

**URBANISATION AND CHANGING PATTERNS OF URBAN LAND USE IN
GHANA: POLICY AND PLANNING IMPLICATIONS FOR RESIDENTIAL
LAND USE IN KUMASI**

KNUST

By

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DECLARATION

I hereby declare that this submission is my own work towards the Master of Science in Development Policy and Planning and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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ABSTRACT

Urbanisation is increasing in almost all countries, especially third world countries. This is creating several associated problems. In Ghana rapid urbanisation has contributed to slum development, congestion, mass unemployment and pressure on available facilities. Other problems include environmental degradation, poor housing and rising crime rates (National Development Planning Commission, 2008). The study therefore sought to investigate the effects of urbanisation on changing patterns of land use with special reference to residential land use.

In this regard, the case study design was adopted since it helps to describe the units. This design also provides an opportunity for the researcher to gain insight into urbanisation and land use patterns. Therefore, the use of this case study design aims at a comprehensive understanding of the spatial development of Kumasi. The variables in this respect are land use structure and development patterns, changing housing uses and types, changing rent charges, access to vacant land, regularization of physical development and planning interventions for combating the negative effects of urbanisation on urban land use. The data collection methods used in this study include the use of interviews to solicit views from house owners and owners of economic activities in the study area and personal observation of traffic conditions and parking. The institutions consulted during the data gathering process were Town and Country Planning, Urban Roads, Building Inspectorate Division and Waste Management Department. Detailed interviews were also carried out with Ghana Water Company and Electricity Company of Ghana.

The study revealed that the pattern of development in the study area is redevelopment of housing. The study area has become a complete built up area with few reserves or vacant land for future development. Also, the urbanisation process is leading to changes in building types from compound houses to multi-storey buildings and residential uses to commercial uses. The layout of this area has been transformed significantly with the physical structure defined mainly by commercial activity. This led to the design or plan being thrown out of gear since development in the area took its 'own course'.

The study also revealed that the area has been rezoned as residential-commercial due to the increasing rate of commercial activity. Also, due to changes in land use it is becoming more difficult to provide public services in the area. For instance, people build shops and do not leave reservations for supply lines for water provision. It is also difficult getting right-of-ways for substations and transmission of high voltage power. Also, people encroach on land reserved for waste management. The change in land use in the study area from purely residential to commercial and services has also brought about human and vehicular traffic congestion.

From the foregoing, it is recommended that necessary steps are taken by the Kumasi Metropolitan Assembly to reverse the negative impacts of rapid urbanisation on land use, especially in the city of Kumasi. In this case, The Kumasi Metropolitan Assembly must ensure that developers comply with land use regulations as much as possible. Also, bye laws should be enacted to compel companies buying an existing building, either for use or redevelopment, to use it for residential-commercial and not completely commercial. This would be in line with the directive of the Kumasi Metropolitan Assembly's declaration of residential-commercial. It is recommended also that more development experts be trained and equipped with the needed logistics to enhance development control. The government should also ensure that its spatial policies favour rural areas to limit the influx of people into the city which normally exert much pressure on land uses in the Central Business District.

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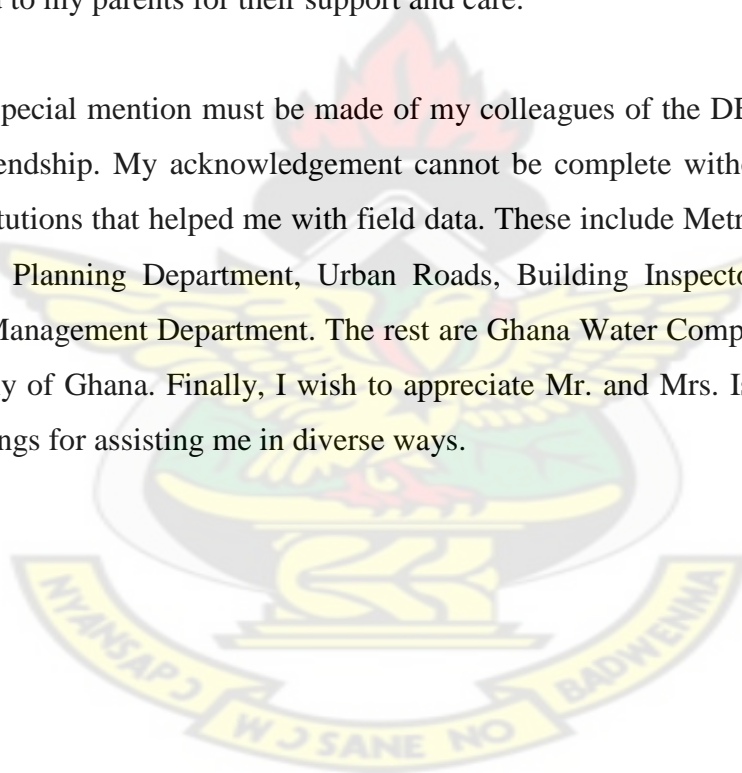


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CHAPTER ONE

RAPID URBANISATION AND URBAN STRUCTURE – KEY ISSUES AND CHALLENGES

1.1 Introduction

The global proportion of urban population has been rising rapidly over the last decade. Estimates indicate that in the mid 1990s, 43 percent of the world's population lived in urban areas. This figure is projected to become three-fifth of the world's population by 2025 (United Nations, 1993). This growth is expected to result from large movement of people to cities to take advantage of increased opportunities and improve their standard of living.

It has been suggested that urbanisation is both a mirror of broad socio-economic changes in society and an instrument of socio-economic change (Chandra, 1996). Other necessary requisites responsible for socio-economic change in society which also serve as catalyst of urban growth include technological change in industry, transportation, communication and building techniques (Bracken, 1981). In this case, rapidly increasing urban population means changes in economic, social, spatial and environmental issues for the betterment of society.

This means that the advancement of every community depends, to a considerable extent, on the judicious use and management of available land resources. Land therefore, has the singular characteristic of being the most important factor in the sustenance of mankind (Adarkwa and Post, 2001). It is therefore necessary to ensure that land use is in conformity with planning regulations. In recent times the structure of many cities in Ghana is changing drastically. This land use change is mostly caused by rapid urbanisation which results from changes in the urban environment such as increased population, changes in the political setting, growth of institutions and swift growth of economic and industrial activities. The rapid changes in the trend of urbanisation indicate possible impacts on urban land use and provide the ingredients that facilitate change in land use pattern of urban areas.

Also, land use change is partly caused by the problems of land tenure systems and uncontrolled physical development resulting from lack of education. Overcrowding and increased informal settlements also affect the pattern of development of urban areas which cause adverse changes in land use. Thus, the effects of land use change are numerous and have created serious problems of transportation, land management, shelter provision and congestion in the Central Business District (Olima, 2003). The present threatening trend of the development of Kumasi indicates that the time has come to appraise its land tenure particularly the framework within which it works (Adarkwa and Post, 2001).

When there is rapid urbanisation, what follows is shortage of land for development. The characteristics of urban growth such as fast switch from certain economic activities like agriculture to others like commercial requires increase land for investment. In response to increased demand for land, users compete for the most accessible locations (Isard, 1956). In an urban setting the highest intake of land goes mostly for residential use. This is followed by industrial and commercial uses. Therefore with the high influx of people into cities it is expected that residential land for development of residential accommodation would increase considering the increase need for resting places. However, it is the reverse of this condition that is occurring in the cities of Ghana. Commercial land use is increasing as commercial activities are fast growing in recent times. The response of land use to rapid urbanisation and fast growth of commercial activities is leading to a gradual change in the land use and structure of many cities like Kumasi.

Thus, the implications of a high degree of urbanisation on the pattern of urban land use are serious (Alonso, 1964). From the foregoing, this study is appropriate and timely since it attempts to identify the impact of urbanisation on the form of urban areas with specific focus on changing urban land use patterns.

1.2 Statement of the Problem

A major problem of rapid urban growth is changing land use patterns. As noted by Lerise et al (2004), the general characteristics of rapid urbanisation experienced by most sub-Saharan countries, such as Ghana are rampant changes in land and building uses. The peaceful environment characterising the Kumasi Metropolis coupled with

its relatively endowed natural resources, especially at its periphery, as well as its commercially-oriented economy has acted as a 'pull' factor for migrants causing increase in its urbanisation (Adarkwa and Post, 2001). Therefore, better management of land resources is essential for the sustainability and improvement in the quality of life in the city of Kumasi (Bach, 2001).

The changes in urban land use manifest in reduction in residential land, congestion in various central business districts, increase in land values and increase in commercial land. According to Olima (2003) growth in urban population goes with no equivalent growth in land supply. This means that urban land is fixed in supply and does not increase with increasing population. In this case, demand for urban land exceeds supply therefore creating shortage. Shortages lead to competition in the urban land market. In the face of competition, it results in higher land values. This has led to increasing commercial land use and decreasing residential and other land uses.

Land use change is caused by rapid increase in population and increase in socio economic activities. The growing need for land in rapidly urbanised cities exert pressure on available land resources thereby causing change in land use patterns. The changing structure of the city is also caused by land tenure systems and rapid and uncontrolled physical developments which occur as a result of rapid urbanisation. Achievement of a balance in the demand and supply of land requires a system of landholding which must be dynamic so as to respond to changes from one era to another (Adarkwa and Post, 2001)

Rapid urbanisation has adversely affected development efforts in many cities. One of these is changes in land use leading to decreased residential land for the provision of residential accommodation in most urban settlements. This is reflected in the decrease of vacant dwellings and increase in accommodation density. What this means is that many urban dwellers will not get the needed rest that will help rejuvenate the body. Its consequence will be ill health leading to low productivity and reduction in per capita income. It will also require extra government resources in providing health facilities for the sick.

Also, another effect of urbanisation is growing incidence of slum development. This has been the result of limited regulatory framework that is indifferent and hostile to the needs of the poor. In 2001, the number of people living in slums in Ghanaian cities was estimated to be about five million and growing at a rate of 1.8 percent per annum. Accra, Kumasi, Sekondi-Takoradi, Tema and Tamale are areas with pronounced slum development in Ghana (National Development Planning Commission, 2005). In most cases, squatters illegally occupy government or private land thereby lessening its economic value and potential. They are seen as hot spots of crime and disease. Congestion has also led to chronic traffic problems, illegal tapping of water and electricity lines and dilution of health care resources (Mutiarar et al, 2008).

In view of the trend of urbanisation and its adverse effects on urban land use pattern, the government of Ghana is planning ways to maintain a balanced urban growth (Larbi, 1996). The main focus of government in this direction is in relation to urban management and spatial development. Through the Ghana Poverty Reduction Strategy, government has outlined stringent measures to correct the effects of rapid urban growth on land use. Some of the priority strategies are to strengthen the physical planning of urban settlements, ensure the enforcement of planning regulations and implementation of planning schemes. Other strategies include the upgrading of basic services in urban areas and promotion of adequate supply of safe and affordable shelter (National Development Planning Commission, 2005). However, Ghana like other developing countries is finding it increasingly difficult to contain its urban growth in terms of population and physical expansion.

1.3 Research Questions

1. How does the land use pattern of Kumasi react to rapid urbanisation?
2. What is the implication of land use change for physical development of Kumasi?
3. What is urban planning and management response to land use change?
4. How does the change in land use pattern affect land values in Kumasi?

