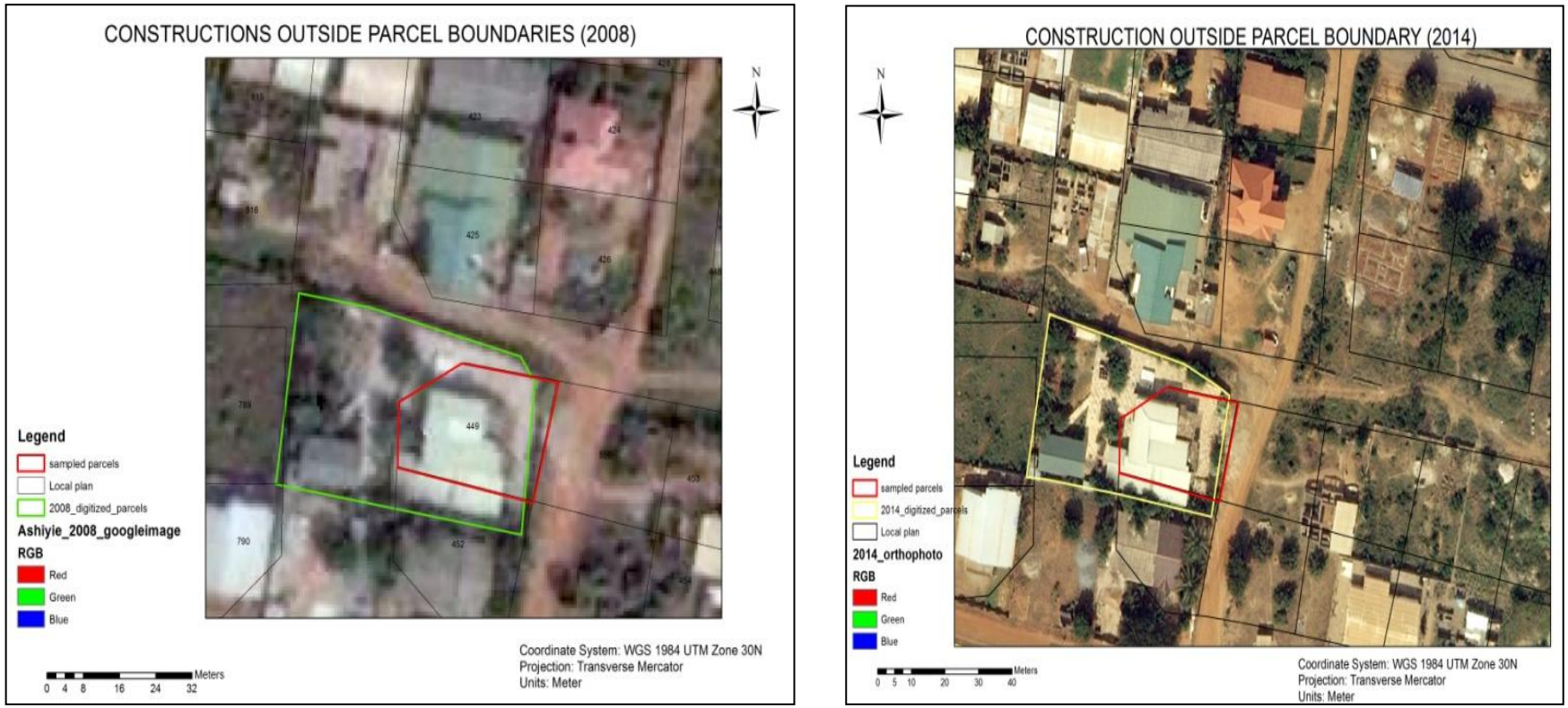


Figure 4.11: Buildings constructed outside plot boundaries.

4.4.3. Changes in Orientation and shift in position of Plot

Land allocation under customary land tenure system in west Ashiyie is carried out by customary owners and their surveyors and sometimes self-styled 'land owners' and land guards. In instances where they try to demarcate land according to the plan but it is not always accurate as can be seen in Figure 4.13. From the interview conducted with the family heads, the surveyors (individual surveyors engaged by the use right holders or customary landowner) take points that are shown them by use right holder or the customary owner. These points may or may not be exactly as the ones on the plan. As shown in Figure 4.12, the orientations of some parcels have been changed completely.

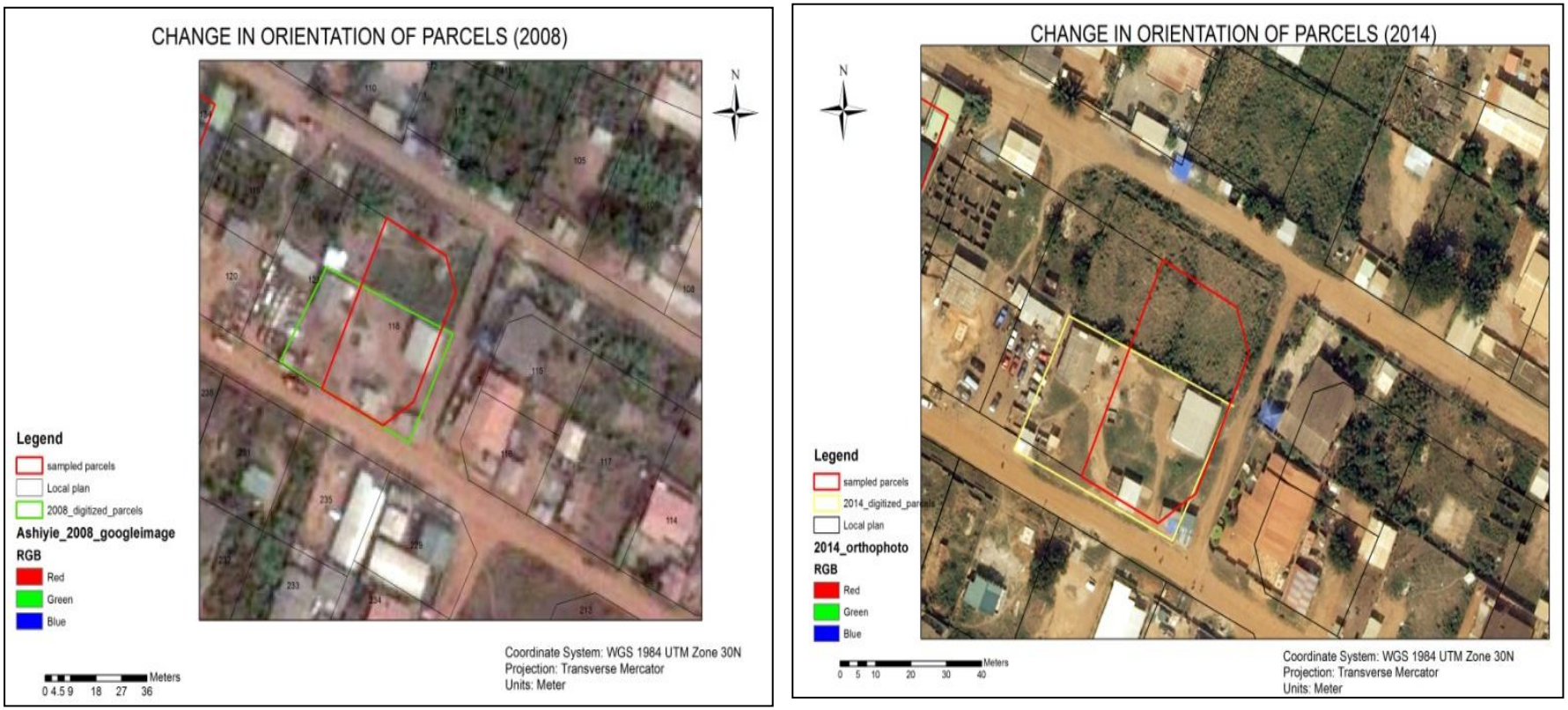


Figure 4.12: Changes in the orientation of plots

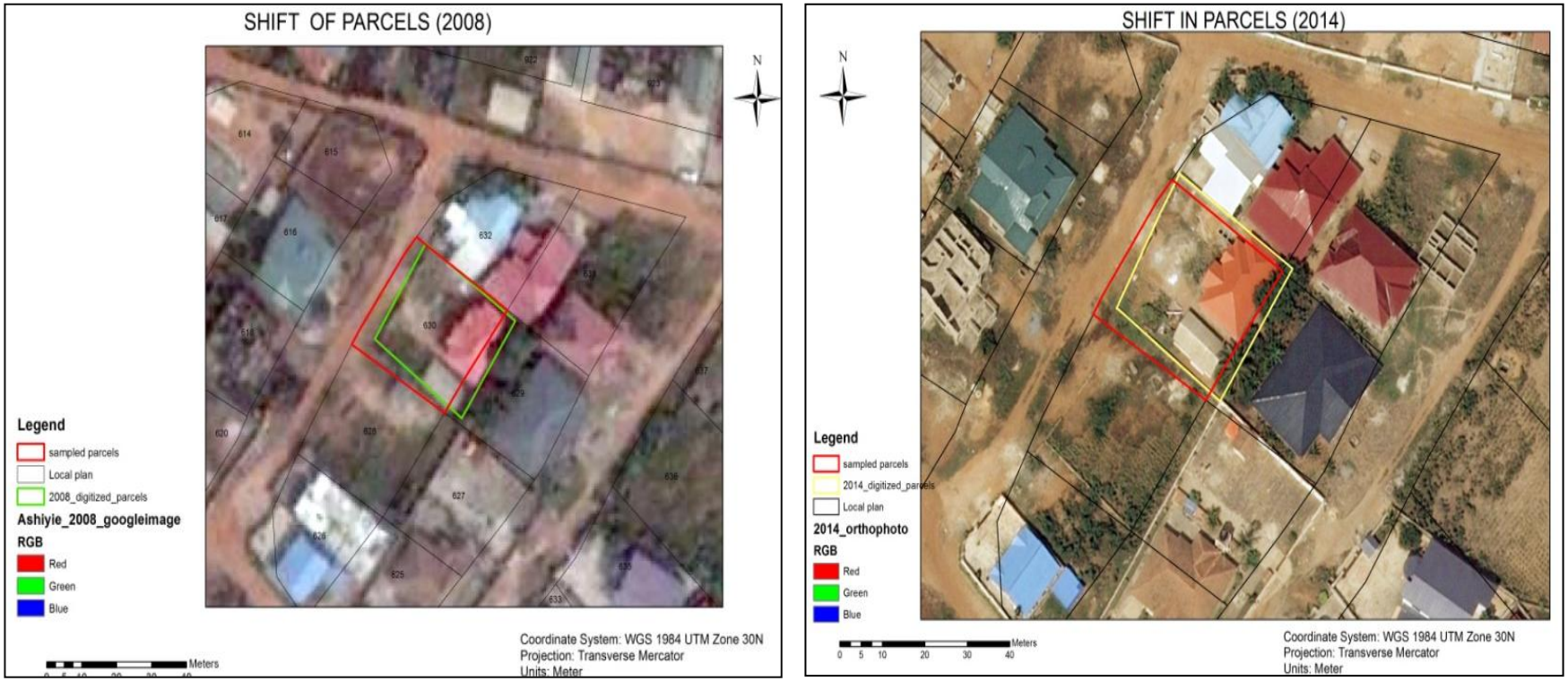


Figure 4.13: Changes in the positions of plots

4.4.4. Changes in shape

Changes in shape are the result of land allocation by multiple customary land owners. According to the family heads interviewed, not all family members have the plan that their forefathers agreed to. Thus allocation of land is made base on their own discretion and the quest for money with no regard to planning. This form of non conformity is difficult to detect by the Municipality when residents do not go for permit. Also, the task forces during inspection do not have the needed logistics to map the position of each parcel in relation to the plan. This action is only done during the permitting process.

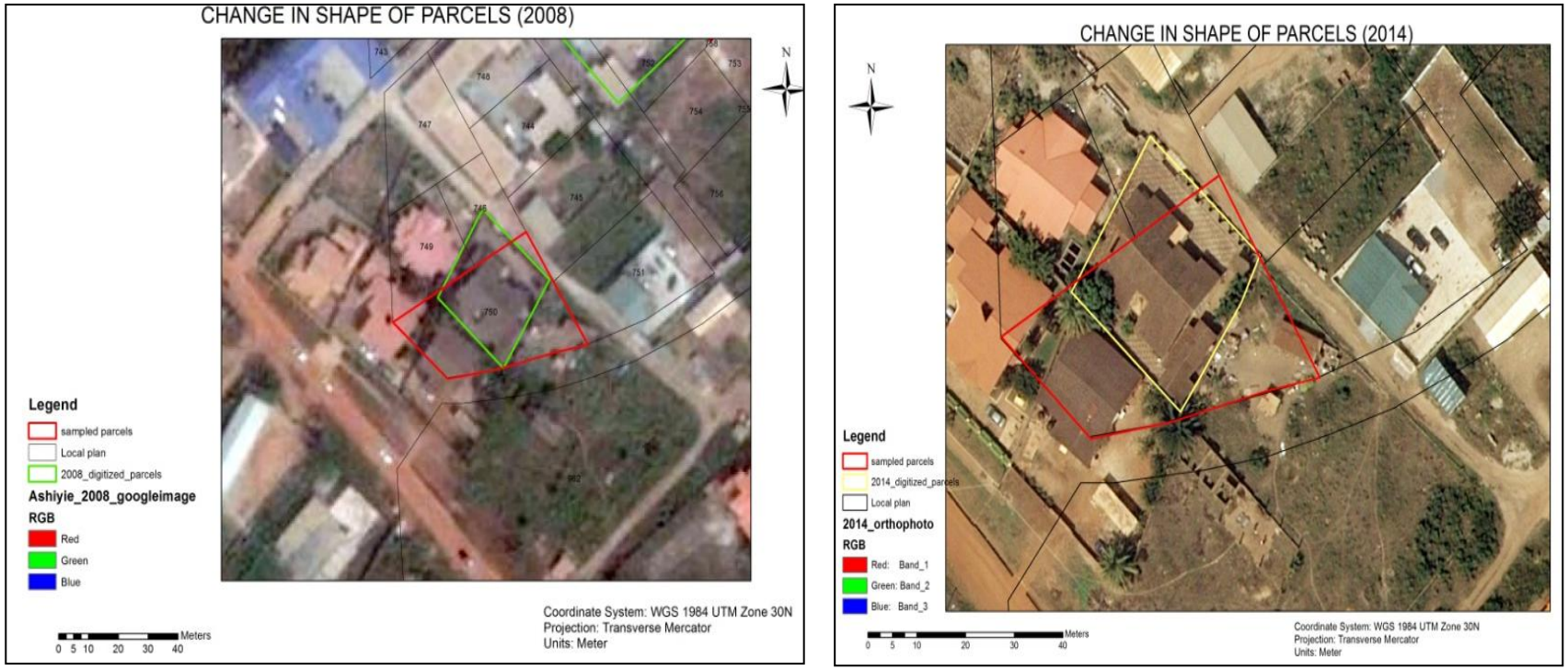


Figure 4.14: Changes in the shape of plots

4.4.5. Change in Plot sizes

The smallest parcel size in 1990 when the plan was first introduced was 431m². This parcel increased to 886m² in 2008 and 999m² in 2014. The percentage of change of this parcel is about 30%.This is an indication of use right holders buying more plots. As shown in Table 4.4 merging of plots is more than subdivisions. Personal observation and interview of respondents indicated that they prefer to buy plots that are planned, thus buy more plots for speculative reasons.