1.4 Objectives of the Study

The main objective of the study is to determine the impact of urbanisation on the land use pattern of Kumasi and recommend strategies to improve the long term sustainability of the structure of the city. The specific purposes of the study are:

1. To investigate how land use pattern of Kumasi react to rapid urbanisation.
2. To examine the implication of land use change for physical development of Kumasi.
3. To find out how urban planning and management responds to land use change.
4. To investigate how changes in land use pattern affect land values in Kumasi.

1.5 Justification of the Study

The study would contribute to building knowledge base in urbanisation. It would therefore serve as one among the few documentary evidence of the subject area. It would also serve as an added supplement for other researchers to help investigate this subject area and therefore contribute to the stock of literature.

In addition, the study would serve as a proposal to shape policy issues related to urbanisation and land use change in Ghana. As stipulated in the Ghana Poverty Reduction Strategy II, urban land management forms the core of issues considered under urban management. It is also in line with the current national land policy.

The recommendations of the study would guide policy-makers in formulating policies directed at management of urban areas and urban land use change. This would help address some of the negative consequences resulting from changing land use pattern in urban areas. This would manifest in increase in service provision, job creation, infrastructure provision and decongestion of the Central Business District leading to free flow of traffic, goods and services.

Furthermore, this study would help to check slum evolution and development of blighted areas thereby achieving the goal of planning in terms of aesthetics, safety and compatibility of land use. Also, information gathered from this study would serve as a data base to help the institutions involved in urban management perform better. This would enhance urban planning and management systems. Finally, the

outcome of the study can engineer further studies and also help the writer to improve upon her knowledge. The real impact of urbanisation on urban form would be understood in the course of this study.

1.6 Scope of Study

Geographically the study covers three residential suburbs of Kumasi in the Ashanti region of Ghana. The suburbs are Adum, Asafo and Fanti Newtown. These three suburbs were considered and selected because they form part of the Central Business District of Kumasi. They are among the densely and rapidly populated areas of land use change in the Kumasi metropolis.

In context the study looked at the contribution of urbanisation to the changing land use pattern of Kumasi. It sought to ascertain changes in the land use pattern especially how residential land use is being converted into commercial land use at a rapid rate. Furthermore, it examined the impact of land use change for physical development and land use planning efforts being made by government in response to rapid urbanisation of the city. Emphasis was placed on business owners, owners of residential units and institutions directly involved in urban land management.

1.7 Limitations of the Study

It was difficult tracking changes in land use coherently. The institutions responsible for the management of land use and development control are unable to provide figures to validate the changes over the years. This is due to the challenges they face in dealing with the rapid urbanisation of the city. A general look at the situation and the information provided by the landlords and business owners gave the prevailing picture upon which the study was conducted.

The study was also limited by the inability of the land sector institutions to ensure interface among key stakeholders. Relevant issues that would emanate from this interface which would better serve the institutions were neglected and therefore unavailable. This would not help better management of land use. A collaborated effort of the land institutions is key to the growth of the sector. Issues considered in this study are however important to the growth of these institutions because all the relevant institutions were consulted and their contributions inputted in to this work.

The outcome would therefore help bridge the gap between urban management and spatial development especially of the Kumasi metropolis.

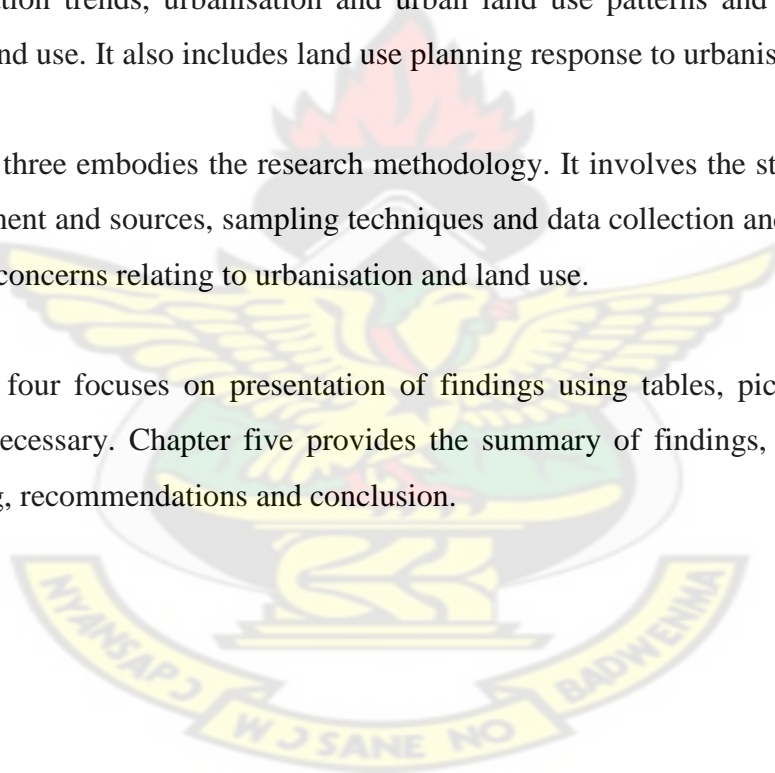
1.8 Organisation of Report

This study is structured into five chapters. Chapter one deals with the introduction, statement of the problem and research questions. Also included in this chapter are the objectives of the study, research scope, limitations and organisation of chapters.

Chapter two, the literature review is a desk study of relevant data. Issues considered include definition of key concepts and conceptualisation of the topic in terms of theories of urban growth and land use patterns. Previous literature identified includes urbanisation trends, urbanisation and urban land use patterns and factors defining urban land use. It also includes land use planning response to urbanisation.

Chapter three embodies the research methodology. It involves the study design, data requirement and sources, sampling techniques and data collection and analysis on the various concerns relating to urbanisation and land use.

Chapter four focuses on presentation of findings using tables, pictures and charts where necessary. Chapter five provides the summary of findings, implications for planning, recommendations and conclusion.



CHAPTER TWO

URBAN GROWTH AND LAND USE PATTERNS

2.1 Introduction

This chapter seeks to review relevant literature on urbanisation and urban land use patterns. The chapter thus focuses on theories of urban growth and urban land use patterns, urbanisation trends in Africa and the world and factors defining urban land use patterns. Also included are responses of planning to urbanisation. The literature review seeks to give an in-depth knowledge into issues arising from urbanisation and urban land use.

2.2 Definitions of Relevant Terms and Concepts

It is important to outline some key related terms to the study. The concepts in this regard are urban areas, towns, cities and metropolis. This will help gain better understanding of the discussion.

2.2.1 Urban Areas

The term urban is derived from the Latin word 'urbs; or 'urbis' meaning town or city. It is argued that the term urban has been interchangeably used often to mean a city without regard to the inherent differences between a town and a city. It is asserted that while all cities are urban areas, not all urban areas are cities. The term urban is therefore conceptualized as being a subjective concept. However, the definition of the concept depends on the country involved. Countries of small or relatively rural population may simply declare one or more settlements as urban, regardless of the size or function (Drescher and Iaquina, 2002).

In many countries, the definition of the concept depends on population. Therefore, population exceeding a certain number in a region is considered urban. In other countries it varies according to social and economic conditions. In Ghana, the minimum population for an urban area is five thousand. However, settlements with population of two thousand five hundred and above are considered urban in the United States of America and Kenya (Tamakloe, 1997).

According to Tamakloe (1997) an urban area consists of a town or an urban place plus its densely settled contiguous fringe. Normally, the population of an urban area is much higher than the population of a core town. It is also defined as an area that contains a settled population not directly involved in primary production of food and other raw materials. This means an urban area is characterised by the provision of high order services such as banks, universities and high speed transportation network. The populace in an urban area are mostly engaged in services, commercial and industrial activities such as trading, processing of agro products and manufacturing. Thus, overtime an urban area would grow in both size and density.

This means that an urban area consists of a great variety of interdependent activities. A town, a city or a metropolis can be referred to as an urban area depending on the size, function and level of services provided by the settlement. A town is a populated area that has the characteristics of a city but smaller than a city in both population and size. It is a place where people live and work. It consists of a built-up area made up of houses, offices, small scale industries, places of entertainment and shopping malls. Also, the term city is generally used for all kinds of large or dense urban settlements. Specifically, it is a legally incorporated urban settlement which is contained within a defined political boundary. A metropolitan area consists of one large or more cities whose population and social and economic activities are integrated by high speed transportation systems. Such large or amalgamated cities are usually called 'Metropolis' or 'Megalopolis' (Tamakloe, 1997).

2.2.2 Urbanisation

The term urbanisation as conventionally measured by demographers is urban population divided by total population for a region (Glenn, 1984). It could also be defined as the annual rate of change of the percentage of people living in urban areas, or the difference between the growth rate of urban population and that of total population (Hope and Lekorwe, 1999). Closely linked to the above definitions, Pivo (1996) defines urbanisation as the process of transformation that affects geographic regions when they become more urban and that during the processes of urbanisation, a growing share of a region's land and people become included in cities. In this case, urbanisation is the process by which population is attracted by and concentrated in selected number of human settlements or urban areas.

It can be said that urbanisation is the process by which urban areas increase in size and population density. It is also the process and the rate at which human activities and population are attracted to a locality or point in space within relatively short period of time. From the foregoing, the term urbanisation can be defined as the rapid development and transformation of a region including increases in the size, population and human activities at a given period of time. It is therefore important to look at the trends in urbanisation.

2.3 Urbanisation Trends

Cities first arose some ten thousand years ago, and were found mainly in Southeast Asia and the Mediterranean region. Since the Industrial Revolution, large cities have sprung up in Europe and the United States. Today, the largest and fastest-growing cities are located in developing countries of Africa, Asia, Central and South America. Currently about half of the world's population is urbanised, and this is expected to increase to 80-90 percent in forty years time. In regard to future trends, it is estimated that 93 percent of urban growth would occur in Asia and Africa and to a lesser extent in Latin America and the Caribbean (UN-Habitat, 2006). The report further states that by 2050 over six billion people, representing two thirds of humanity, would be living in towns and cities. This means the rate at which urbanisation is occurring is very rapid and alarming. Consequently, this phenomenal growth requires much attention by policy makers both in Africa and the world at large.

2. 3.1 Urbanisation Trends of the World and Africa

The face of the world is changing more rapidly now than at any time in history. The trend primarily responsible for the transformation is the rapid growth of the world population. People are moving into cities at a rate not seen since the industrial revolution filled the cities of the developed world more than a century ago (UN-Habitat, 2006). In 2000, world population reached 6.1 billion. It is now growing at an annual rate of 1.2 percent and it is projected to reach 8 billion by 2030. Africa however has witnessed a dramatic population increase from 221 million in 1950 to 785 million in 2000.

Despite decline in population growth rates since the mid 1980s, Africa remains the world's fastest growing region at an estimated rate of 2.4 percent per annum. Although future growth rates are expected to be lower, the region will attain an estimated population of 1.4 billion by the year 2030 (UNDP, 2002). It is worth noting that even in Africa, differences exist among the sub-regions. For example, in 1990, approximately 22 percent of East African population resided in urban areas compared to 33 percent, 38 percent, 45 percent and 55 percent for West Africa, Middle Africa, North Africa and Southern Africa respectively. This is projected to be maintained through 2025, although at a higher level (Hope and Lekorwe, 1999). The percentage urban is projected to vary from 47 percent in East Africa to 74 percent in Southern Africa.