Most Plot areas calculated in GIS are more than the revised standard that the Municipality requires (350m²). Although there are some changes in plot sizes as a result of subdivision into smaller plots, these were in the minority (Figure 4.15). Majority of changes are due to right holders buying more than 1 plot (merging). This is due to prospects of the area as a result of its close proximity to the City. As seen in Figure 4.4, majority of respondents who have more than 930m² land earn more than ¢1500. This shows that those who earn more are buying more lands and are likely to buy out low income earners. This is confirmed by observation and figure 4.18 which shows that majority of the houses are detached and semi- detached. These are houses usually put up by middle income

earners. According to the Municipal Planner, most of the subdivisions are without permission or approval and is problematic to them since it defeats the purpose of the plan. Although most subdivisions are still within the minimum required plot sizes, they are without approval. Also, there is no restriction on how many lands one can own as customary landowners are interested in how much they will make from selling land. This shows that use rights of customary lands are not affected by zoning regulation as use right holders subdivide lands and merge at their own will.

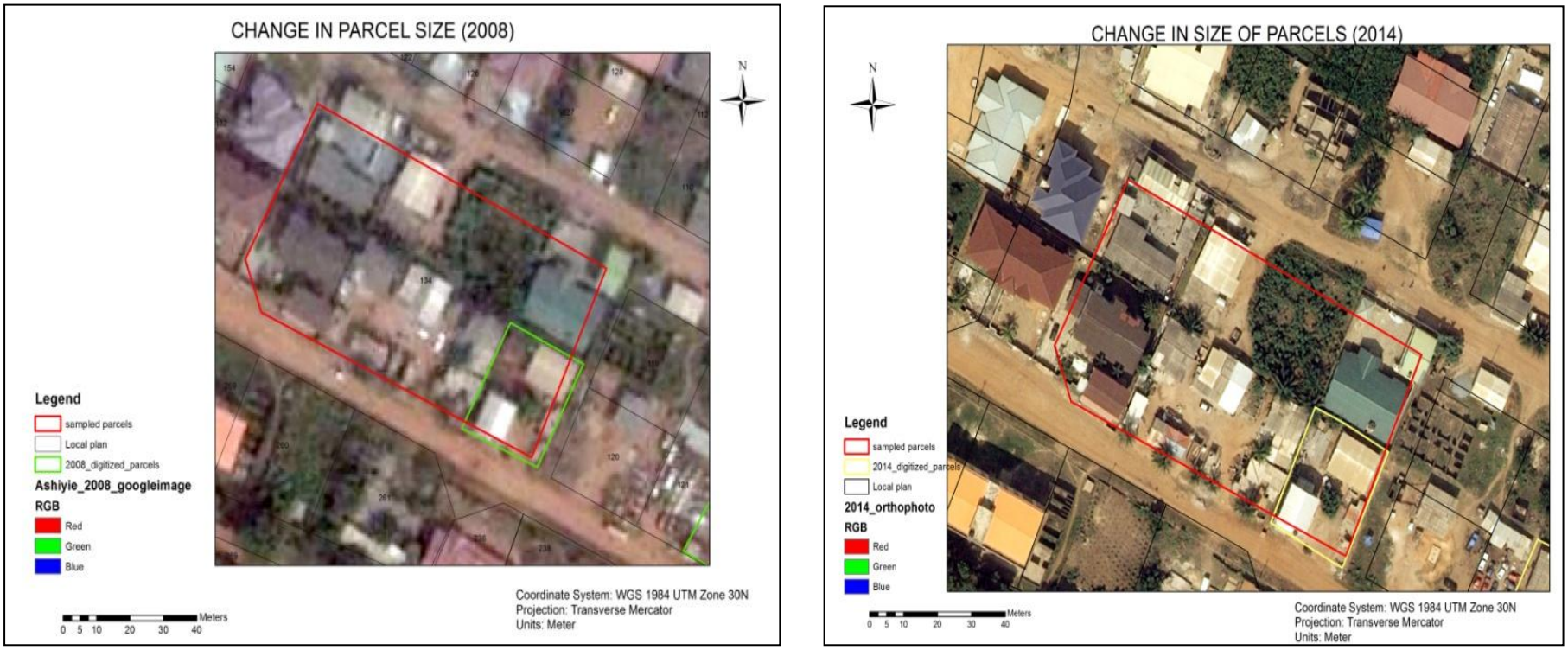


Figure 4.15: Changes in the sizes of plots

Table 4.5:Type of changes between 2008 and 2014

Type of change	Number of changes		% difference
	2008	2014	
Subdivision	17	18	6
Merge	27	26	4

Table 4.6: Change in plot sizes from 1990 to 2008

Parcel ID	Plot size (m^2) 1990	Field measurement (m^2)	Plot size (m^2) 2008	Diff. in area (1990-2008) m^2	% of change (2008-2014)	Comment
-	1573	1514	1627	54	0.0	Merge
-	734	464	493	-241	-0.2	subdivision

Table 4.7: Change in plot sizes from 1990 to 2014

Parcel ID	Plot size (m^2) 1990	Field measurement (m^2)	Plot size (m^2) 2014	Difference in area (m^2)	Rate of change % (1990-2014)	Comment
-	1573	1514	1524	-49	0.0	Subdivision
-	734	464	474	-260	-0.2	Subdivision

4.4.6. Compliance with residential standards

The degree of compliance with the type of building and plot size is high. Observation and answers from respondents indicate that the most breached of all the regulations is plot coverage which was predominant among all income earners but high in low income areas. This is largely due to large family sizes and the pursuit to benefit (rent) from the land by building more rental abodes. From Figure 4.16, majority do not comply with plot coverage. Reasons given for non compliance with plot coverage include ignorance of plot coverage (never heard of it), family size and building to rent (benefit from land).

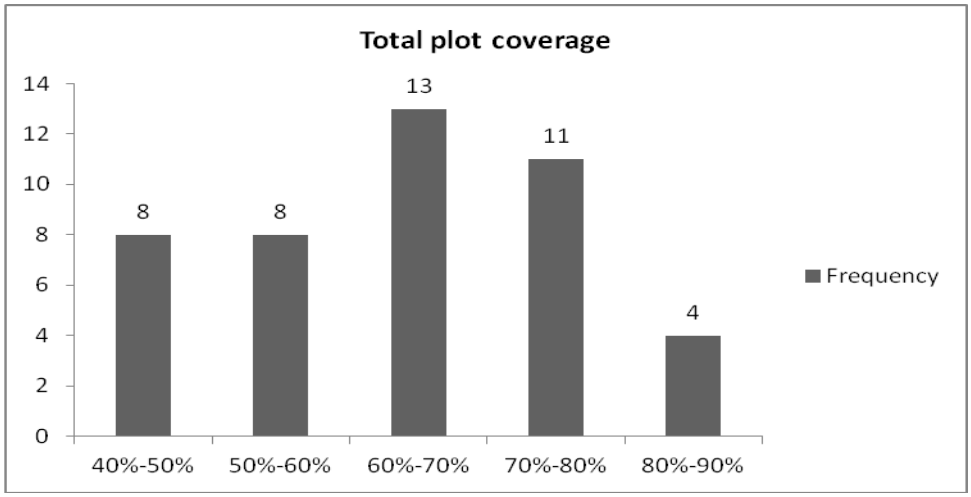


Figure 4.16: Total plot coverage

Although the regulation document stipulates minimum plot sizes of $450m^2$, the Assembly has adopted $350m^2$ to enable all income groups' access land and obey regulations. This is an adjustment to minimum plot sizes ($370m^2$) allocated by customary owners in 2008. Majority of respondents have plot sizes exceeding this requirement as seen in Figure 4.17. This is because minimum plot sold by customary

owners was 40ft by 100 ft ('half plot'). In recent times, the size of plots sold by chiefs and family heads are reducing due to a reduction in total amount of land owned. 'Full plot' which used to measure 100ft by100ft in the early 1990's reduced to 100ft by 80ft in early 2000 and is currently 70ft by 100ft. Thus 'half plot' now measures 320m^2 which puts most use right users in the position to easily comply with minimum plot sizes though they are not aware of such standards. It however becomes problematic when landowners further subdivide their lands into 'quarter plots'. Nonetheless, the sale of half plots in current times by chiefs and family heads is a deviation from the standards as these are below the minimum required. If there comes a time when the Municipality decides to strictly enforce these standards, most landowners who have genuinely acquired lands from chiefs will be at the losing end.

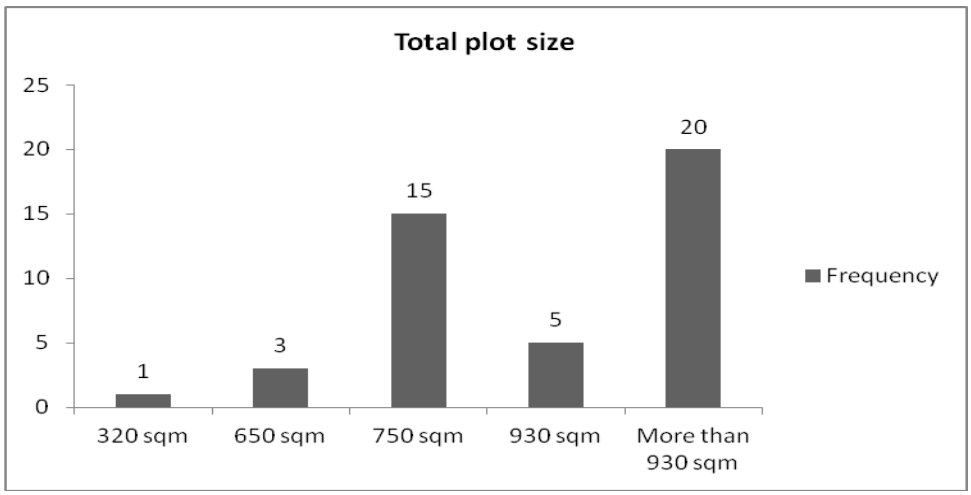


Figure 4.17: Various plot sizes

The low income neighborhoods are inhabited by low quality residential buildings dominated by 'chamber and halls' (8) and 'compound houses' (5). These houses are usually built without the services and advice of professional such as structural engineers, architects and contractors, thus easy to construct. Detached houses (24) and semi- detached houses (7) are the main type of houses being built in the middle class residential areas. They range from single storey to 2 storey buildings (Figure 4.18).

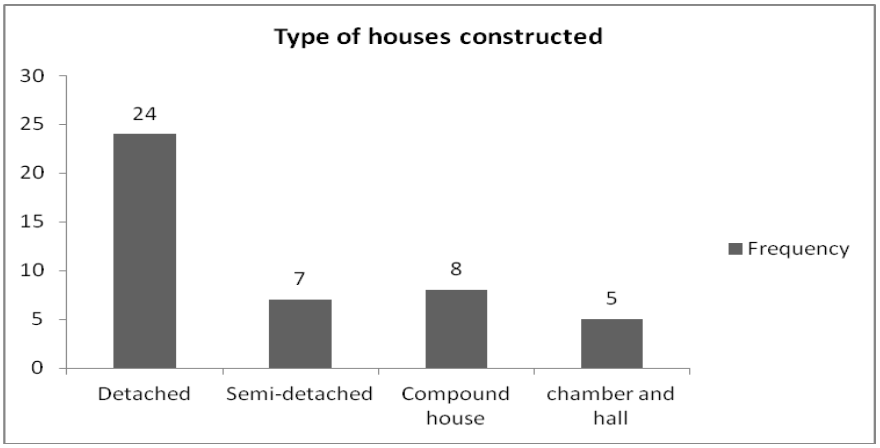


Figure 4.18: Kind of dwelling places

The predominant land uses in the area as shown in Figure 4.19 are residential uses (32) with few commercial and mix uses. Mix uses were mainly in the form of residential with retail shops in front or residential, shops churches/schools. According to respondents, permit on their property was usually for one use (residential in most cases), then depending on demand for other uses, they add other uses.

Commercial and educational uses were few. Only 5 respondents practicing non residential or mixed uses had permit to maintain such uses

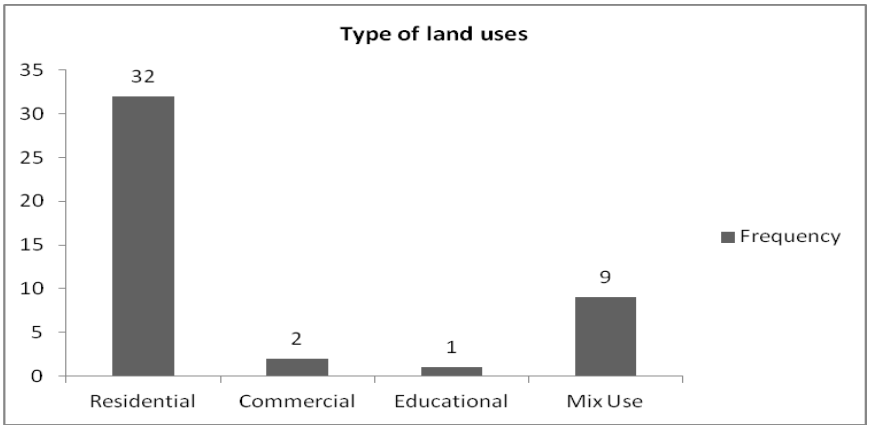


Figure 4.19: Type of land uses

4.4.7. Summary of findings (sub-objective 2)

Spatial changes that depict non conformity to the plan include changes in orientation, plot sizes and buildings springing up outside plot boundaries. There is high compliance with land use type, type of houses, and minimum plot but very low conformity to the existing plan. High compliance with residential standards can be attributed to the liberal nature of the standards while the widespread non conformity is as a result of lack of corporation between customary landowners and planners, lack of technical staff to monitor compliance and conformity, land litigations and numerous land sellers. The most violated standard is maximum plot coverage due to large households. Also, because a new plan was not prepared to accompany regulation document in 2008, the trend of non conformity continued. Planners have little influence where land is held under customary tenure as the allocation of land differs from the prepared plan. There is not much difference between the changes in 2008 and 2014. It rather shows a history of non conformity with the plan which was direct result of attitude towards other non-conformities that were not corrected in the past.

4.5. How zoning regulation affects land rights

Responses here relate to the type of land tenure system and planning process on customary lands. It identifies land rights and if these rights are affected by zoning regulation, which rights are affected by what restriction and which right is most affected. It also identifies actions land owners take to defend their land rights and to implement permitted uses.

4.6. Land ownership and administration in Ashiyie

Ashiyie covers a total of 1,200 acres with West Ashiyie covering an estimated 500 acres. Lands in the study area and the whole of Ashiyie are managed by the chief and families of Dumanye clan. This clan falls under La Traditional Council or Paramouncy. The clan has the perpetual or highest title (allodial interest) in land in trust for the people of Ashiyie. Members of this group hold customary freehold in the land while settlers hold leasehold interest. According to the family heads interviewed, the grandfather who settled in Ashiyie had three wives thus there are three (3) different families under Dumanye Clan selling lands in Ashiyie and for that matter West Ashiyie. The chief happens to come from one of these families. This practice of numerous sellers has led to multiple sales of land and associated problems of increased land litigations, insecurity of tenure and haphazard development.

Land use plans for the area are prepared in consultation with the customary land owners. Proposal for land use usually come from the customary land owners. They present their idea of how they want the area to look like in the near future. The Municipality then aligns their plan to the structure plan by making recommendations (including standards) as shown in the planning manual. The customary owners are actively involved in the initial planning process and are consulted during rezoning. The subdivided parcels in the plan ideally are to be used when allocating lands to individuals and estate developers.

- The Municipality approves the plan or makes corrections and provides the fund.
- After the plan is approved, a local plan management team is set up. This team includes the district economic development, town and country planning officers and at least one representative from statutory planning committee's and other department directions o other agencies which are deemed necessary for the plan.
- The technical sub-committee debates, create additional proposals where necessary and make recommendation to the SPC. By this, they contribute to the vision, develop alternative models to align the proposed plan with other levels of plans (Structure and SDF)
- The SPC reviews the local plan on 2 occasions: after stakeholder consultation before it is published for final comment; for corrections and approval; published as approved and applied. During stakeholder consultation, individual landowners to be affected, "many of whom may be displaced by developments" the customary landowners, users, NGO and opinion leaders in the community to be affected are consulted and their inputs considered.

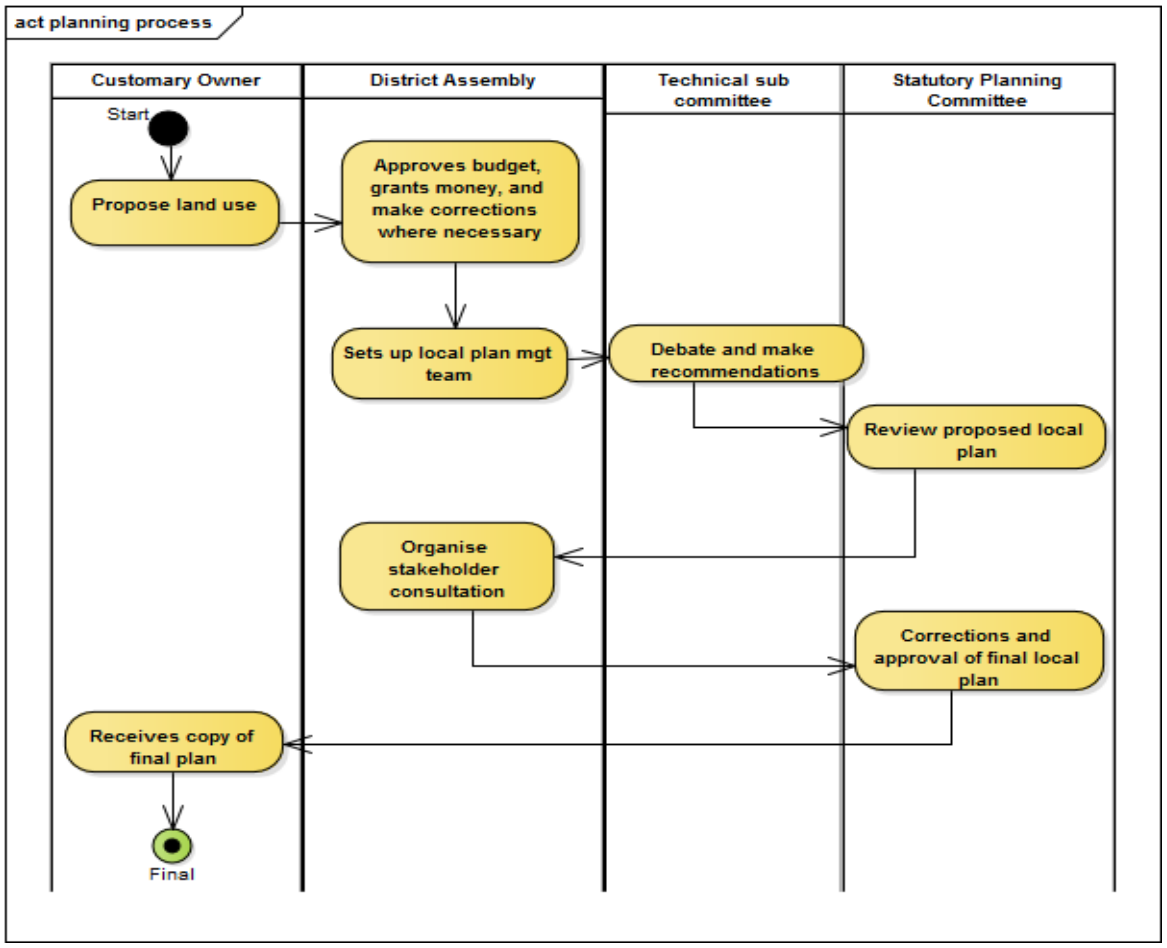
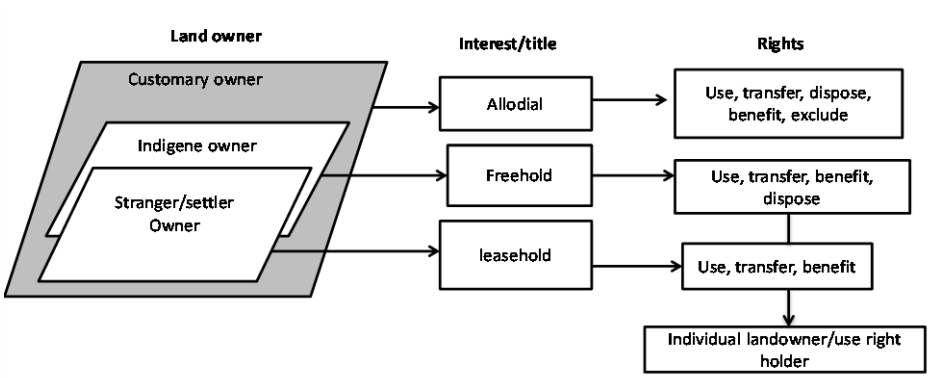


Figure 4.20: UML activity diagram showing planning process under customary land tenure

4.7. Effects of zoning regulation on land rights.

The main form of land tenure or interest held by majority of respondents (33) is leasehold. In this system, a contract is created between a lessor and a lessee for a specific period of time. This period has a commencement date and date it will elapse (usually 99 years). Other respondents had inherited the land or given to them as a gift whiles indigenes had freehold (land held in perpetuity). In this study, both indigenes and settlers are identified as Individual land owners/use right holders. They have right to use, and benefit from the land but cannot transfer without the consent of the customary owner (Figure 4.21). This directive is to enable update of land records on the current land ownership and for collection of ground rent.



where

- Use means right to develop as permitted by law
- Transfer means right to transact in the land sell, lease, mortgage, pledge, subdivide
- Benefit means right to reap from the land
- Exclude means the right to exclude non-members of the group
- Dispose means right to dispose land to any person without compulsion

Figure 4.21: Land rights in the study area (Author's construct)

According to the family head, some use right holders comply with the directives while others do not. The family heads also indicated that use right holders can use land for any development in accordance with planning regulations. Respondents confirmed this. Therefore, right to use land is the most restricted by residential standards (Figure 4.22). According to respondents use of land is subject to consent of the Municipality by applying for a building or development permit. Per Sections 9 and 10 of CAP 84(1945), individual land owners cannot make any improvement be it construction, demolition, alteration, repair, extension without permit from planning authorities.

Out of 21 respondents who had some sort of information on restrictions on how to use their land, 8 do not feel affected by the regulation. Their reason is that it is the law hence must be obeyed. Others also think residential standards prevent them from using their land to their satisfaction; they cannot convert to other uses unless they sought the concern of authorities; and cost of permit to use land was expensive and bureaucratic as depicted in Figure 4.23 below. To respondents, apart from the cost of buying land and building a home, building permit adds additional cost. The period of waiting for permit to be approved, delays their projects.

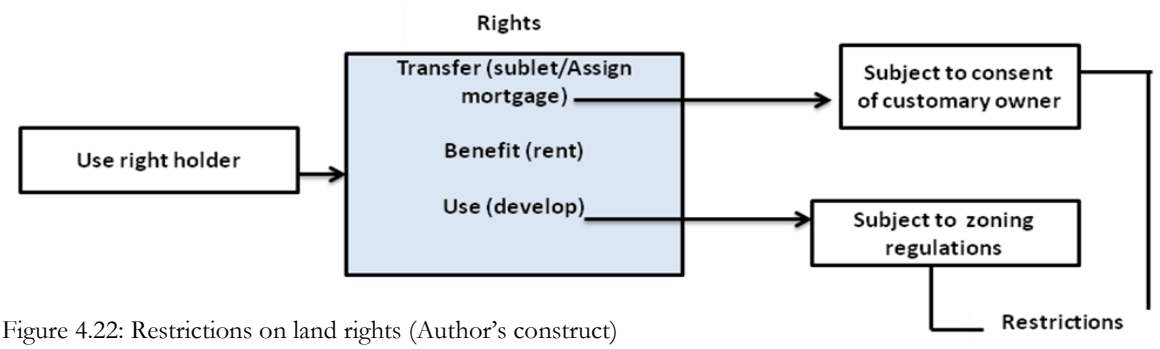


Figure 4.22: Restrictions on land rights (Author's construct)

Of all the restrictions imposed by the Municipality, respondents feel they are most restricted by the type of building to develop on their land and others such as permission to develop land (building permit), property rate and growing of a minimum number of trees (Table 4.5). This is because these are the ones they are mostly aware of.

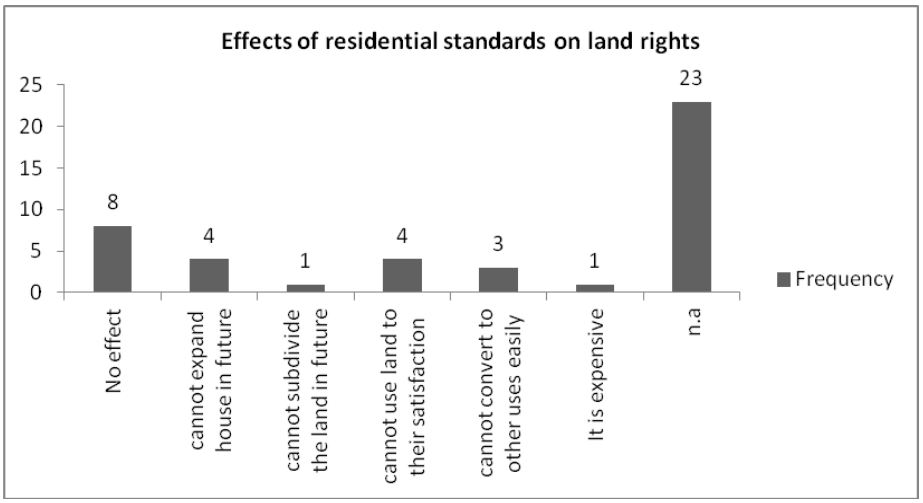


Figure 4.23: Effect of zoning regulation on land rights

Table 4.8: Restrictions that affected land rights most

Description	No of respondents	% of respondents
Minimum plot size	3	7
Maximum plot coverage	3	7
Type of building	6	14
Others	19	43
No answer(n.a)	13	29
Total	44	100

As a result, majority are likely to convert from residential to other uses in 2 years time. This is clear indication of disregard for residential standard as rezoning ideally can only take place in 5 years time. Majority also do not feel restricted to the extent of losing land. The personal attachment use right holders have to their land through inheritance, financial commitments and land title makes them certain they will not lose land as a result of non compliance with residential standards. To respondents, the worst that can happen is payment of fine.