Despite such overall rapid urbanisation, low levels of urbanisation characterise the least developed countries such as Burkina Faso, Burundi and Ethiopia. All of these countries had fewer than 20 percent of their population living in urban areas in 1990. In Burundi, for example, only 5.5 percent of the population is urban and it is projected that it will be fewer than 20 percent urban in 2025. As seen in Table 2.1 current urban growth rates are high for every region in Africa but much more in East Africa. These high growth rates will persist to the end of the century due to demographic changes caused by higher proportion of youth population. Urban population of Africa is expected to grow at 3 percent per annum over the next two decades. This rate will however be six times the projected rate for industrialised countries.

Table 2.1 Percentage of African Population Residing in Urban Areas by Region

Region	1990	1995	2000	2005	2010*	2015*	2020*	2025*
Africa	33.9	37.3	40.7	44.0	47.4	50.7	53.9	57.1
Eastern	21.8	25.4	29.0	32.5	36.0	39.6	43.2	46.8
Middle	37.8	41.6	45.6	49.5	53.5	57.0	60.4	63.6
Northern	44.6	47.9	51.2	54.5	57.7	60.7	63.6	66.3
Southern	54.9	58.2	61.3	64.2	66.8	69.3	71.6	73.8
Western	32.5	36.1	39.8	43.6	47.3	51.0	54.6	58.0

Source: United Nations World Urbanization Prospects, 2006.

* These are projected figures based on 2005 figures.

In the threshold countries of Latin America, Eastern Europe and the Middle East, urbanisation has already climaxed with the majority of people living in towns and cities. According to World Bank (2000), 69 percent of the current mega cities are found in Asia. These mega cities inhabit more than ten million people. Meanwhile in developing nations such as Ghana, urbanisation has not climaxed. Therefore cities in Africa and Asia continue to absorb a large number of people into the urban areas. Nowadays, the world's largest cities are located in developing countries. Indeed, the generation of metropolitan zones has become one of the most significant phenomena in the South's process of urbanisation. Whereas in 1950 only four of the world's ten largest metropolitan cities were located in developing countries, the situation was virtually reversed in 1995. Now, only three of the ten largest cities are found in industrialised nations (United Nations, 1998). Agglomerations are providing an entirely new dimension to the urban landscape. Cities of varying sizes reaching a total of perhaps twenty or thirty million inhabitants are found today. The scale and dynamic of growth behind the process of urbanisation in developing countries are without any historical precedent. Hence, cities in developing countries are now accommodating more people than cities in industrialised nations during their greatest period of expansion.

In contrast to the era of fast urban growth in industrialised countries, there are other conditions that propel this process in developing nations today. Notable among them are globalisation of economic and cultural relationships, declining income among workers and increasing environmental deterioration. This has led to rapid transformation of rural to urban society. Whereas this process took over hundred years in industrialised nations, it took only a few years in developing nations. However, cities in developing countries are not merely repeating the stages of development experienced by industrialised nations but there are entirely new models of development. This is due to the completely different social and economic conditions under which the process of urbanisation is taking place today. New forms of human settlement are sprouting which have no historical basis. Cities are developing into behemoths while more of "mega cities" with more than 10 million inhabitants are now found in developing countries. This could have negative impacts on the economy of developing countries.

Table 2.2 shows the world's ten largest metropolitan areas for the period between 1950 and 1995 together with 2015 projections. It indicates that urbanisation rates are alarming. Apart from New York, the population of the other largest metropolitan areas did not exceed ten million in 1950. However, in a space of four to five decades, the least of the ten cities in population had eleven million inhabitants. By 1995, the population of all ten cities had doubled.

The 2015 projections reveal that the population of all the cities will continue to increase. Tokyo's population will however grow by four times its population in 1950. The projections also reveal that by 2015 the population of two West African countries will qualify for the third and fifth positions on the ranking list. These cities are Lagos of Nigeria and Dhaka of Senegal.

Table 2.2: Ranking of World Ten Largest Metropolitan Areas, 1950 – 2015.

	1950		1995		2015*	
Rank	Cities	Inhabitant (millions)	Cities	Inhabitant (millions)	Cities	Inhabitant (millions)
1	New York	12.3	Tokyo	27.0	Tokyo	28.9
2	London	8.7	Mexico City	16.6	Bombay	26.2
3	Tokyo	6.9	Sao Paulo	16.5	Lagos	24.6
4	Paris	6.4	New York	16.3	Sao Paulo	20.3
5	Moscow	6.4	Shangai	15.1	Dhaka	19.5
6	Shangai	5.3	Bombay	13.6	Karachi	19.4
7	Essen	5.3	Los Angeles	12.4	Mexico City	19.2
8	Buenos Aires	5.0	Calcutta	11.9	Shangai	18.0
9	Chicago	4.9	Buenos Aires	11.8	New York	17.6
10	Calcutta	4.4	Seoul	11.6	Calcutta	17.3

Source: United Nations World Urbanisation Prospects, 1998.

* The 2015 estimates are projected figures based on 1995 figures.

2.3.2 Urbanisation and Urban Land Use Patterns

The rapid changes in the trend of urbanisation indicate possible impacts on urban land use patterns. In many respect, urban land use theory is a logical extension of agricultural location theory (Isard, 1956). It means that each urban area has one focal point which is the centre. This centre, on the isotropic plain, is the most accessible location in the urban area. Urban land uses are arranged around the central place that is in concentric rings. The basic reason is that land users compete for the most

accessible locations. This is sorted out on the basis of their locational rents which reflect the ability of users to pay for a particular site.

According to Alonso (1964) functions which gain the greatest advantage from locating at the point of maximum accessibility from the inner most zones must be close to the market while the other uses are arranged in sequence according to their location rents. Thus, the concentric zone of land use, from the centre of the city to the margin of cultivation is attributed to certain relationships. Firstly, land uses determine land values through competitive bidding among users. As a result of the influx of people into urban areas, mostly for economic reasons, demand for urban land becomes high. The high demand leads to competition among land users. Land uses therefore attract higher prices due to the importance and ability to pay for the land. Land located at the centre of the city therefore goes for commercial and service uses while industrial, residential and agricultural lands are found at the periphery. Urban growth has a direct relationship with land use. This is because urban development manifests in space. Secondly, land values distribute land uses according to their ability to pay. This depends upon the level of location rent accruing to the particular product at a particular location with respect to the market.

The way in which urban development unfolds causes major problems in the development and management of urban land. Higher population and economic activities in the urban environment causes land uses to change variously to suit the demands of urbanisation. Urbanisation changes the uses to which urban land is put. Residential or recreational land is normally changed to commercial and industrial based on location rent. Urbanisation also converts urban land at the rural-urban fringe to uses such as residential development.

The movement of people to the periphery of urban centres mean marginal clearing of the already limited agricultural land for building homes and other infrastructure constructions such as roads, parking lots among others. These processes impact negatively on the urban land use. It may affect land which is regarded as an environmental asset, such as remnant bush land or a well-managed private holding or land which is economically valuable with agricultural or mineral potential. It is an undeniable fact that as urbanisation expands the land with its natural vegetative and

forest covers are cleared to give way for residential, commercial and industrial purposes. As land towards the fringes is exhausted, residential land use tends to become the next target since urban land does not increase with population and human activities. Thus, some land uses have to give way for others depending on the functions performed by the urban area.

Land use changes however have significant impact on the lives of the inhabitants. This phenomenon is unfolding in different forms and intensities in different countries and cities as a result of variation in population growth, levels of technology, land tenure systems and planning. Through the growth and expansion of business activities, residential land uses especially those along the major roads are converted into various forms of land uses particularly commercial and other small scale industrial activities (Ahyigyina, 1999). Residential land use is particularly giving way to others because of the high degree of commercial and industrial functions performed by most urban centres. This change from residential land use to other uses is occurring because the economic returns on residential land uses is less compared to that of commercial and industrial uses. This problem is disturbing and the net effect culminates into serious land use problems such as development of squatter settlements, urban sprawl, encroachment on reserves and open spaces. Hence, it is appropriate to examine the factors that define the pattern of urban land use.

2.3.3 Factors Defining the Patterns of Urban Land Use

Cities are distinctive ensembles of people, businesses and institutions (Campbell, 1998). They are easily distinguished by the number and density of economic, social and cultural activities that take place within them. The most visible characteristic of cities is the form of their built environment. This includes tall buildings located at the city's centre, outlying areas of manufacturing and distribution, and residential areas with greater density near the centre of the city. It is the location of these and other activities that define patterns of urban land use. Cities, and the associated process of urbanisation, are the product of industrialisation and changes in technology. As industrialisation proceeds, many types of businesses find it advantageous to cluster together and form agglomerations of economic activity. Benefits from agglomeration are important concept in understanding why cities develop. Technological changes

for example changes in industry present the essential conditions for urban growth. While the form of urban places has changed dramatically, particularly in the last 50 years, the basic structure of cities have been remarkably flexible (Cohen, 2003). The core of urban places typically has evolved around the nexus of transportation routes such as roads, railroads and ports. These routes are critical in shipping and receiving industrial products. The same lines of transportation that radiated from the city's Central Business District also bring people to the centre for work and shopping (Chauncy and Ullman, 1945).

Innovation in building practices, including the use of reinforced concrete, allowed large structures to be erected, many of which persist to this day. This has helped shape the built environment and defines the function and patterns of urban land use. However, many of these innovations have changed the patterns of urban land use of today. For instance, the widespread use of trucks and automobiles travelling on interstate highways and beltways has allowed households and businesses to locate outside the central city. Most households and businesses are now within suburban locations where densities and land costs are lower. Over time, suburban growth changes the form of urban areas. As a result, urban development has changed from being monocentric with most economic activities located in the centre of the city, to being polycentric forms with several nodes in the urban area around which businesses and households locate (Bracken, 1981).

The choice of location of any activity is normally a rational decision made after an assessment of the relative advantages of various locations for the performance of the activities in question, given the general frame work and knowledge prevailing. This usually portrays the importance of land use decisions in any urban area and tends to locate activities in places best suited for them. A process of competition sets in and leads to a situation where activities seek out and segregate themselves in that part of the urban centre in which their optimum conditions are found. In the long run, all activities tend to locate where they enjoy their greatest relative advantage. In this case, land is put to its highest and best use.

The spatial differentiation of land use pattern becomes more marked and complex as the corresponding linkages and degree of specialisation increases. Essentially, urban land use within any locality is conditioned by two factors. These include non profit use of land particularly for the construction of roads, parks, gardens, playgrounds, educational buildings and government offices. The other factor includes land which is developed with profit making motive. It includes the development of sites for offices, residence and industries. The profit use of land is highly dependent on the non-profit use of land. Alter the later and the former will be altered (Rangwala, 2002). These factors which conditions the urban area forms the structure and functioning of the urban economy as it fits into the broader economy of the region and nation.

It is worth noting that urban land use pattern is the result of individuals bidding for the best combination of location and quantity of space. This is because the basic principle governing the location of all private economic activities is profit maximization. In this case, both producers and consumers make trade-offs between the price of land and its characteristics in terms of location, accessibility, quality and other attributes. The outcome of numerous location decisions by businesses, households and governments produce a complex urban mosaic of business districts, shopping centres, government centres and residential neighbourhoods characterized by different land use patterns (Bracken, 1981). As a result, the growth and expansion of these activities in the urban area coupled with a spurt in population growth leads to rapid urbanisation. This calls for a look at the link between urbanisation and development.