Table 4.9: Evaluation of effect of zoning regulation on land rights in the study area

Description	Definitely not	Unlikely	Neutral	Likely	Definitely	Total
Likely to convert to other uses	9	10	6	18	1	44
Likely to lose land	41	2	0	0	1	44
Likely to expand house	7	15	5	12	5	44
Likely to protest	7	14	9	10	6	44

4.7.1. Actions taken to defend land rights

Use right holders do not protest against residential standards due to low awareness and enforcement. However, they channel their grievances through the Assemblywoman who acts as their mouthpiece at the Municipality (Figure 4.23). Another mechanism is to write false warnings on buildings to prevent task force from visiting property such as the one shown in Figure 4.8. Contrary to views by the Works Engineer that task force do not take bribe from use right holders; respondents gave it as one means to get task force off their backs when it comes to building permit. Others take legal actions against the Municipality, but these are in the minority.

Figure 4.24: Actions taken to defend land rights

4.7.2. Implementation of permitted uses

Use right holders are sceptical about the implementation of permitted uses in future (2 years time). However, majority think if they are made aware of uses applicable on their land and other standards through education (18), if there is strict enforcement of regulations (12), if they are given copies of the regulation (6) if they are involvement in planning (2) then they may implement residential standards.

Table 4.10: Evaluation of use right holder's intention to implement permitted uses.

Description	No of respondents	% of respondents
Definitely not	1	2
Unlikely	5	11
Neutral	28	34
Likely	6	14
Definitely	4	9

Total	44	100

4.7.3. Summary of findings (sub-objective 3)

Lands in Ashiyie are 100% customary. Customary landowners still hold allodial interest and transfer freehold or leasehold depending on whether one is a settler or indigene. However, both indigenes (freeholders) and settlers (leaseholders) have right to use, transfer and benefit from land. Use right is restricted by zoning regulation through application for building permit from planning authorities prior to development and developing land according to residential building standards. However, use rights are not lost when these requirements are not met. Use right holders do not feel affected by these restrictions to the extent of losing land and are therefore likely to convert to other uses within the shortest possible time (2 years). Reasons given include financial commitment; personal attachment; sense of ownership through inheritance, membership of the land holding group and title to land; lack of strict enforcement by planning authority. Majority of respondents therefore do not take actions to defend their land rights.

4.8. General conclusions

In this chapter, findings confirmed that income levels, education and household size influences landowner's decision to implement or not to implement zoning regulation The cost of getting permit, low awareness and weak enforcement are some factors that negatively influence compliance. The chapter identified various types of conformance problems in the study area to include changes in plot sizes, changes in orientations of plots, changes in shapes and buildings outside parcel boundaries. The chapter also included an evaluation of land rights in the study area and restrictions faced by use right holders as well as restrictions that affected them most and actions taken to defend land rights. Where awareness is low, compliance is high due to liberal and relaxed nature of the standards whereas where awareness is high, compliance is low to due to rigid requirements and cost as in the case of permit acquisition. Use right holders do not risk losing land rights due to non compliance with residential building standards and for that matter do not take any action to defend their land rights. Also respondents feel affected only when they are aware of regulations as in the case of permit acquisition prior to development. Liberal standards compel voluntary compliance whiles rigid requirements (permit) reduce voluntary compliance and calls for strict enforcement.

5. DISCUSSION

In chapter four, field data collected from West Ashiyie were analysed. This information came from individual use right holders, the Municipality and customary land owners. This chapter will further discuss the three sub-objectives in relation to literature. The first part presents a discussion on the factors that influence compliance with residential standards contextualised under household income, household size, awareness, education and enforcement. The second part presents a discussion on conformity and compliance and the third part discusses effects of zoning on land rights under customary tenure in the context of rights, restrictions and effects.

5.1. Factors that influence compliance

Two types of compliance were observed in the study area: compliance with permit acquisition; and compliance with residential standards. Findings showed that use right holders are motivated by several factors to comply or not to comply with either requirement. Factors such as household income, household size, education and awareness serve as motivation in one way or the other to comply or not to comply with requirements of residential standards.

Awareness of permit acquisition prior to developing land; construction; demolition, repair; alteration; renewal as stipulated by TCPD-CAP 84 (1945) is higher, compared to awareness of specific residential standards. Contrary to findings by Arimah & Adeagbo (2000) that lack of awareness of standards lead to non compliance, findings show that compliance with specific standards such as plot size, land use and building types are high despite high ignorance of these standards. The residential standards are relaxed and liberal such that respondents comply unknowingly. On the other hand, though awareness of permit acquisition prior to developing land is high, there is low compliance with such requirement because the requirements are rigid and expensive. This latter finding is supported by studies in Jordan and Ghana (Alnsour & Meaton, 2009; Baffour Awuah & Hammond, 2014) where awareness does not necessarily translate into compliance. It can therefore be said that voluntary compliance can be achieved when regulations are relaxed. Relaxed standards motivate use right holders to comply as compared to rigid and expensive permit process. The Municipality has adopted residential standards that at the time of plan implementation suites the socio-economic conditions of respondents. However there will be the need to further reconsider some standards such as plot sizes: land values are increasing, therefore currently higher than average incomes. The increase in land values is due to population increase and pressure on land. This has affected land size allocated for residential use as they are becoming smaller and inconsistent with minimum plot size required (De Schutter, 2010).

Awareness can be attributed to respondent's level of education. The study area has a high literacy rate. Majority of respondents who are educated had knowledge of residential standards especially permitted uses. This confirms that the more educated a person is, the more likely they are to be aware of standards thus likely to comply with regulations as noted by Alnsour & Meaton (2009). However those who are aware of residential standards do not understand the rationale for such standards. Therefore do not see the need to get a building permit to use land. This is due to poor education strategies adopted by the Municipality. There is the need to intensify awareness creation through programmes that fit all educational levels in order to achieve high compliance, especially with permit acquisition. Awareness creation can be enhanced through articles in newspapers, video clips for the general public, photo exhibition as suggested by GIZ (2012). These articles should be in newspapers circulating in the area; video clips should be in the local dialect to enable all understand.

Larger households call for more space. The demand for more houses makes it hard for compliance with standards thus does not motivate use right holders to comply with maximum plot coverage. Use right holders are motivated by benefits they will derive from their land such as using land to provide shelter for members of their household. Therefore, this study confirms findings by Fekade (2000) that household size can negatively motivate use right holders to comply with standards such as maximum plot coverage. Another benefit is the potential of deriving income from land through rents. These benefits negatively motivate use right holders to comply with plot coverage as demand for rental abodes has become profitable.

Fekade (2000) asserts that household income can be linked to area of houses, design and quality and therefore has an effect on compliance. This presupposes that low income earners cannot afford large tracts of land and will therefore find it difficult to meet minimum requirements or cannot exceed maximum required standards. Although income levels are moderate in the study area, most houses still fall within stipulated plot sizes of 350m^2. This contradicts studies that show that low income earners cannot comply with standards (Alnsour & Meaton, 2009; Fekade, 2000). This is not the case under customary tenure where lands are given 'freely' or as token to indigenes and also where lands are bought cheap and developed later. A low income rather serves as motivation for respondents to expand their houses or utilize their compound to earn income through rents thus exceeding maximum requirements.

Low income, however, negatively influences compliance when use right holders have to spend on other things aside buying land and constructing houses, in the form of acquiring permit to use land. In such circumstances, poverty certainly plays an important role in accounting for variations in the degree of compliance with zoning regulations. Use right holders are required by section 5 (3) of the National Building Regulation to provide a site plan, a detailed description of the building showing the purpose of each room, indicate stages and methods of construction, materials for construction, land title certificate/search report, architectural drawings, structural drawings and sometimes geological certificates. These requirements for permit are not only difficult to meet but also a cost burden especially to low income use right holders (Dowall & Clarke, 1996). This affects the extent to which land rights are enjoyed due to constant demand by task force to "produce permit"; delay and lengthen costruction when tools are seized (Mayer & Somerville, 2000). It will be prudent to find other alternative ways of meeting these requirements not only to save time but to reduce the cost involved as in the case of land title certificate (Boamah, 2013). Search reports are currently accepted as proof of title in permit application in the absence of a land title certificate. It takes a maximum of 3 days to get a search report compared to a land title certificate which may take more than 3 months.

Findings presented in Section 4.2 shows that enforcement has a positive influence on compliance with permit acquisition. Respondents who were visited by the task force to check land use and compliance complied by getting a permit to use land appropriately (Arimah & Adeagbo, 2000). The approach used by the Municipality is detecting violations and having them corrected. This is because it is difficult to create conditions under which violations will not occur as opined by Burby et al. (1998). Prevailing conditions in the study area such as multiple sales of land, land disputes, increasing demand for land and increment in land values do not allow use right holders to voluntary get permission to use land. Furthermore, permit procedure and approval process is circuitous, time-consuming and expensive. These problems do not create an environment for use right holders to be committed to voluntarily get permit without enforcement. The public do not understand the details involved or the need to get permit, they prefer to avoid the procedure altogether and build without approval from the Municipality (Arimah & Adeagbo, 2000).

Contrary to section 4.3*k* of the National Land Policy (1999), buildings without permit are not demolished. Demolishing is usually reserved for constructions in water way and right of way. Use rights are therefore not affected as use right holders still use land even without permit. The practice of bribing task force to get them to overlook constructions without permit and prohibited uses confirms studies by Alnsour & Meaton (2009) of how Municipality culture affects enforcement. Aspects of enforcement capacity such as staffing, technical expertise, inadequate logistics among others has an impact on compliance (Payne & Majale, 2004). These limitations make it difficult for construction sites to be monitored at all stages of construction. It reduces the frequency of inspection carried out on ongoing construction works. The low level education of the task force does not help in inspection of construction for compliance with approved building plans and regulatory requirements. The absence of the task force of the Municipality on construction sites in addition to their inability to detect developers building contrary to the approved building plans makes it easy for use right holders to alter drawings presented during the permit process. Such violations are hard to detect due to the non application of current technology such as GIS tools by the task force to analyse land use changes (Talen, 1996). There is therefore the need to increase capacity by adding better trained personal not to only detect buildings without a permit, properly review building plans for compliance with standards, but also inspection of construction with approved plans and detecting changes to approved plans as suggested by Schilling & Hare, (1994) and Burby et al., (1998).

The main action use right holders take to implement permitted uses is to get a permit to use land. Although this information is well circulated among respondents very few have taken steps to obtain permit. This ascertains findings by Boamah (2013) that permit acquisition is low on customary lands since the permit is a clash with customary land rights. As articulated by Burby et al., (1998) compliance can only occur when the cost of disobeying the law; delays in work schedules, seizure of construction tools, works stopped and fines paid exceed the benefits of non compliance. Use right holders find it profitable ignoring costly permit than utilizing space on their compound. This accounts for low number of permits as seen in Section 4.3. Contrary to often held views that low permits mean low compliance with standards (Arimah & Adeagbo, 2000; Baffour Awuah & Hammond, 2014; Boamah, 2013), this research showed that although not so many respondents had permit, a number of the standards such as plot sizes, types of land uses and type of building were highly complied with. This is due to the liberal nature of standards adopted by the Municipality. The reduction of minimum plot size from 450m^2 to 350m^2 made it easy for most respondents to easily comply with minimum plot sizes. Also the wide range of permitted buildings: compound houses; detached houses; semi-detached houses within the same zone allows for easy compliance by both middle and low income earners.

5.2. Spatial changes reflecting conformity and compliance to required standards in the regulation

The wide spread non- conformity in the study area questions the relevance of the existing plan and regulations. Response to housing construction and land acquisitions are taking place outside the existing plan. The result is non conformity where buildings spring up outside designated parcel boundaries; change in orientation; shape and size. The causes of these problems are; the tenure system where different families owning the same piece of land have led to multiple sales of land and land litigation. The problem escalates when land guards (thugs hired by both customary landowners and use right holders to protect their claim to land) are involved. These land guards also take advantage of the situation to allocate land illegally. In areas where land is owned by government, non conformity is reduced to the barest minimum of 20% (Baffour Awuah & Hammond, 2014) as against 50% in the study area as lamented by the planner; insecurity of tenure on the part of respondents who are compelled to secure their interest by showing their presence through building and occupation of land, thus do not seek approval first; high demand for

land as population increases, pressure on land rises; time lag between the plan and present development is also a factor of non conformity (Brody & Highfield, 2005). The problem is further aggravated by the inability of the Municipality task force to effectively ensure an orderly and harmonious development in the presence of multiple sales of land and land litigation.

As seen in the images of Section 4.4, non conformity in 2014 was only a continuation of what prevailed in 2008. Disinterest in and disregard for plans which date back to the early 90's and 2008 still exist in the study area. Non conformity to the land use plan existed before the new plan was introduced. This confirms findings by Burby et al. (1998) that development patterns differ from what the plan calls for and planners continually repeating the planning process without finding out why the old plan failed. The continuation of an old plan in the face of new regulation without appraising the performance of the old plan can lead to more non conformity. This does not augur well for planning authorities considering the amount of money invested into preparing a Local plan.

Studies conducted by UN-Habitat, (2007) in Kampala showed a link between land tenure and spatial characteristics of development. The report posits that development control is difficult on customary lands due to multiple interests held in the same land by different people. This opinion is supported by Yeboah & Obeng-Odoom (2010) after studying four district assemblies in Northern and southern part of Ghana. The existing land tenure system in the study area has affected planning. Planning is being determined and controlled by customary land owners and use right holders. Planning institutions are at the mercy of customary land owners. Unlike Sri Lanka and other countries where land subdivision is done by planning authorities (TGUP Perera, n.d.), in the study area, it is done by use right holders themselves or by customary land owners and surveyors without approval from planning authorities.

Findings show that although there is stakeholder consultation and active participation of customary land owners at the onset of the planning process and during rezoning, there is non conformity to plans prepared. This is contrary to views held by Yeboah & Obeng-Odoom (2010) that if landholders do not consent to plans, there will be huge non conformity. Land use plans can only be successful if the people responsible for allocating land (in the case of customary lands) are actively involved not only at the initial plan preparation stage but in its enforcement (an ongoing process). The present state of non conformity will be difficult correct by the Municipality. This is because currently there is no law that permits customary land owners to be prosecuted or compelled them to allocate land according to agreed plan as lamented by the Works Engineer. There is need for continuous dialogue between planners and customary land owners to ensure effective implementation of plan.

Although regulations are seen as foreign and restrictive, variation in plot sizes, permitted uses and type of building are low in the study are. Findings indicate that compliance with residential standards varies from standard to standard, respondent to respondent and among different income groups. Interview and observation from the field revealed that aspects of the residential standards that are least complied with are plot coverage. This is consistent with findings conducted by Arimah & Adeagbo (2000) in Ibadan, Nigeria. The reasons for this are due to large households in the face of low income and rapid urbanization. Although compliance with residential standards is high, development has taken place in an uncontrolled way. The area is under extreme development pressure due to its close proximity to the capital, Accra. This is seen in merging and subdivision of plots. This extreme pressure also accounts for non-conformity and non-compliance with plot coverage (Loh, 2011)

The wide range of non-conformity is not only an indication of how the plan has failed to control the future as contended by Pressman & Wildavsky (1973) but also shows problem with the development

process. As seen in the study area, consultation with customary landowners is not on day to day basis, they are not part of enforcing regulations but in charge of land allocation. Whereas customary land owners are unable to enforce salient terms such as plot size and land use agreed to in the indenture, planners are also unable to stop customary landowners and use right holders from subdividing lands without approval. The laws governing planning and land acquisition in Ghana need to be reviewed to involve planners in the land transfer process if planning is to be efficient on customary lands.

5.3. Effects of zoning regulation on land rights

Leasehold is the main form of interest held by most respondents in the study area. Use right holders need not comply with building regulations to be able to get freehold in land as pertains in Rwanda (Mukahigiro, 2015). Freehold is automatically conferred on indigenes by virtue of their membership of the land holding group (Arko-Adjei, 2011; da Rocha & Lodoh, 1999; Kasanga & Kotey, 2001). Under either interest, respondents have right to use, transfer and benefit from their land.

Land rights originating from customary tenure are not enjoyed in isolation. They are subjected to restrictions as imposed by the Municipality through compliance with residential building standards. Restrictions on use rights manifest itself in twofold in the study area: It restricts the use right holder (permit requirements); and also restricts use of land (required residential standards). While planning is a public function undertaken by Municipality on behalf of the government, lands are still held privately by allodial, freehold and leasehold title holders. Findings from the study area revealed that right to use land is the most restricted by zoning regulation. Use right is subject to approval by the Municipality by applying for a building permit and developing land according to regulations. This is in accordance with Sections 9 and 10 of CAP 84 (1945). Use right holders feel more restricted when they are aware of such restrictions as in the case of getting building permit prior to development and land uses. It can therefore be said that use rights can be affected when standards are known and when regulations are strictly enforced.

Unlike Rwanda, tenure security in the study area is not affected by restrictions on land use (Mukahigiro, 2015)Land rights are not being sold under duress arising from inability to comply with requirements of residential building standards. The findings show that use right holders do not risk losing their land due to non compliance with residential standards. This is due to personal attachment to land, financial commitment and title document to land (to those who have it) and weak enforcement. In line with this, land rights are rarely defended against zoning regulation. Unlike informal settlements where use right holders protest against zoning regulation since it affects their land rights and for that matter security of tenure through ejection, loss of livelihood etc as reported by UN Habitat (2008), respondents do not see the need, since the worse that can happen is payment of fine, written warnings and sermons. The likelihood of converting from one use to the other in the shortest term contradicts section 48 of the Local Government Act (Act 462) which states that an approved development plan shall be complied by all persons for or connected with the implementation of the plan. This is clear indication that use rights are not affected by regulation as rezoning can only take place in 5 years time.

5.4. Summary of discussion

This chapter discussed results generated from analysed field data in relation to literature. The crucial factors for sustainable zoning regulation in the context of customary land are awareness creation; collaboration between formal (planners) and informal (customary landowners) land administrators; capacity building; legal binding status that will ensure customary land owners allocate lands according to agreed plan; strong institutions to enforce regulations. The discussion showed that land rights are not

affected by zoning regulation in the context customary tenure. The chapter suggests the review of laws governing planning and land acquisition in Ghana to involve planners in the land transfer process if planning is to be efficient on customary lands.

6. CONCLUSION AND RECOMMENDATIONS

Focusing on compliance with residential standards, this research sought to explore how zoning regulation affects land rights of use right holders in the context of customary land tenure. In order to achieve this, relevant factors that influence compliance as well as restrictions on land rights under customary tenure and how these rights are defended were presented under sub-objectives as research questions. This chapter evaluates the achievement of each sub-objective by reflecting on the responses to questions in the study. It presents a summary of findings for each sub-objective followed by conclusion and recommendation.

6.1. Conclusion

This research explored the effect of zoning regulation on land rights on customary lands; it identified socio-economic factors, awareness factors, enforcement mechanisms and how this motivates compliance. It also identified that the main action taken in response to zoning regulation is by acquiring building permit to use land and that use right holders do not feel affected to the extent of losing. The main objective was achieved using structured and semi-structured interviews and observation to get the views of use right holders, customary landowners and planning authorities. These were later analysed, presented and discussed.

6.1.1. Sub-objective 1: Factors That Influence Compliance with Zoning Regulation

The first objective seeks to identify factors that influence compliance with zoning regulation. In order to reach this objective, various literature on factors that influence compliance was reviewed. This resulted in the identification of socio- economic factors, awareness factor and administrative practices. Factors that influence compliance includes lack of awareness by the general populace; large households; increased demand for accommodation; low incomes and disdain and apathy on the part of the public towards formal land administration (land use planning). However, this differs from respondent to respondent and among income groups. Results show that enforcement of regulation is weakened by land litigations, political interference, inadequate logistics and limited technical knowledge of staff. Enforcement mechanisms can influence compliance when it is persistent and with the right technical staffs that are committed to ensuring regulations are adhered to. Main action use right holders take to implement zoning regulation is the acquisition of permit prior to development. The cost, time and rigid nature of the requirements make it unattractive thus does not motivate compliance (people do not apply for it).

6.1.2. Sub-objective 2: Spatial changes that reflect compliance with zoning regulation

The second sub-objective was to identify spatial changes that reflect compliance with zoning regulation. Spatial changes that reflect conformity include changes in plot sizes; changes in orientation; changes in the shape of plots; changes in the position; buildings outside parcel boundaries. The rate at which lands are subdivided and merged without approval indicates disregard for land use plans under customary land tenure systems. Spatial changes such as plot sizes, plot coverage, type of building and type land use were also analysed. The least standard that is complied with is maximum plot coverage, due to large household size and demand for rental abode. Planners and all who enforce physical plans need to be abreast with new issues in Planning. This includes new operational tools such as Geographic Information Systems. This will put planners in a better position to understand the intricacies of the urban process and acquire modern tools to enhance their productivity. The wide non conformity shows problems with implementation and coordination between formal (Planners, Lands Commission) and informal land managers (Customary landowners); this calls for extensive consultation at all stages of the planning process, as this would enhance its acceptability and success at all stages and not just at the implementation stages. This is a necessity for sustainable planning since custodians of customary lands are not permanent.

Also, there is the need to educate customary landowners on the importance of land use plans for sustainable land use.

6.1.3. Sub-objective 3: To assess how zoning regulations affects land rights.

The third sub-objective was to analyze how zoning regulation affects land rights, how land rights are defended and the extent to which use right holders can implement permitted uses. Land right were identified as right to use, transfer and benefit from land. Of all these, use right is the most restricted by zoning regulation. The issue of access to land is not only crucial at initial stages of plan preparation but to a large extent influences use right holders decision to comply with regulations. Under customary land tenure system, use right holders are not affected to the extent of losing land rights when residential building requirements are not met. This is because of financial commitment, title to land and sense of ownership and weak enforcement. In view of this, use right holders see no need to defend land rights against planning authorities or to protest.

6.2. General conclusion on the main research objective

The main objective of the research was to explore the effects of zoning regulation on land rights of use right holders, focusing on compliance with residential standards in Ashiyie in the Greater Accra Region of Ghana. The research looked at factors that influence compliance and how land rights are affected in the context of customary tenure in the study area. It turned out that compliance with residential building standards does not affect land rights of use right holders in the context of customary tenure: Use rights are not lost when use right holders do not comply with zoning regulation; use right holders still exercise their land rights even without permission to use land; use right holders are not compelled to sell their land rights due to inability to comply with all required regulations. This is largely due to financial commitment; personal attachment; sense of ownership through inheritance, membership of the land holding group and title to land; lack of strict enforcement by planning authority.

6.3. Recommendations for further studies

- This research only focused on residential standards which have been tailor made to suit all income groups. It is therefore recommended that similar study is carried out on commercial standards which cannot be compromised due to the service they provide.
- Further research is also needed on the role of customary landowners in planning and how they can effectively to help implement land use plans.
- Further research should be carried out in high income areas and also on state owned lands to determine if land rights are affected by residential standards in these areas since such standards are more rigid.

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APPENDICES

Appendix A: semi structured and structured interview questions.

Research topic: Exploring the effects of zoning regulation on land rights of use right holders in the context of customary land tenure system in Ashiyie, Ghana.

These questionnaires is part of my research study for my education in Geo-information science and earth observation and are meant to provide data to answer the research objective of the effect of zoning regulation on land rights. Your contribution is important for collecting information that can help to inform planning authorities on how they can strengthen planning and enable land owners enjoy their land rights whiles observing residential standards. Your answers will be treated confidential and be used for academic purpose only.

Interview schedule: Use right holders

Instruction: Please tick or fill where appropriate

Gender Male ☐ Female ☐

Status in the community Indigene ☐ settler ☐

Section A: Factors that influence compliance with zoning regulation

I. Land Owners' Awareness of Zoning Regulation

1. Are you aware there is a zoning regulation for this area? Yes ☐ No ☐

2. If "Yes", how did you come to know about the zoning regulations?

Told by a neighbour	
Through the media	
Through education by the Municipality	
Through internet	
Other (specify)	

3. Have you ever seen this zoning regulation document? Yes ☐ No ☐

4. If "Yes", how did you come across these zoning regulation documents?

I have them at home	
Online access	
From the Municipality	
From my neighbour	
Other (specify)	

5. Are you aware of the following residential standards for your land?

Regulation	Yes	No
Permitted uses		
Maximum plot coverage		
Minimum Plot size		
The type of building		
Setback		

II. Enforcement Mechanisms that Influence Compliance

6. How many times have the authorities visited to check land use for your property?		7. How many times have you received penalties in relation to the use of your land?	
Never been here		No penalty	
Once		Once	
2-4 times		2-4 times	
More than 4 times		More than 4 times	

8. At what stage of construction did you receive penalties?		9. What type of penalties were you given?	
Foundation level		Fine	
Lintel		Written warning	
Roofing		Demolishing	
Painting		Eviction	
Occupation		Other (specify)	

10. Did you start following the regulations after the penalties (if there were such)? No ☐
some of the regulations ☐ All of the regulations ☐

11. If "No", why did the sanctions not made you to comply?

Section B: Effects of Zoning on Land Rights

I. Origin of rights

From whom did you acquire your land?		How did you acquire your land?	
Chief of the area		Gift	
Family Head		Inheritance	
Individual,		Leasehold	
Estate Company		Freehold	
Other(specify)		Others (specify)	

12. Which year Did you acquire your property?.....

13. Were you given a time frame within which to start developing your land?

Yes ☐ No ☐

14. If "Yes", what time were you asked to start building?		15. What happens if you do not build within the given period?	
Within 6 months		I will lose my land	
Within 1 year		Pay an interest on the amount paid	
Within 2 years		Nothing will happen	
Within 3 years		Other (specify)	

II. Permission for land use

16. Do you have a building permit for your property? Yes ☐ No ☐

17. If "No" why don't you have a permit?

It is expensive	
The process takes a lot of time	
I don't have all the required documents	
Others (specify)	

18. What is your current land use?

Residential	
Commercial	
Industrial	
Educational	
Other (Please Specify)	

19. Is your current use according to the zoning regulation? Yes ☐ No ☐

20. If "No", do you have permit to maintain current use? Yes ☐ No ☐

21. If your current use is non- residential, why do you practice non-residential uses?

Ignorance of permitted uses	
To generate income from my land	
It is the highest and best use for this land	
It is expensive to follow the regulations	
Others(specify)	

22. Why do you adhere to residential standards in zoning regulation?

Good air circulation	
To get a permit to use my land	
For safety reasons	
To avoid penalties	
Other (please specify)	

III. Restrictions on Land Rights

23. Have you been informed of any restrictions about how you can use your land?

Yes ☐ No ☐

24. If "Yes", what are these restriction(s)?

Minimum plot size	
Maximum plot coverage	
Setback	
Type of building	
Minimum number of trees	
Other (specify)	

25. How are you affected by the restriction(s) mentioned?

.....

26. Which restriction mostly affected your rights?	
Minimum plot size	
Maximum plot coverage	
Setback	
Type of building	
Minimum number of trees	
Other (specify)	

27. How do you complain about the effect of zoning regulation on your land right?		28. What should planning authorities do to enable you implement residential standards?	
Through the media		They should involve communities in the planning process	
Write Letters to the Municipality		They should educate me on uses applicable to my land	
Complain to the assemblyman/woman		Be strict in enforcing residential standards	
Other (specify)		Other (specify)	

Section D: Standards that Land Owners Adhere To

29. What is the size of your plot?

35ft x70 ft	
70ft x100 ft	
80ft x 100 ft	
100ft x100 ft	
Others	

30. If your plot is less than the minimum required, why?

Ignorance of required minimum plot size	
Lack of money to buy the required plot size	
It has been subdivided	
Others (please specify)	

31. What is the total coverage of your building in relation to your land size?

20%-30%	
40%-50%	
50%-60%	
60%-70%	
70%-80%	
80%-90%	

32. If your plot coverage is more than the maximum 70% required, why?

Ignorance of maximum coverage	
I have a large family	
To make the most out of the land	
Others (please specify)	

33. What kind of house do you live in?

Detached houses	
Semi-detached (Duplex)	
Compound houses	
Flat	
Other(specify)	

34. If your house is not detached, semi-detached or compound house, why?

Ignorance of permitted uses	
That is what i can afford	
It is the highest and best use for this land	
Others (please specify)	

Section C: Actions Taken by use right holders in Response to the Zoning Regulations.