2.3.4 Urbanisation and Development

Many assume that urbanisation is linked to economic as well as social development, whose results manifest through modernisation (Rostow, 1960). Most industries in Africa are found within urban centres, resulting in rapid rural-urban migration by rural dwellers (Hope and Lekorwe, 1999). This tends to concentrate economic activities in urban areas and thereby promoting urban bias in development policies.

Lipton (1977) argues that the policies of central governments in most developing countries focus on the development of urban centres at the expense of rural dwellers. This leads to the 'urban bias' hypothesis, which states that most resources in most poor countries are systematically allocated to urban areas rather than rural areas where most people live. This means that investments are likely to be concentrated in urban areas or cities than rural areas. This situation has accorded an undue advantage to urban dwellers, with the disparity manifesting through the fact that urban residents have higher average personal incomes and greater average consumption levels than rural dwellers. Also, urban wages are higher than rural (farm) pay levels. The ratio of output per worker outside the agricultural sector by valuing output at prevailing prices is well over one, indicating that urban workers are more productive than rural labourers (Lipton, 1977). The main point is that this disparity is created and maintained by central governments' policies designed to assist metropolitan centres at the expense of rural areas.

Urban development involves managing cities well and ensuring that all regulations relating to city management are strictly adhered to. This means that citizens must be involved in the planning and implementation of development measures. It also means making administrative procedures and decisions transparent to those indirectly involved. This implies that all stakeholders affected should be involved and/or transparently made aware of the effects and consequences of all issues relating to the planning of urban centers (UNCHS Habitat, 1999). In this case, the theories of urban growth and land use pattern are worth examining.

2.4 Theories of Urban Growth and Urban Land Use Pattern

The study of urban land use generally draws from three different descriptive models. These models were developed to generalize the patterns of urban land use found in early industrial cities of the developed countries. Due to changes in the shape and form of cities over time, new models of urban land use patterns were developed to describe urban landscape that was becoming increasingly complex and differentiated. Furthermore, it must be stated that these are general models devised to understand the overall pattern of land use. Hence, none of them can accurately describe patterns of urban land use in all cities.

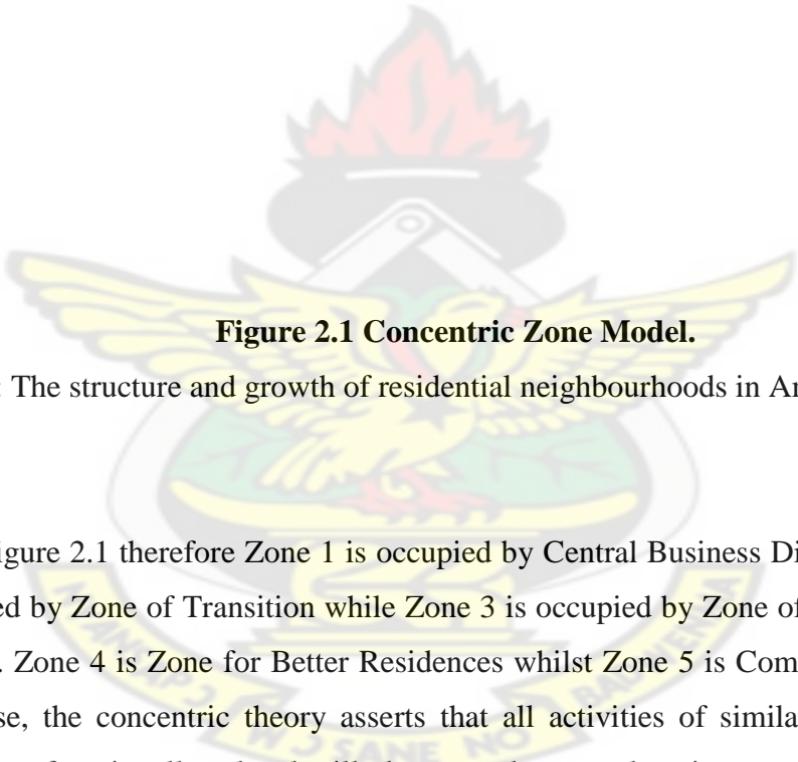
In fact, all of these models have been criticized for being more applicable to cities in the United States of America than to cities of other nations (Graham, 1993). Other criticisms have focused on the static nature of the models. Critics argue that the models describe patterns of urban land use in a generic city, but do not describe the process by which land use patterns change. Despite the criticisms, these models continue to be useful generalizations of the way in which land is devoted to different uses within the city. Described below are the Concentric Zone Model, Sector Model and Multiple Nuclei Model of urban land use.

2.4.1 Concentric-Zone Model

The Concentric Zone Model is among the early descriptions of urban form. Originated by Ernest Burgess in the 1920s, the model depicts the use of urban land as a set of concentric rings with each ring devoted to a different land use. It explains the process of urban growth by a series of concentric circles which expand radically from the core of the city or the CBD. The CBD has most economic activities because it is the focus of an intra-city transport (Chauncy and Ullman, 1945).

The foregoing gives the CBD a locational advantage in terms of greatest accessibility to the whole of the urban area. There are no such distinctions however, in the rural areas. The advantage of accessibility makes the demand for site in the CBD very great. In addition, the supply of land in this area is restricted which leads to high land values. The centrally placed characteristics of the CBD make it a focal point of commercial, social and civic life of the urban centre. Land in this area takes the form of shops, offices and hotels. Also, this core area is normally the original settlement which explains the centrality of the place. Figure 2.1 is a diagrammatic presentation of the model.

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**Figure 2.1 Concentric Zone Model.**

Source: The structure and growth of residential neighbourhoods in American cities, 1960

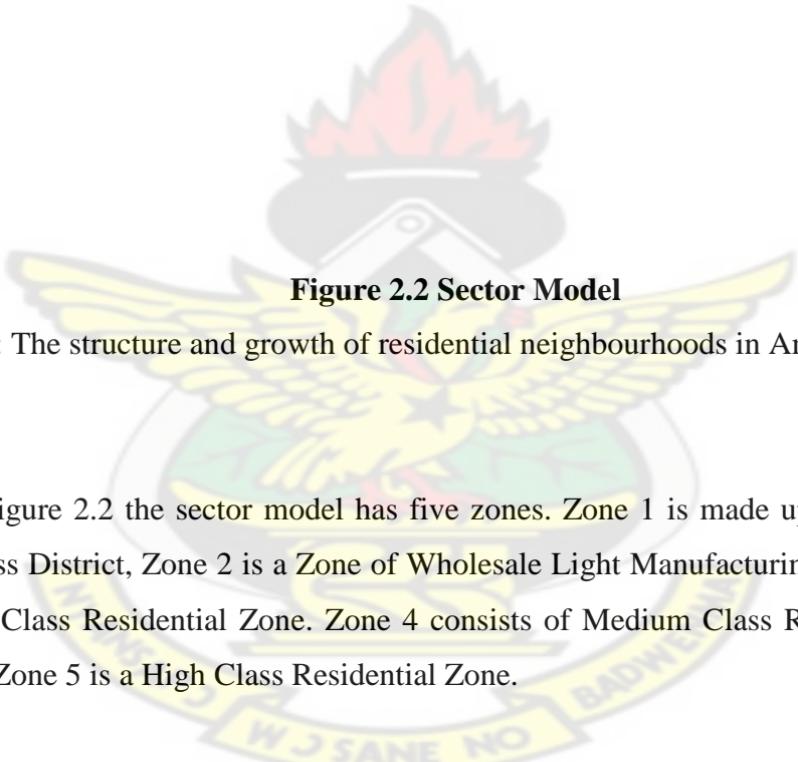
From figure 2.1 therefore Zone 1 is occupied by Central Business District, Zone 2 is occupied by Zone of Transition while Zone 3 is occupied by Zone of Workingmen's Homes. Zone 4 is Zone for Better Residences whilst Zone 5 is Commuters Zone. In this case, the concentric theory asserts that all activities of similar characteristics which are functionally related will cluster at the same location at a certain distance from the centre of an urban area. This important feature of the model implies a positive correlation between socio-economic status of households and distance from the CBD. It is observed that more affluent households live at greater distances from the centre of the city. As the city grows and develops over time, the CBD would exert pressure on the zone immediately surrounding it. Outward expansion of the CBD would invade nearby residential neighbourhoods causing them to expand outwards. The process is thought to continue with each successive neighbourhood moving further away from the CBD.

It is however argued that where variations occur in such factors as topography of the physical landscape, the ideal symmetry would be disturbed. Again, the fact that residential areas may further be sub-divided by race can affect the model. Nevertheless, critics argue that the theory failed to critically look at the development of complementary clusters and the possibilities which give rise to focal points other than the CBD. Also, the theory is criticized for assuming that the higher the income the further away a household is likely to locate from the centre. From an economic perspective, this connotes that accessibility or access considerations are more than offset by preferences for space. Hence, the specialized pattern of land use produced by the theory points only to the importance of accessibility to the CBD. Notwithstanding these criticisms against the theory, it is of importance in explaining how land use in an urban area is structured.

2.4.2 The Sector Model

Hoyt (1939) revisited the concentric ring model and recognized the value of it. He also observed some consistent patterns in many American cities. For example, it was common for low-income households to be found in close proximity to railroad lines. Also, commercial establishments have been found along business thoroughfares. Therefore, Hoyt modified the concentric zone model to account for major transportation routes. Recognizing that these routes represented lines of greater access, Hoyt theorized that cities would tend to grow in wedge-shaped patterns or sectors emanating from the CBD and centred on major transportation routes (Chauncy and Ullman, 1945). This is shown in figure 2.2 below.

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**Figure 2.2 Sector Model**

Source: The structure and growth of residential neighbourhoods in American cities, 1960

From figure 2.2 the sector model has five zones. Zone 1 is made up of the Central Business District, Zone 2 is a Zone of Wholesale Light Manufacturing and Zone 3 is a Low Class Residential Zone. Zone 4 consists of Medium Class Residential Zone whilst Zone 5 is a High Class Residential Zone.

Hoyt observes that higher levels of access translate to higher land values. This means that many commercial functions remain in the CBD whilst manufacturing activities develop in a wedge surrounding transport routes. Then residential land use patterns would grow in wedge-shaped patterns with a sector of lower-income households bordering the manufacturing/warehousing sector as depicted by figure 2.2. This is because traffic, noise and pollution make these areas less desirable locations to live.

However, a sector of middle-and-higher income households would be located away from the industrial sites. In many respects, Hoyt's sector model is simply a concentric

zone model modified to account for the impact of transportation systems on accessibility and land values.

2.4.3 The Multiple Nuclei Model

This model, which is closer to reality views a city as growing and assumes that urban growth takes place around several distinct nuclei. These nuclei could include a market, a nearby village, a factory, a mine or a railway terminal. Ultimately, all the nuclei would be combined into one urban area largely agglomerated by residential use and intra-city transportation. At the centre of the model is the CBD with light manufacturing and wholesaling located along transport routes (Chauncy and Ullman, 1945).