35. What actions do you take to dodge penalties from enforcement agencies?

Complain to traditional authority	
Pay money to enforcement team (task force)	
Complain to assemblyman	
Other (please specify)	

36. For each of the questions in the table below, mark with X according to the scale.

1= No, definitely Not;
2=Unlikely;
3=Neutral (50/50);
4=Likely
5=Yes, definitely (100%sure)

	1	2	3	4	5
How likely do you think you will lose your land if you do not use land according to the regulations?					
How likely are to sell (dispose off) your property in the short term (2 years) due to zoning regulations?					
How likely are you to protest against zoning regulation?					
How likely you to convert your current land use to other land use in future (2 years time)?					
How likely are you to expand your house in future?					
How likely are you to implement residential standards in the short term (within 2 years)					

Socio-economic Data

37. Age		38. Income range		39. Household size	
18-30		Less than ¢500		less than 3	
31-40		¢500-¢1,000		3-5	
41-50		¢1000-¢1500		5-7	
51-60		¢1500-¢2000		7-9	
Above 60		More than ¢2000		More than 9	

Education		Type of occupation	
Illiterate		Civil servant	
Primary school		Labourer	
Secondary school		Trader	
Tertiary		Unemployed	
Other(specify)		Other(specify)	

Interview guide for Planner

1. Are land owners in Ashiyie aware of zoning regulations pertaining to their land? Yes ☐ No ☐

2. On what basis do you attest that landowners are aware of zoning regulations?

High compliance rate in the area	
High number of acquired building permits	
Conformity of buildings to residential standards	
Others (specify)	

3. How often do you carry out awareness programmes to educate land owners on zoning regulations?		4. How often do you go round to inspect ongoing construction works and buildings of land owners in residential zones?	
Once a month		Once a week	
Once quarterly		Once a month	
Once per year		Once quarterly	
Never done it		Once per year	
Others (specify)		Others (specify)	

5. What are some warnings and sanctions given to land owners who do not implement residential standards according to the Municipality's zoning regulations?

Sanctions	**Number of times this year**
Demolishing	
Fine	
Verbal warnings	
Written warnings	

6. What was the effect from these warnings and sanctions?

Below 30 % compliance	
About 30% compliance	
About 40% compliance	
About 50% compliance	
Above 50% compliance	

7. Do you think the zoning regulations are properly formulated and implemented?
8. How do you motivate land owners to implement permitted uses (residential standards)?
9. How are concerns of land owners with regards to implementing residential standards addressed?
10. How different is planning process on customary lands to other areas.
11. In your estimation, what is the percentage of land owners that have complied with zoning regulations since the implementation of the local plan?

Interview guide for Works engineer

1. What are some warnings and sanctions given to land owners who do not implement residential standards according to the Municipality's zoning regulations?
2. What problems do you face in enforcing zoning regulation in your municipality?
3. What are the limitations you face in enforcing zoning regulations?
4. Do staffs of the Municipality obey lay down norms and values to enforcing compliance?

Interview guide for Customary land owners in the study area

1. What is the origin of land rights in Ashiyie
2. What is your role in the planning process?
3. Do you have the power to carry out sanctions on land owners who do not comply with zoning regulations?

4. Do you intervene for land owners when they are sanctioned by the Municipality for not implementing residential standards?
5. Are you part of the team that approves building permits for your area?

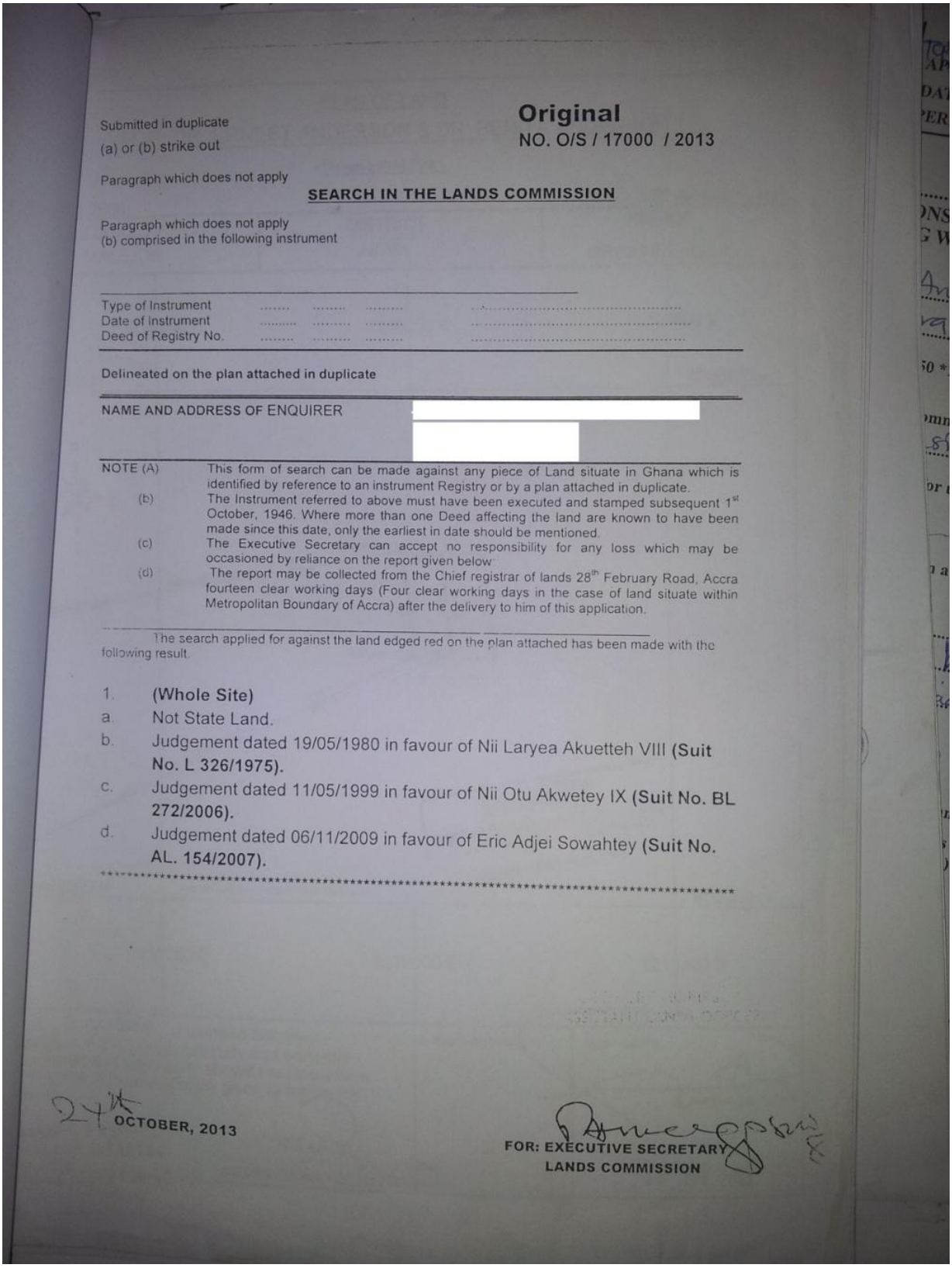
Interview guide Assembly Woman in the study area

1. How do you educate individual land owners on residential standards?
2. How fair are sanction procedures given by the Municipality?
3. Which of the sanctions would you want changed and why?
4. What would you propose as a faster solution of properly implementing residential standards?
5. What are some of the problems you encountered while interacting with land owners about implementing residential standards?

Field observation inventory template

Land use types
Permitted uses
Prohibited uses
Plot coverage

Appendix B: Search report from Lands Commission



Submitted in duplicate
(a) or (b) strike out

Original
NO. O/S / 17000 / 2013

Paragraph which does not apply

SEARCH IN THE LANDS COMMISSION

Paragraph which does not apply
(b) comprised in the following instrument

Type of Instrument .....
Date of Instrument .....
Deed of Registry No. .....

Delineated on the plan attached in duplicate

NAME AND ADDRESS OF ENQUIRER [redacted]

NOTE (A) This form of search can be made against any piece of Land situate in Ghana which is identified by reference to an instrument Registry or by a plan attached in duplicate.
(b) The Instrument referred to above must have been executed and stamped subsequent 1st October, 1946. Where more than one Deed affecting the land are known to have been made since this date, only the earliest in date should be mentioned.
(c) The Executive Secretary can accept no responsibility for any loss which may be occasioned by reliance on the report given below
(d) The report may be collected from the Chief registrar of lands 28th February Road, Accra fourteen clear working days (Four clear working days in the case of land situate within Metropolitan Boundary of Accra) after the delivery to him of this application.

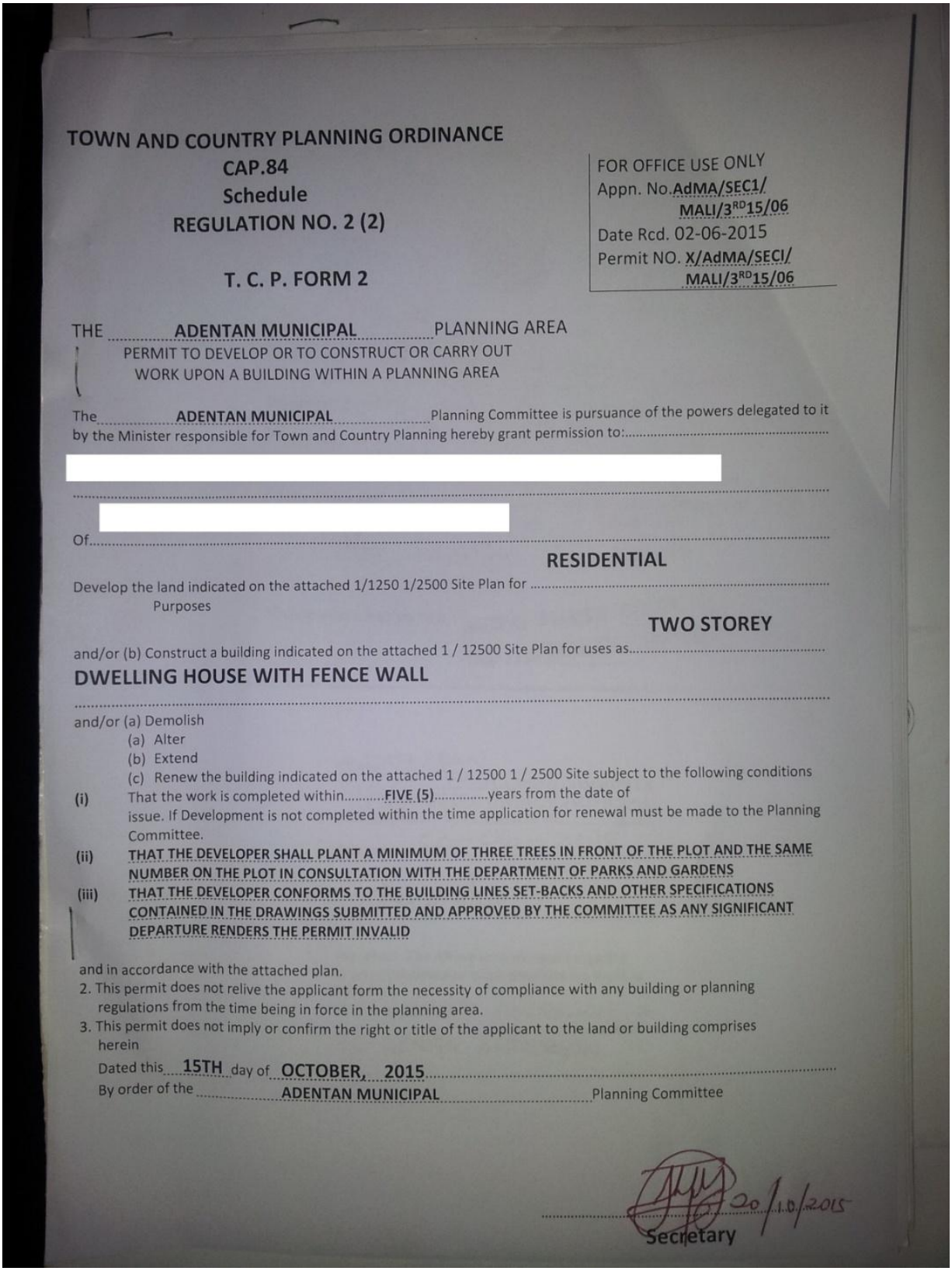
The search applied for against the land edged red on the plan attached has been made with the following result.

1. **(Whole Site)**
a. Not State Land.
b. Judgement dated 19/05/1980 in favour of Nii Laryea Akuetteh VIII **(Suit No. L 326/1975).**
c. Judgement dated 11/05/1999 in favour of Nii Otu Akwetey IX **(Suit No. BL 272/2006).**
d. Judgement dated 06/11/2009 in favour of Eric Adjei Sowahtey **(Suit No. AL. 154/2007).**

24th OCTOBER, 2013

FOR: EXECUTIVE SECRETARY
LANDS COMMISSION

Appendix C: Form "2"



TOWN AND COUNTRY PLANNING ORDINANCE
CAP.84
Schedule
REGULATION NO. 2 (2)

T. C. P. FORM 2

FOR OFFICE USE ONLY
Appn. No. AdMA/SEC1/ MALI/3RD15/06
Date Rcd. 02-06-2015
Permit NO. X/AdMA/SECI/ MALI/3RD15/06

THE ADENTAN MUNICIPAL PLANNING AREA

PERMIT TO DEVELOP OR TO CONSTRUCT OR CARRY OUT WORK UPON A BUILDING WITHIN A PLANNING AREA

The ADENTAN MUNICIPAL Planning Committee is pursuance of the powers delegated to it by the Minister responsible for Town and Country Planning hereby grant permission to:.....

.....

Of.....

RESIDENTIAL

Develop the land indicated on the attached 1/1250 1/2500 Site Plan for ..... Purposes

TWO STOREY

and/or (b) Construct a building indicated on the attached 1 / 12500 Site Plan for uses as.....

DWELLING HOUSE WITH FENCE WALL

.....

and/or (a) Demolish
(a) Alter
(b) Extend
(c) Renew the building indicated on the attached 1 / 12500 1 / 2500 Site subject to the following conditions

(i) That the work is completed within.....FIVE (5).....years from the date of issue. If Development is not completed within the time application for renewal must be made to the Planning Committee.

(ii) THAT THE DEVELOPER SHALL PLANT A MINIMUM OF THREE TREES IN FRONT OF THE PLOT AND THE SAME NUMBER ON THE PLOT IN CONSULTATION WITH THE DEPARTMENT OF PARKS AND GARDENS

(iii) THAT THE DEVELOPER CONFORMS TO THE BUILDING LINES SET-BACKS AND OTHER SPECIFICATIONS CONTAINED IN THE DRAWINGS SUBMITTED AND APPROVED BY THE COMMITTEE AS ANY SIGNIFICANT DEPARTURE RENDERS THE PERMIT INVALID

and in accordance with the attached plan.

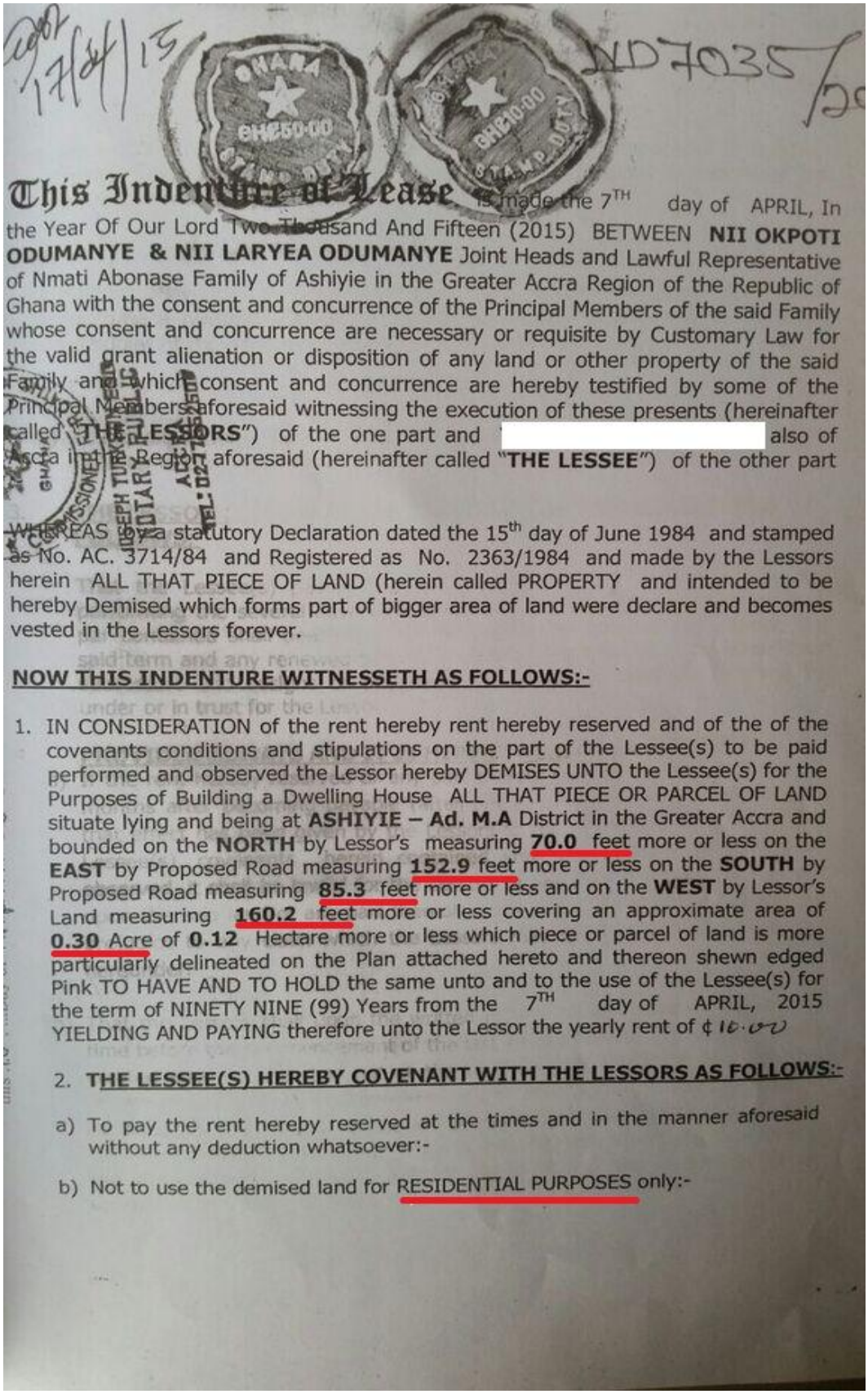
2. This permit does not relive the applicant form the necessity of compliance with any building or planning regulations from the time being in force in the planning area.
3. This permit does not imply or confirm the right or title of the applicant to the land or building comprises herein

Dated this 15TH day of OCTOBER, 2015.....

By order of the ADENTAN MUNICIPAL Planning Committee

20/10/2015
Secretary

Appendix D: Copy of indenture showing land size and land use



This Indenture of Lease is made the 7TH day of APRIL, In the Year Of Our Lord Two Thousand And Fifteen (2015) BETWEEN **NII OKPOTI ODUMANYE & NII LARYEA ODUMANYE** Joint Heads and Lawful Representative of Nmati Abonase Family of Ashiyie in the Greater Accra Region of the Republic of Ghana with the consent and concurrence of the Principal Members of the said Family whose consent and concurrence are necessary or requisite by Customary Law for the valid grant alienation or disposition of any land or other property of the said Family and which consent and concurrence are hereby testified by some of the Principal Members aforesaid witnessing the execution of these presents (hereinafter called "**THE LESSORS**") of the one part and [redacted] also of Accra in the Region aforesaid (hereinafter called "**THE LESSEE**") of the other part

WHEREAS by a statutory Declaration dated the 15th day of June 1984 and stamped as No. AC. 3714/84 and Registered as No. 2363/1984 and made by the Lessors herein ALL THAT PIECE OF LAND (herein called PROPERTY and intended to be hereby Demised which forms part of bigger area of land were declare and becomes vested in the Lessors forever.

NOW THIS INDENTURE WITNESSETH AS FOLLOWS:-

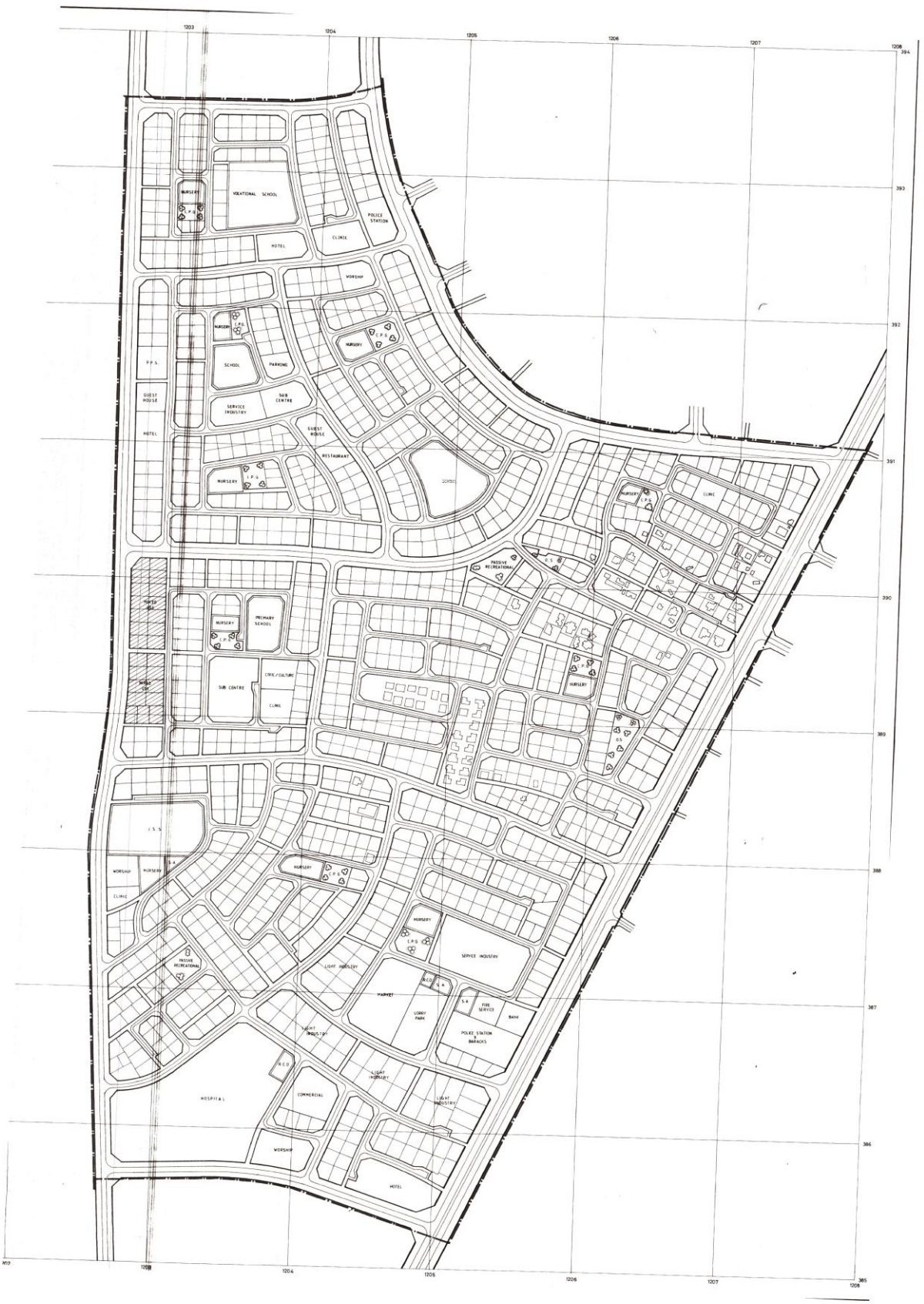
1. IN CONSIDERATION of the rent hereby rent hereby reserved and of the of the covenants conditions and stipulations on the part of the Lessee(s) to be paid performed and observed the Lessor hereby DEMISES UNTO the Lessee(s) for the Purposes of Building a Dwelling House ALL THAT PIECE OR PARCEL OF LAND situate lying and being at **ASHIYIE – Ad. M.A** District in the Greater Accra and bounded on the **NORTH** by Lessor's measuring **70.0** feet more or less on the **EAST** by Proposed Road measuring **152.9** feet more or less on the **SOUTH** by Proposed Road measuring **85.3** feet more or less and on the **WEST** by Lessor's Land measuring **160.2** feet more or less covering an approximate area of **0.30** Acre of **0.12** Hectare more or less which piece or parcel of land is more particularly delineated on the Plan attached hereto and thereon shewn edged Pink TO HAVE AND TO HOLD the same unto and to the use of the Lessee(s) for the term of NINETY NINE (99) Years from the 7TH day of APRIL, 2015 YIELDING AND PAYING therefore unto the Lessor the yearly rent of ¢ 10.00

2. **THE LESSEE(S) HEREBY COVENANT WITH THE LESSORS AS FOLLOWS:-**

   a) To pay the rent hereby reserved at the times and in the manner aforesaid without any deduction whatsoever:-