The model argues that cities of greater size develop into substantial suburban areas. Subsequently, some suburbs which reach significant size function like smaller business districts. These smaller business districts act as satellite nodes or nuclei of activity around which land use patterns form. Under this theory, the CBD is still seen as a major centre of commerce. This suggests that specialized cells of activity would develop according to specific requirements of certain activities and different rent-paying abilities. It is also suggested that there is a high tendency for some kinds of economic activity to cluster together. Heavy industry is thought to locate near the outer edge of the city, perhaps surrounded by low-income households. Suburbs of commuters and smaller service centres occupy the urban periphery. This is depicted in figure 2.3 below.

The model has nine zones. Zone 1 is represented by Central Business District, Zone 2 is a Zone of Wholesale Light Manufacturing and Zone 3 is a Low Class Residential Zone. Zone 4 is occupied by Medium Class Residential Zone whilst Zone 5 is a High Class Residential Zone. Others are Zone 6 represented by Heavy Manufacturing, Zone 7 by Outlying Business District, Zone 8 by Residential suburb, and Zone 9 made up of Industrial Suburb Zone.

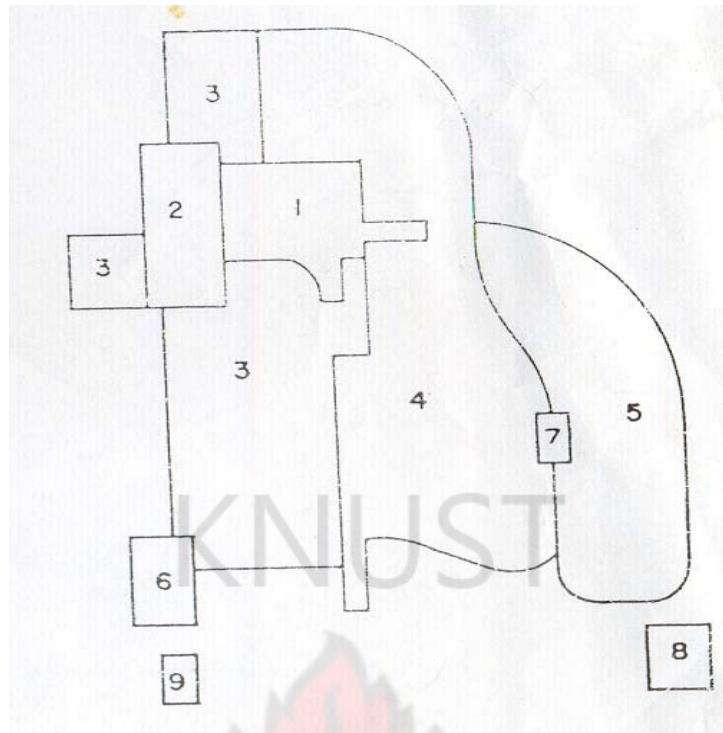


Figure 2.3 Multiple Nuclei Model

Source: The structure and growth of residential neighbourhoods in American cities, 1960

2.5 Urbanisation in Ghana

As with many African countries, Ghana is rapidly urbanising and experiencing an intensive phase of urbanisation. Its urban population is constantly growing and economic growth is creating a transition from a predominantly rural to a predominantly urban society. Interestingly, migration is causing some district capitals to be growing at double the rate of other towns and cities. Such growth is mostly due to the city's favourable location within the transport network and its economic importance. Other considerations in the growth rate of urbanisation in Ghana relates to the internal growth of cities resulting from high birth rates (Ebert, 2000).

As a result, the proportion of people living in urban localities in Ghana increased persistently from 23 percent in 1960 to 29 percent in 1970 and 32 percent in 1984. It further increased to 44 percent in 2000. Also, the ratio of urban to rural population has been rising steadily. From 0.30 in 1960, it rose to 0.41 in 1970 and 0.47 in 1984, and further to 0.78 in 2000 (Ghana Statistical Service, 2005). This is an indication

that the population of Ghana is gradually being urbanised. In addition, the tempo of urbanisation measured as the difference between annual population growth rate of urban and rural areas serve as added evidence of the rate of urbanization in Ghana. The tempo of urbanisation in Ghana is shown in Table 2.3.

Table 2.3 Tempo of Urbanisation, 1960 – 2000

Inter-Censal Period	Urban	Rural	Tempo of Urbanisation
1960 – 1970	4.7	1.6	3.2
1970 – 1984	3.3	2.3	1.1
1984 – 2000	4.6	1.5	3.1

Source: Ghana Population Data Report Volume 2, Ghana Statistical Service (2005).

It can be seen from Table 2.3 that the pace of urbanisation in Ghana was 3.2 during the 1960–1970 inter-censal period but declined during the 1970–1984 period to 1.1 and rose to 3.1 in 1984–2000. This is a support to the evidence of increasing trend in urbanisation. The growth of individual urban localities is essential for spatial policy strategy. Depending on location and performance in terms of growth rate and natural resource endowment, urban localities may qualify as growth points which should attract investment, technical infrastructure and other socio-economic amenities. The spatial distribution of urban-rural population in 2000 is shown in Table 2.4.

Table 2.4 Distribution of Population by Region and Urban/Rural of Ghana

Regions	Total	Population		Relative Share of Residence	
		Urban	Rural	Urban	Rural
Western	1,924,577	698,418	1,226,159	36.3	63.7
Central	1,593,823	598,405	995,418	37.5	62.5
Greater Accra	2,905,726	2,547,684	358,042	87.7	12.3
Volta	1,635,421	441,084	1,194,337	27.0	73.0
Eastern	2,106,696	727,914	1,378,782	34.6	65.4
Ashanti	3,612,950	1,853,065	1,759,885	51.3	48.7
Brong Ahafo	1,815,408	678,780	1,136,628	37.4	62.6
Northern	1,820,806	483,790	1,337,016	26.6	73.4
Upper East	920,086	144,282	775,807	15.7	84.3
Upper West	576,583	100,848	475,735	17.5	82.5
All Regions	18,912,079	8,274,270	10,637,809	43.8	56.2

Source: Ghana Population Data Report Volume 2, Ghana Statistical Service (2005).

Table 2.4 shows that apart from Greater Accra with 87.7 percent and Ashanti with 51.3 percent, the rest of the country remains predominantly rural in spite of the substantial increase in the level of urbanisation. This means that urbanisation appears to be concentrated in a limited number of localities particularly Accra and Kumasi, which are the two largest cities in the country. Accra, the capital city, has a population of approximately 2.2 million and accounts for about 25 percent of the urban population. This means that nationally, population is largely concentrated in Greater Accra and Ashanti regions. On regional bases, there is over concentration of activities in the capitals and a few towns. At a current urban growth rate of 4.2 percent per annum, urban population is likely to double within the next 17 years (Ghana Statistical Service, 2005).

Urbanisation in Ghana has now reached alarming proportions. Unlike developed countries and South East Asian economies that exploited the benefits of urbanization, ours is the converse. The sharp increase in population numbers and the resulting uncontrolled settlements pose considerable problems for the cities concerned. Consequently, the district capitals, in particular, are not able to appropriately fulfill their functions as local administrative and delivery centers for the surrounding areas. In addition, these district capitals are neither able to fulfill their role as decentralised poles of development away from the primary cities (Ebert, 2000).

Rapid urbanisation in Ghana has also been characterised by mass unemployment, environmental degradation, poor housing and rising crime rates. As such, we are yet to benefit from urbanisation. There is an inefficient distribution of urban population across the national territory with the four leading cities in Ghana accounting for over 50 percent of the national total urban population. Most of all, there is skewed hierarchy of settlements with poor linkages between service centres and designated catchment areas. As a result, several service centers are unable to provide the desired support to their catchment areas. This calls for serious urban planning and management practises otherwise Ghana can not exploit the benefits of urbanisation to its fullest (National Development Planning Commission, 2008).

2.6 Land Use Planning Response to Urbanisation in Ghana

Urban planning plays an important part in increasing the capacity of cities to cope with population growth. Poor planning leads to inefficiencies and institutional rigidities that hasten diminishing returns and causes inoperative capacities. Good planning however allows a city to take in more than what the average would permit (Mutiarar et al, 2008). In an attempt to ensure better management of urbanisation, governments adopt macroeconomic policies that are designed to mitigate the magnitude of urbanisation to manageable levels.

Land use planning and management tools have, over the years, played crucial role in avoiding and mitigating the adverse impact of rapid, unplanned urbanisation (Masakazu, 2003) . As a primary tool, physical plans are established to address mid and long-term problems. Physical planning, as a complement to social and economic planning, has an important role to play in helping achieve the aims of social, economic and other forms of planning. The end result is manifested in a meaningful and functional organisation of facilities in space. This includes the proper use of land, development of new land, and provision of water, energy and infrastructure that favour decentralised economic development. Such planning approach is effective in establishing orderly and consistent use of land. This will provide an opportunity for urbanisation issues to be addressed.

Also, another technical tool widely used now as part of effective urban planning approach is geographic information system (GIS). This approach is gaining increasing importance in Ghana as a tool for decision-making in planning since it links together different data sets. This aids short-staffed local governments to better manage rapid urban growth. In this case, accurate information on land prices, supply of serviced land, present and future land projects and housing typologies can be accessed. Such information supports planning, decision making and private sector investment.

Strategic planning is another approach that integrates urban development to achieve growth at city and community levels. The output of the process is not just a physical development plan but a set of inter-related strategies for city development covering land, infrastructure, finance and institutions. For Ghana, some of the strategies in use

include promotion of urban infrastructure development and provision of basic services. In line with this, GPRS II addresses issues such as providing and implementing development plans for urban centres, enforcing rules on land use plans, co-ordinating all aspects of town development and facilitating public and private partnerships in the development of urban infrastructure. Others are providing basic urban services, fostering the growth of settlements which can support rural transformation, improving infrastructure facilities in slum areas and restricting the formation of new slums (National Development Planning Commission, 2005). Consequently, a new land administrative project was launched in 2003 as the implementation strategy for the new national lands policy of Ghana. The project has, so far completed legislative and judicial reform study, established ten customary land secretariats in each of the ten regions, supported capacity building of land-based academic and research institutions, and identified and measured forty five geodetic reference points (Government of Ghana, 2007).

Therefore, to ensure the right use of land in urban areas, the state needs to adopt development control policies. This will ensure that approved layouts are not thrown out of gear through haphazard development. This calls for efficient management of plans since cost, energy and time will be wasted if beneficiaries do not adhere to the provisions of the plan. Thus, the basis of all development control is planning legislation. In pursuit of this, planning authorities have been delegated with powers to enforce planning legislation with the use of discretionary powers, where it is absolutely desirable. In reality, however, much of the violations of planning legislation can be avoided by resorting to the law where necessary. Regulatory instruments such as land and household registration, property tax systems, land tenure systems, and building and land development permits are all important basic tools that strengthen effective implementation of spatial plans (Masakazu, 2003).

In addition, zoning regulations promote efficiency and allow for easier regulation of urban development. Zoning techniques, which may be applied to implement master plans and guide urban development to spatially appropriate areas, include designation of sensitive land resources and areas, establishment of buffer zones, management of hazard-prone lands and protection of cultural resources. Others

include conservation of open spaces and urban green, management of prime agricultural land and discouraging of excessive urban sprawl.