   b) Not to use the demised land for RESIDENTIAL PURPOSES only:-

Appendix E: Local plan of West Ashiyie



Appendix F: changes in plot sizes from 2008-2014

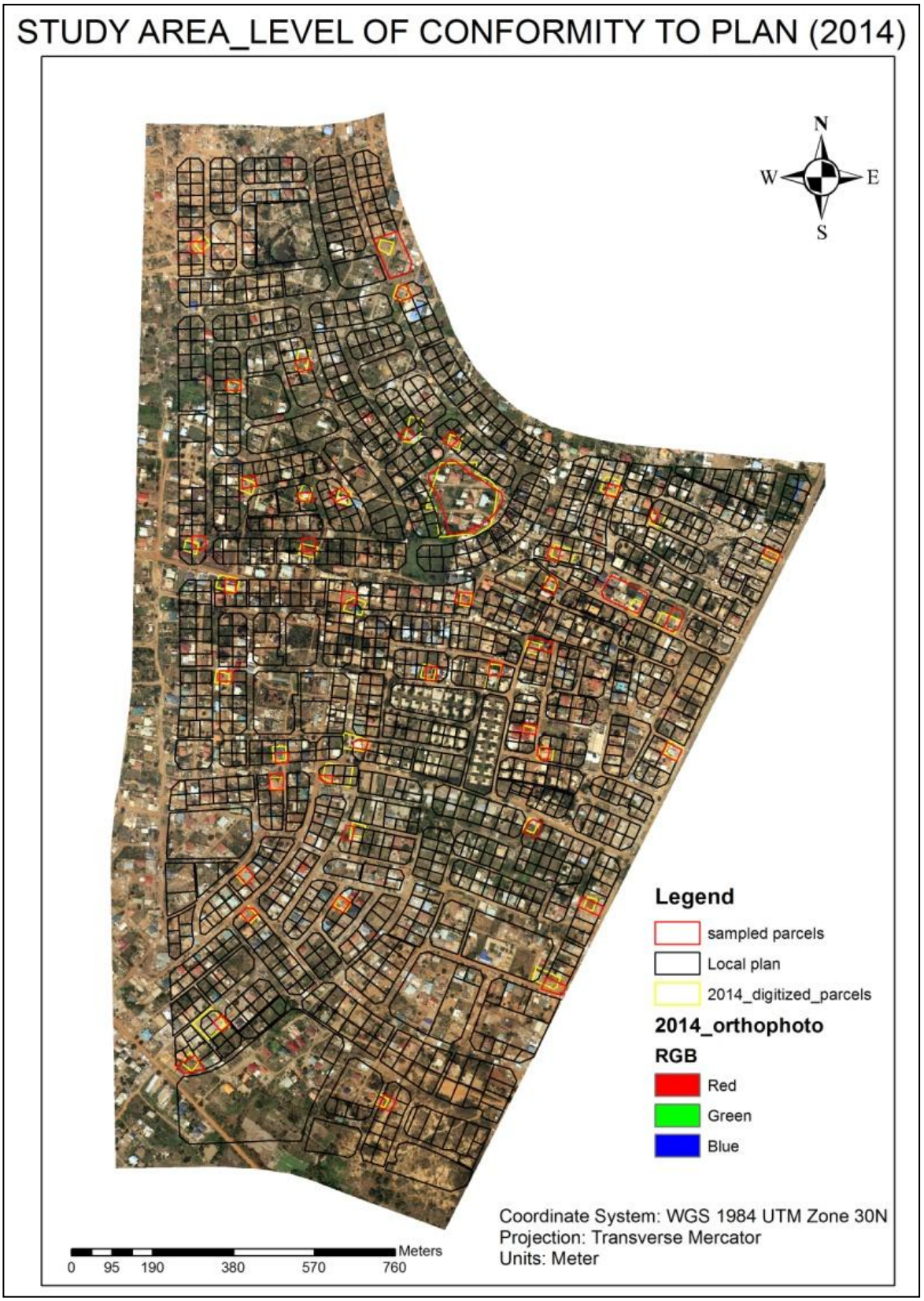
Parcel ID	Plot size (m^2) 1990	Field measurement (m^2)	Plot size (m^2) 2008	Diff in area (1990-2008) m^2	% of change (2008-2014)	Comment
-	745	-	1194	449	0.2	Merge
-	620	-	881	261	0.2	Merge
-	431	-	886	455	0.3	Merge
-	1573	1514	1627	54	0.0	Merge
-	5288	-	740	-4548	-0.8	subdivision
-	752	-	1555	803	0.3	Merge
-	753	-	732	-21	0.0	subdivision
-	922	-	720	-202	-0.1	subdivision
-	1163	-	1150	-13	0.0	subdivision
-	1289	-	780	-509	-0.2	subdivision
-	701	-	970	269	0.2	Merge
-	947	-	1850	903	0.3	Merge
-	734	464	493	-241	-0.2	subdivision
-	991	-	728	-263	-0.2	subdivision
-	834	-	1068	234	0.1	Merge
-	651	-	1820	1169	0.5	Merge
-	498	-	2970	2472	0.7	Merge
-	942	-	1460	518	0.2	Merge
-	1296	-	700	-596	-0.3	subdivision
-	1178	-	860	-318	-0.2	subdivision
-	756	-	1000	244	0.1	Merge
-	957	-	850	-107	-0.1	subdivision
-	782	-	920	138	0.1	Merge
-	819	-	857	38	0.0	Merge
-	1497	-	886	-611	-0.3	subdivision
-	782	-	2847	2065	0.6	Merge
-	712	-	989	277	0.2	Merge
-	809	-	881	72	0.0	Merge
-	1130	-	755	-375	-0.2	subdivision
-	946	-	570	-376	-0.2	subdivision
-	1364	-	1947	583	0.2	Merge
-	685	-	709	24	0.0	Merge
-	786	-	696	-90	-0.1	subdivision
-	6025	-	849	-5176	-0.8	subdivision
-	959	-	935	-24	0.0	subdivision
-	596	-	1125	529	0.3	Merge
-	18093	-	22344	4251	0.1	Merge
-	923	-	944	21	0.0	Merge
-	859	-	1007	148	0.1	Merge

-	838	-	902	64	0.0	Merge
-	868	-	1368	500	0.2	Merge
-	789	-	804	15	0.0	Merge
-	952	-	762	-190	-0.1	subdivision
-	795	-	1524	729	0.3	Merge

Parcel ID	**Plot size (m^2) 1990**	**Field measurement (m^2)**	**Plot size (m^2) 2014**	**Difference in area (m^2)**	**Rate of change % (1990-2014)**	**Comment**
-	745	-	1255	510	0.3	Merge
-	620	-	709	89	0.1	Merge
-	431	-	999	568	0.4	Merge
-	1573	1514	1524	-49	0.0	Subdivision
-	5288	-	744	-4544	-0.8	Subdivision
-	752	-	1508	756	0.3	Merge
-	753	-	774	21	0.0	Merge
-	922	-	652	-270	-0.2	Subdivision
-	1163	-	1214	51	0.0	Merge
-	1289	-	785	-504	-0.2	Subdivision
-	701	-	1006	305	0.2	Merge
-	947	-	1820	873	0.3	Merge
-	734	464	474	-260	-0.2	Subdivision
-	991	-	739	-252	-0.1	Subdivision
-	834	-	1011	177	0.1	Merge
-	651	-	1828	1177	0.5	Merge
-	498	-	2810	2312	0.7	Merge
-	942	-	1397	455	0.2	Merge
-	1296	-	680	-616	-0.3	Subdivision
-	1178	-	893	-285	-0.1	Subdivision
-	756	-	896	140	0.1	Merge
-	957	-	916	-41	0.0	Subdivision
-	782	-	883	101	0.1	Merge
-	819	-	959	140	0.1	Merge
-	1497	-	897	-600	-0.3	Subdivision
-	782	-	1918	1136	0.4	Merge
-	712	-	931	219	0.1	Merge
-	809	-	784	-25	0.0	Subdivision
-	1130	-	748	-382	-0.2	Subdivision
-	946	-	633	-313	-0.2	Subdivision
-	1364	-	1887	523	0.2	Merge
-	685	-	811	126	0.1	Merge

-	786	-	744	-42	0.0	Subdivision
-	6025	-	802	-5223	-0.8	Subdivision
-	959	-	1005	46	0.0	Merge
-	596	-	1878	1282	0.5	Merge
-	18093	-	21903	3810	0.1	Merge
-	923	-	1023	100	0.1	Merge
-	859	-	1028	169	0.1	Merge
-	838	-	923	85	0.0	Merge
-	868	-	1320	452	0.2	Merge
-	789	-	768	-21	0.0	Subdivision
-	952	-	778	-174	-0.1	Subdivision
-	795	-	1525	730	0.3	Merge

Appendix G: Maps of plan conformity



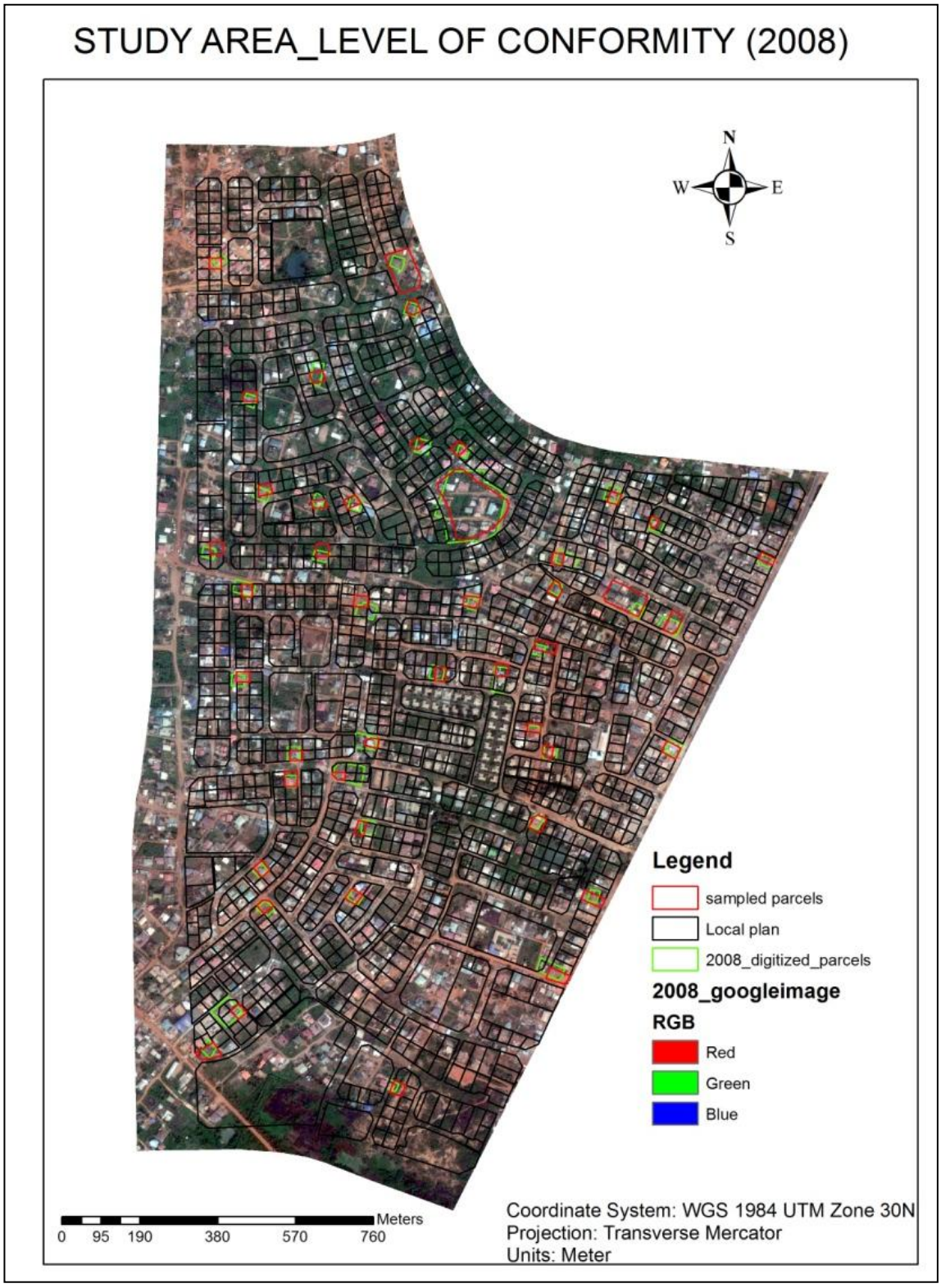


Figure 0.1: Level of conformity in 2008 and 2014

Sub Objective	Concept	Indicator	Research Question	Data Sources	Methods of data collection	Techniques of Data Analysis & software	Variables(expected output)	Required information
1. to identify factors that influence compliance with zoning regulations	uses	Motivation	What motivates land owners to implement zoning regulations	land owners	Structured interview	Descriptive statistics (SPSS)	1. % aware of zoning regulations for the area and Source of this information 2. How many people have seen these regulations 3. How many have regulations at home 4. How many people are aware of uses allowed for their parcels	Awareness factors will show land owners that have access to zoning regulations and its implication on compliance
							1. Proportion practicing prohibited/permitted uses 2. Reasons for practicing prohibited/permitted uses 3. How many have permission to maintain which permitted uses after zoning 4. Which	Conformance factors will indicate if land owners are adhering to regulations or not and reasons for doing so.

							prohibited/permitted uses have been implemented the most and why	
							1. Level of Education 2. Income levels 3. Type of occupation 4. Year of building/acquired property 5. Mode of acquisition of plot	Socio-economic and emigration characteristics will show willingness and intention to implement and who is implementing (eg indigenes or settlers)
		Enforcement	How does enforcement influence land owners to implement permitted uses	Land owners Municipality staff	Structured and semi structured		1. Number of times enforcement authorities have visited the property for inspection 2. How many warnings has the land owner received and at which stage of development 3. What kind of sanctions are imposed to enforce permitted uses 4. % of compliance due to sanctions	Administrative practices will show how and what Enforcement mechanism Are used to make land owners comply and if these measures are effective.

		Actions taken in response to regulation	What actions do people take to implement the permitted uses	Land owners	Structured interview		1. % intending to dispose off property and reasons if any 2. % worried of losing house if not used according to zoning regulations 3. % who intend to use land according to zoning regulations	This will show actions land owners take due to incapacity to implement regulations
To identify spatial changes that reflect compliance with zoning regulations	Land use change	conformity	What spatial changes reflect conformity to required standards in the regulations	worldview and quickbird satellite images, Local plans	Base maps municipality	Visual interpretation Measurement (ArcGIS)	1. Difference of proportion of plot sizes below the minimum required 350m^2 2. Sizes of existing plots 3. % of houses with plot minimum plot size of 350m^2 4. % of houses with 60% maximum plot coverage 5.	This will show the reality of level of compliance and how far land owners are from complying.
		compliance	What spatial changes reflect compliance					

			with residential standards					
To analyse the extent of effect of zoning regulations on land rights	Land rights	effects	How are land rights affected by zoning regulations	Land owners	Structured interview	Descriptive statistics (SPSS	1. Number of population who cannot expand their houses due to zoning regulations 2. % who cannot transfer(sell)their land due to zoning regulations and why 3. % land owners who would want to convert their land to other uses (commercial, education, different kind of buildings)	Limiting factors will show how rights are restricted by zoning regulations
		Actions	How do land owners defend their land rights against prohibited uses	Land owners Municipality staff	Structures and semi structures interview		1.% that have protested against zoning regulations and why? 4.Various forms in which land owners show their disinterest in zoning regulations 5.Number of platforms land owners use to	Defence factors will show actions people take to register their displeasure about the effect of zoning regulations on their rights and also how they dodge punishment for non compliance.

							address their grievances over prohibited uses 6.Various ways by which concerns of land owners are addressed	
		Improvements	to what extent can land owners implement permitted uses				1. Proportion of land owners who want regulations changed. Which regulations and why? 2.% of land owners who can implement if they are involved in the planning process 3.% of land owners that want their rights considered during planning and which rights 4.Proportion who are in favour of zoning regulations but cannot implement due to time and cost	Perceptions of land owners on zoning regulations and what they want done to enable them to implement permitted uses

Appendix H: Research Matrix