In spite of the fact that Kumasi was planned, managing and controlling its growth and development has been a daunting task. The mechanism for controlling its development is rather weak, ineffective, inappropriate and limited in scope. For instance, measures to enforce planning legislation are very unpopular and rarely implemented. As a result, a huge gap exists between actual development on the ground and plans designed on drawing board. Most developers do not receive permit and therefore do not go according to the plan. These developments are unauthorised because there is undue delay in the process of acquiring permit which is attributed to limited access to resources on the part of development control agencies. Zoning of neighbourhoods for example is based on the idea that every neighbourhood must be self sufficient. The planners therefore zone standard proportions of land for services such as post office, police station and fire brigade. Considering the scarcity of residential land, it is even doubtful if the sizeable plots are necessary for such amenities. Thus, development control tends to be reactive instead of proactive. Also, there is little coordination between various development stakeholders. Hence, most planning is done on a piecemeal basis and the overall effect is that development appears haphazard, uncoordinated and uneconomical (Adarkwa and Post, 2001).

Thus, meaningful planning starts with efficient information channels. However, effective implementation of spatial plans can be better achieved if the responsibility of implementing key programs is not left to one sector, but to a team composed of members of government, NGOs and the private sector.

2.7 Changing Urban Land Use Pattern - Key Causes and Effects

The continuous change in urban land use of cities is the utmost concern of urban planners and decision-makers. This comes about as a result of rapid increase in urban population and the ever increasing demand on urban land which poses a great deal of challenge to residential land use. The unplanned expansion of cities and encroachment by people for various purposes also contribute to urban land use changes. The effects of land use change culminate in high cost of a plot of land and

multiple selling of a piece of land and development of unauthorised structures, slums and squatter settlements.

There is therefore the need to develop integrated strategies to tackle urban land use problems. This also means it is very much necessary to monitor land use and its changes. In figure 2.4, the conceptual framework shows the effects of urbanisation on land use patterns. At each level, the concept borders on causes of urban land use change commencing from changes in political and institutional environment in urban areas to changes in urban land use and its effects.

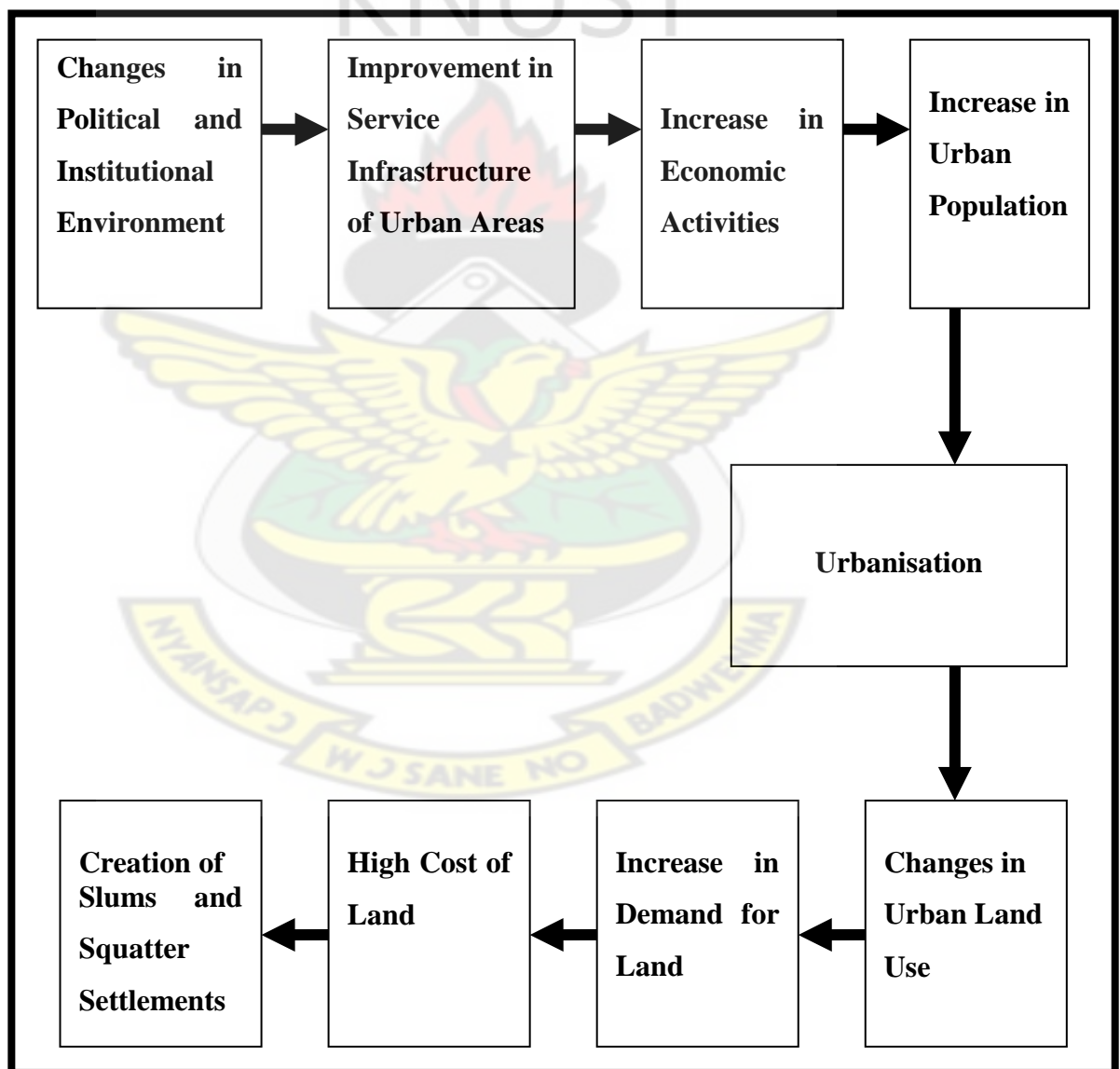


Figure 2.4 Diagrammatic Presentation of Changing Land Use Pattern, Key Causes and Effects

Source: Authors Construction, 2009.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter is committed to methods employed in the collection of data, tools of research and the study design. These include the research design, data requirements and sources, sampling techniques and data processing and analysis.

Research Design

The research seeks to investigate the impact of urbanisation on the land use pattern of Ghana with particular reference to the Kumasi Metropolis. It revealed issues such as problems posed by urbanisation to urban land use, especially its effects on the residential land use in the Kumasi Metropolis. As a result, the case study design was adopted due to its convenience. Also, it helps to describe the units of analysis in detail (Patton, 1987).

Again, the case study design provides an opportunity for the researcher to gain insight into the nature and dynamics of urbanisation. The intensive probing, which is characteristic of this technique, leads to the discovery of previously unsuspecting relationships. The use of this method agrees with the view of Babbie (1990) that the case study survey aims at a comprehensive understanding of a particular case such as spatial development of Kumasi.

With this study design, data is systematically collected at a particular point in time, analyzed and presented to give a clear picture of the state of urbanisation and its effect on residential land use of the Kumasi Metropolis. Also, the design helps in examining factors that contribute to the pattern of urban land use in Kumasi. In this case, assessment can be made regarding the extent to which the objectives of the study are achieved. This will also help evaluate the outcome of policy interventions by government on urban planning and land use.

3.3 Data Requirements and Sources

The study employed mainly primary data in the analysis. The primary data included cross sectional data collected directly from respondents engaged in different economic activities within the study area. This data was collected in line with variables and issues relating to urbanisation and changing patterns of urban land use. These variables include changes in housing type and land use structure, changes in rent charges, access to residential land, regularization of physical development and planning interventions geared towards combating negative effects of urbanisation on urban land use.

The data was obtained from local residents made up of landlords and business owners within the study area. Landlords are made up of all people who own plot of land or building structure. Business owners include business associations and individuals who operate a firm or have a shop in which buying and selling takes place. These groups of people were selected for the study because their activities affect changes in land use especially residential land use.

In order to confirm results from the basic users of the land and further verify other land use planning issues, data was also obtained from other relevant sources. These sources include land use related institutions such as the Town and Country Planning Department, the Waste Management Department and Building Inspectorate Division of the Kumasi Metropolitan Assembly (KMA). The other sources include Urban Roads Department of the Ministry of Roads and Highways, Ghana Water Company and Electricity Company of Ghana. Data from these institutions is relevant because they operate in the study area and directly affect or are affected by changes in land use patterns.

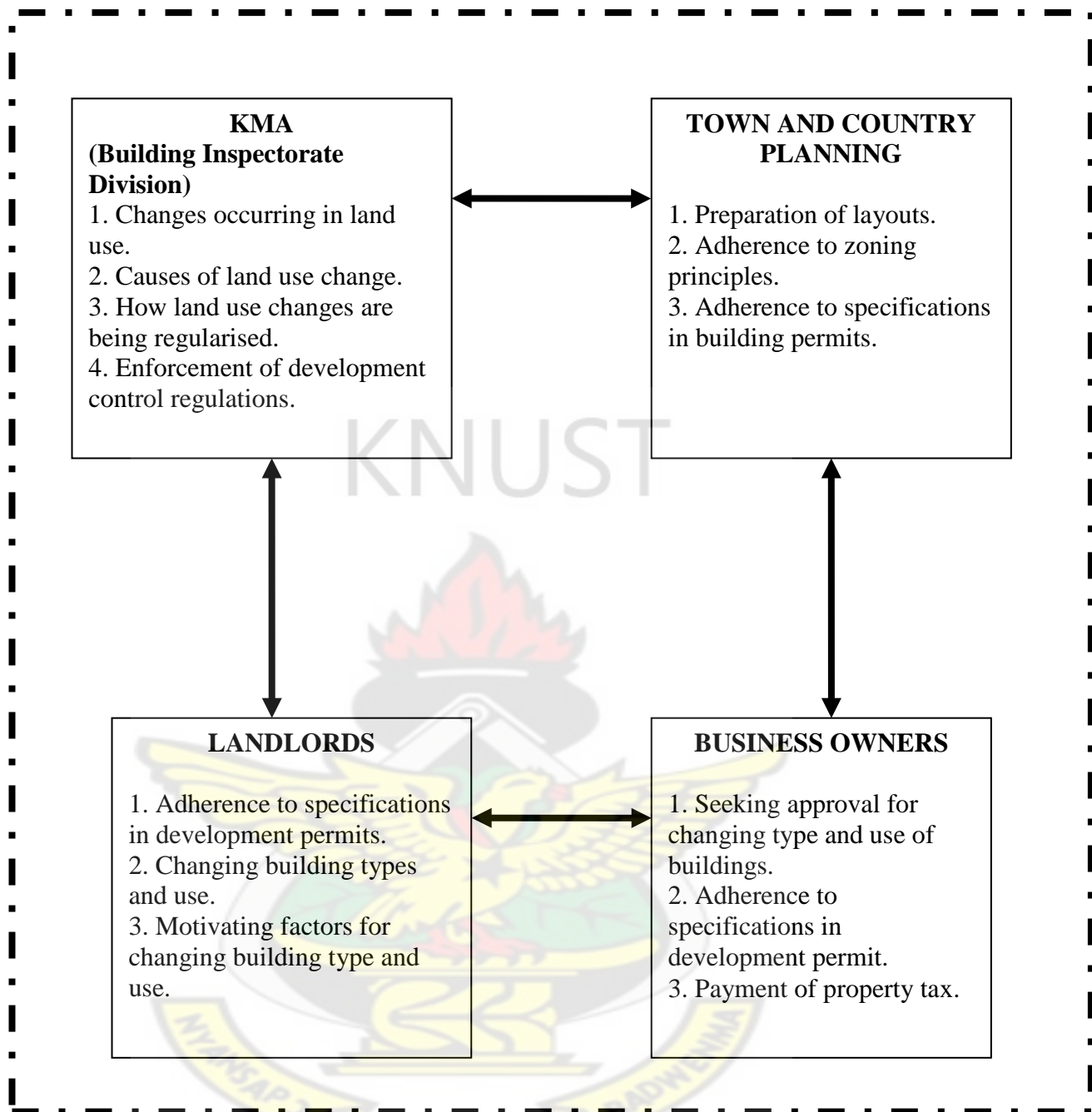


Figure 3.1: Institutional Arrangement Involved in Data Collection

Source: Author's own construction, 2009.

This section of the study seeks to link four distinct but supportive groups namely, Kumasi Metropolitan Assembly, Planners, Landlords and Business Owners. Figure 3.1 suggests four levels of analyses bordering on issues centred on the form and land use of Kumasi with emphasis on issues leading to the long term sustainability and maintenance of the structure of Kumasi.

3.4 Sampling Techniques

The population for the research consist of all stakeholders relevant to the study of urbanisation and urban land use at Adum, Asafo and Fanti New Town. These include local residents made up of landlords and business owners in these areas. The total population of landlords were taken for the total number of houses in the study areas, which totalled 1450 houses in all. Adum had 398 houses whiles Fanti New Town had 465 houses and Asafo had 587 houses. This is indicated in table 3.1 in appendix A. On economic activities, the total number of businesses was made up of people who are actively employed and own shops or stores within the economically active population. The total number of business owners was 24880. This was sub-divided into 4424 for Adum, 9764 for Fanti New Town and 10692 for Asafo as shown in table 3.1 in appendix A.

As a result of the large number of the population of landlords and business owners, a simple random sampling technique was employed in selecting the sampling units. This helped in eliminating bias in the choice of respondents such that every landlord and business owner had an equal chance of being drawn or selected (Okoko, 2000). In applying this technique, the list of landlords and business owners was obtained. The business owners were sub-divided into activities relating to commercial/services, industry/manufacturing and agriculture. Each of the lists was numbered from one to the last number. The sample was then drawn by selecting the units one by one. In this case, all landlords and business owners had equal chance of being selected since any number selected is automatically cancelled or removed from the populated list.

In determining the sample size of landlords and business owners, a mathematical approach was adopted as shown in table 3.1 in appendix A. In all, 175 samples were selected from the study area. This is made up of 43 landlords sub divided into 12 from Adum, 17 from Asafo and 14 from Fanti New Town. The total business owners were 132 with 44 from each of the study area. The 44 business owners from each area composed of 31 respondents from the commercial sector, 11 from the industrial sector and 2 from the Agricultural sector.

Other relevant stakeholders include the Town and Country Planning Department, Building Inspectorate Division and Waste Management Department of the KMA. The others are Urban Roads Department of the Ministry of Roads, Ghana Water Company and Electricity Company of Ghana. The population, in respect of the study, from each of these institutions was two. They included the chief executives or heads of departments and the senior planners who were purposely chosen as respondents on behalf of the organisation.

Purposive sampling was however used to get data from these respondents. Thus, one respondent was selected from each of the institutions. These institutions have been selected because they exercise direct influence on the land use policy and planning issues relating to the study area. In this case, the information gathered from these institutions will help support or reject the assertions raised by the landlords and business owners in the study area.

3.5 Data Collection Methods

The data was collected through the use of questionnaires. The items in the questionnaire were a combination of close-ended and open-ended questions. The close-ended questions consisted of a list of items with alternative answers for respondents to decide on their choice of answers. With the open-ended items, respondents were required to supply answers themselves.

Different sets of questionnaires were developed for landlords, business men and the various institutions. The questionnaire for landlords sought to verify whether the landowners obtained permit before putting up buildings. It also attempted to find out if there have been changes in the building type and or its use. The motivating factor for changes in the use of the building was also required from the landowners. The questionnaire for business men tried to confirm the responses of the landlords with regards to the change in the use of such lands. These businessmen were asked if they obtained permit from the town and country planning department in changing the original purpose of the buildings. The procedures in obtaining permits, the means of disposing off waste, the special locational advantages and the problems of the location were some questions posed to the businessmen.

The changes in the use of land at the study areas were further confirmed or refuted by the institutions surveyed. These institutions were asked to identify the changes occurring in terms of land use and the causes of such changes. How the changes are being regularised and the adherence to development regulations by land users were verified. The main problems inhibiting the institutions in enforcing the law on residential land use was also asked.

3.6 Data Rationalisation and Analysis

In order to ensure a discrete analysis of both qualitative and quantitative data, the data collected from all the various sources was edited thoroughly, coded and analysed. In this case, the various questions were given numerical values depending on the responds provided or supplied. This classification method simplified the data into meaningful information for analysis.

The coded response was then input into the computer data analysis using statistical software known as Statistical Package for Social Scientists (SPSS) version 12. The software supported the process of analysis in presenting the information graphically by using tables, graphs, charts and frequency distributions. As a result, the data was then organised into frequencies and tables. In addition to the nominal values, percentages were also calculated to indicate the relative values of the variables. These estimates have been performed to facilitate interpretation of results and provide answers to the various research questions.

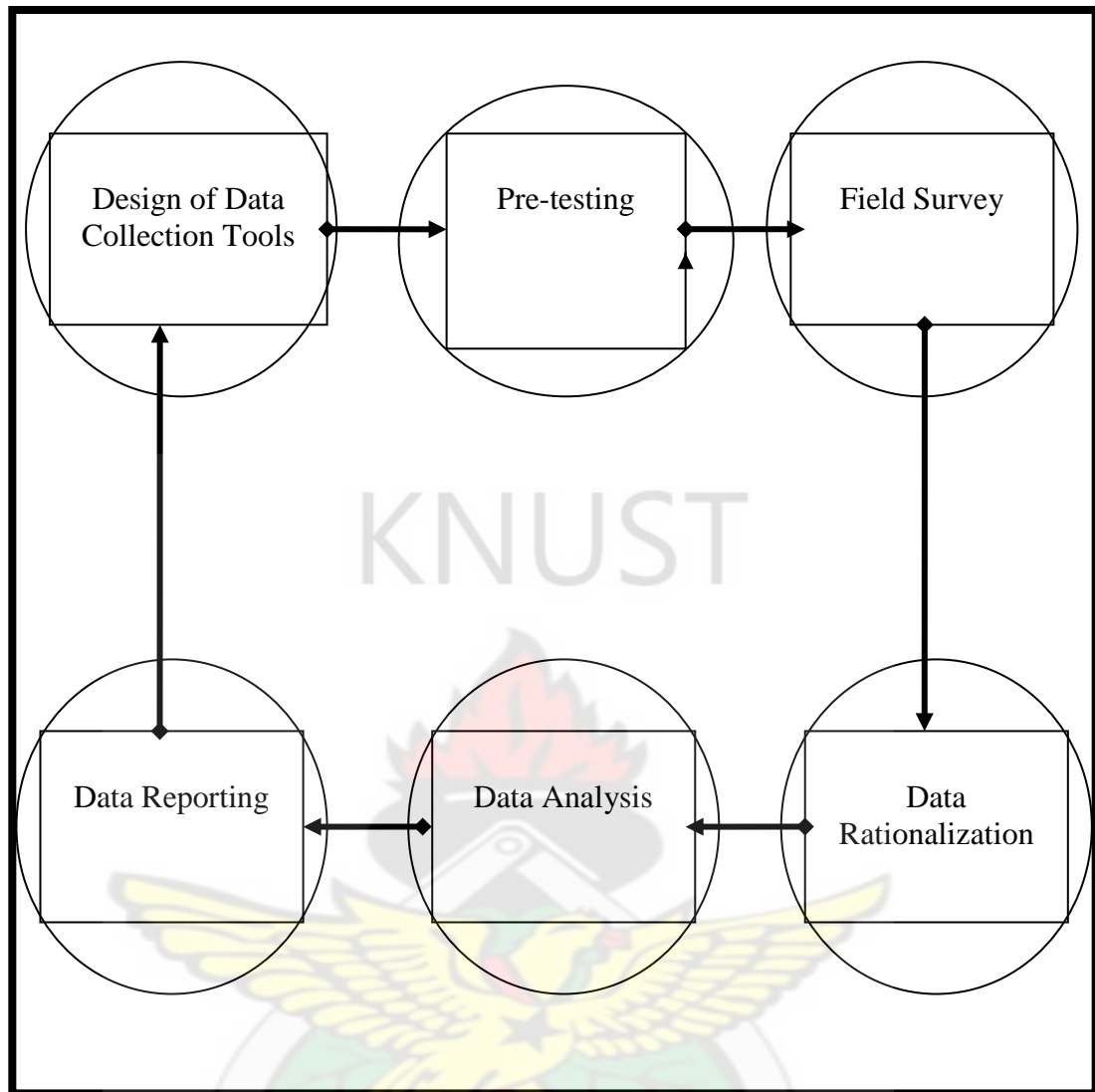


Figure 3.2. A Diagrammatic Presentation of Processes through which Data is Analysed.

Source: Authors Construction, 2009.

Figure 3.2 is a framework showing the processes through which field data was collected and analysed. The process includes the designing of data collection tools, pre-testing of the data and the actual field survey. Other processes include data rationalisation, data analysis and data reporting.

CHAPTER FOUR

MANAGING THE EFFECT OF URBANISATION ON LAND USE

4.1 Introduction

The choice of location of any activity is normally a rational decision made after an assessment of the relative advantages of various locations for the performance of the activities in question, given the general framework and knowledge prevailing. The chapter focuses on the analysis, interpretation and presentation of results.

4.2 Kumasi Metropolitan Area in Context

4.2.1 Location and Physical Characteristics

Kumasi, the traditional and administrative capital of Ashanti, lies 270 kilometres northwest of Accra by road and is situated in a rich cocoa growing as well as local food growing region. It lies at the centre of a network of roads that cover almost the whole of Ashanti. This city is centrally located as it links Northern Ghana as well as Brong Ahafo to the rest of Ghana.

Kumasi falls within the forest dissected plateau physiographic region. It is between latitude 6.35°N – 6.40°S and longitude 1.30°W – 1.35°E , an elevation which ranges between 250–300 metres above sea level. It covers a total area of 254 square kilometres and is approximately ten kilometres in radius. The administrative map of Ghana that shows the Kumasi Metropolitan Area is indicated in figure 4.1 below.

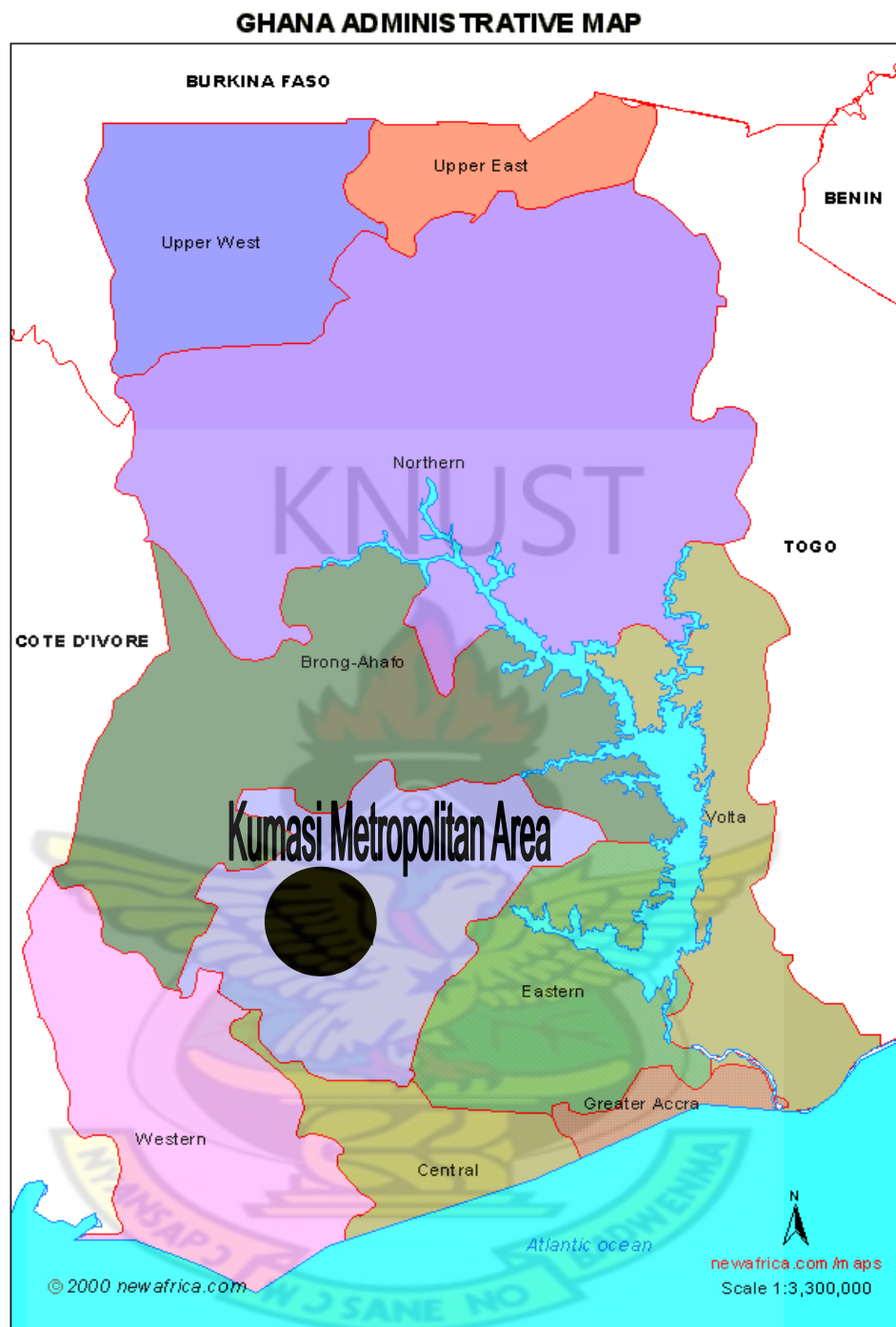


Figure 4.1 Administrative Map of Ghana Showing Kumasi Metropolitan Area

Source: Kumasi Metropolitan Assembly, 2006.

4.2.2 Demographic Characteristics

The population of Kumasi as of 2000 is estimated to be 1.6 million people. This accounts for about 32.4 percent of the region's population. The economically active population is about 55.6 percent indicating that the population mainly falls between the ages of 15-64 years. This shows that the population of Kumasi is an economically active one. Also, the city has a growth rate of 5.47 percent compared to the national rate of 2.7 percent as of 2006 whilst the population density is 5,419 persons per square kilometers (Kumasi Metropolitan Assembly, 2006)

There is a high migration rate. This gives an average daily population of about 2 million people who move in and out of the city. Kumasi has attracted such a large population because it is the most commercialised centre in the region and partly because it is the regional capital. Other reasons include the centrality of Kumasi as a nodal city with major arterial routes linking it to other parts of the country and the fact that it is an educational centre.

4.2.3 Social Characteristics

The metropolis has about 67,434 houses representing 20 percent of the regional housing stock. The average person per house and the room per house is 25.7 and 9.8 respectively. The average household size stands at 5.1 whilst the average household per house is 3.4. Room occupancy rate is 2.7, which is above the United Nations standard of 2.5 but below the national average of 3.0. More than a quarter of households in the metropolis are headed by females (Kumasi Metropolitan Assembly, 2006).

Kumasi metropolis has two public universities, three private universities, a polytechnic, two teacher training colleges, 83 secondary schools and over 1,000 basic schools. Information on the levels of educational attainment and literacy show that between 40 and 50 percent of the population, particularly females either have no formal education or have only pre-school education. As a result, the proportion of the population with basic education is 67.7 percent. The rate of illiteracy in the metropolis is 26 percent which is lower than the regional average of 40.4 percent.

Kumasi metropolis has one teaching hospital, which also serves as the regional hospital. There are two other quasi-government hospitals which serve the community in and around Kwame Nkrumah University of Science and Technology and the Military. In addition, there are over 200 private clinics in the metropolis. Kumasi also has National Health Insurance scheme offices in all the ten sub-metros where people register and receive assistance in health delivery.

4.2.4 Economic Characteristics

Kumasi has established itself as a major commercial centre. The major occupation in the city is selling, with the proportion of females in sales higher than males. Hence, Commerce/Service economy employs about 71 percent, followed by Industry which employs 24 percent and only 5 percent by Agriculture.

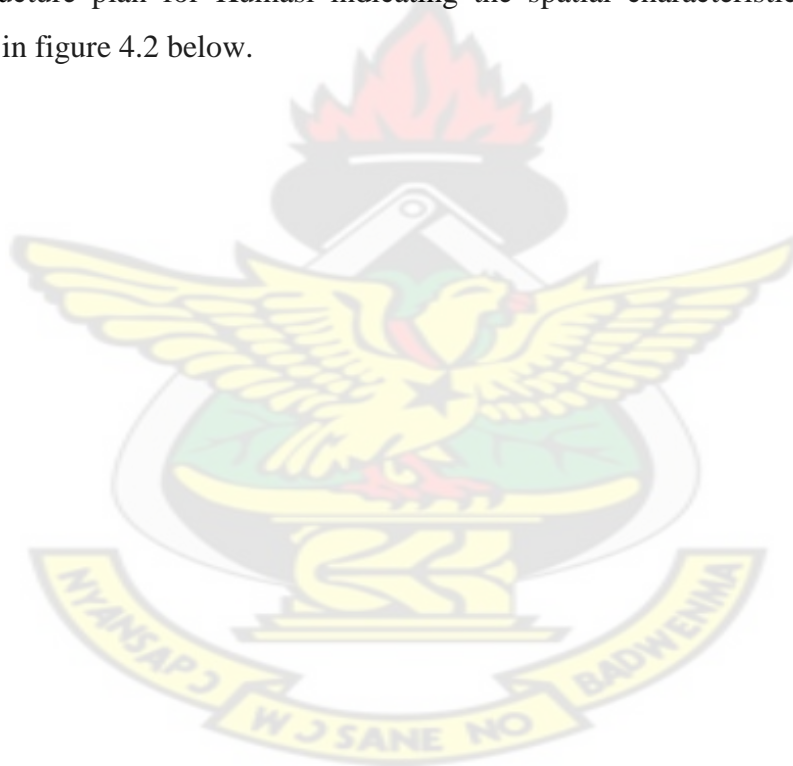
Majority of the economically active population are self-employed, mainly in the private informal sector. This provides job opportunities particularly for females who have little or no formal education. The major economic activity points in the city can be categorised into four. The first category is Kejetia lorry park, central market and the defunct Kumasi race course that is temporally being used for commercial activities. The second category is Adum shopping centre. The third is Suame and Asafo magazines and the fourth category is Kaase/Asokwa industrial area and the Anloga timber product markets.

4.2.5 Spatial Characteristics

Out of the 254 square kilometers of Kumasi metropolitan area, 79 percent has been planned, approved and developed. Over the years there has been increase in demand for urban land and this has resulted in the construction of residential areas as well as industrial estates. As a result of this demand, there is the occurrence of urban sprawl. Hence, land uses such as open space, agricultural and undeveloped land are being changed into residential and other land use. As shown in figure 4.2 residential land use currently takes 43.9 percent of the total land use of the metropolis. Commercial land use takes approximately 2.4 percent of the total land area with the activities mainly concentrated in the central area of the metropolis. This comprises Adum shopping area, the Central and Asafo Markets, Kejetia and Asafo transport terminals

which act as the main magnetic points creating concentration of activities. However, these activities are now taking up new locations along the radial roads (Town and Country Planning Department, 2008).

Educational land use total about 17.3 percent of the metropolitan area. The largest educational land user is the Kwame Nkrumah University of Science and Technology located in the eastern section. Civic and Cultural facilities occupy 7.3 percent of the total land area of the metropolis. It comprises locations for public and private offices, health delivery facilities, security establishments and centres for religious and social functions. Manhyia Palace, Centre for National Culture and Komfo Anokye Teaching Hospital are among the prominent civic and cultural land users. A map of the structure plan for Kumasi indicating the spatial characteristics of the city is shown in figure 4.2 below.



Source: Town and Country Planning Department, 2008.

4.3 Location and Physical Characteristics of Study Areas

4.3.1 Adum Suburb

Adum is one of the most important suburbs in the history of Kumasi since the colonial era. The structure reflected its function as the capital of a centralised administrative and trading centre. It is now the core of the Central Business District of Kumasi. Adum is a main shopping centre where wholesale and retail shops are lined up on each side of the street which bisect the Adum suburb and leads to the offices of the Ministries and the Central Post Office. Items sold here are mainly imported goods. Most of the pharmaceutical shops are located in this part of the city. Specialised arts and crafts shops are also found at Adum opposite Hotel de Kingsway and National Cultural Centre among others. As shown in figure 4.3 Adum is bounded by Asafo to the East, Bompata to the North East and Ridge to South West. It also shares boundary with Komfo Anokye Teaching Hospital to the North West.

4.3.2 Asafo Suburb

Asafo accommodates one of the most important satellite markets and lorry terminals in the Kumasi Metropolis. The suburb functions as a commercial centre and forms part of the Central Business District of Kumasi. Various commodities are sold in the Asafo market including imported and locally produced goods. Each side of the main street is also lined up with retail and boutique shops. Asafo shares boundaries with Amakom to the south, Adum to the West, and Fanti Newtown to the East. Kumasi Technical Institute and Braponso are to the North and North East respectively. This is seen in figure 4.3.

4.3.3 Fanti Newtown Suburb

Fanti Newtown is a twin suburb of Asafo suburb. The two communities are only separated by a road. Fanti Newtown is commercialised and growing into another vibrant trading centre in the Kumasi Metropolis. Its streets are also concentrated with commercial activities. It is endowed with a lot of bakeries and local shoe production and selling centres. It shares boundaries with Asafo, Amakom and Bompata. Asafo is located to the West, Amakom to the South and Bompata to North East. This is depicted in figure 4.3.

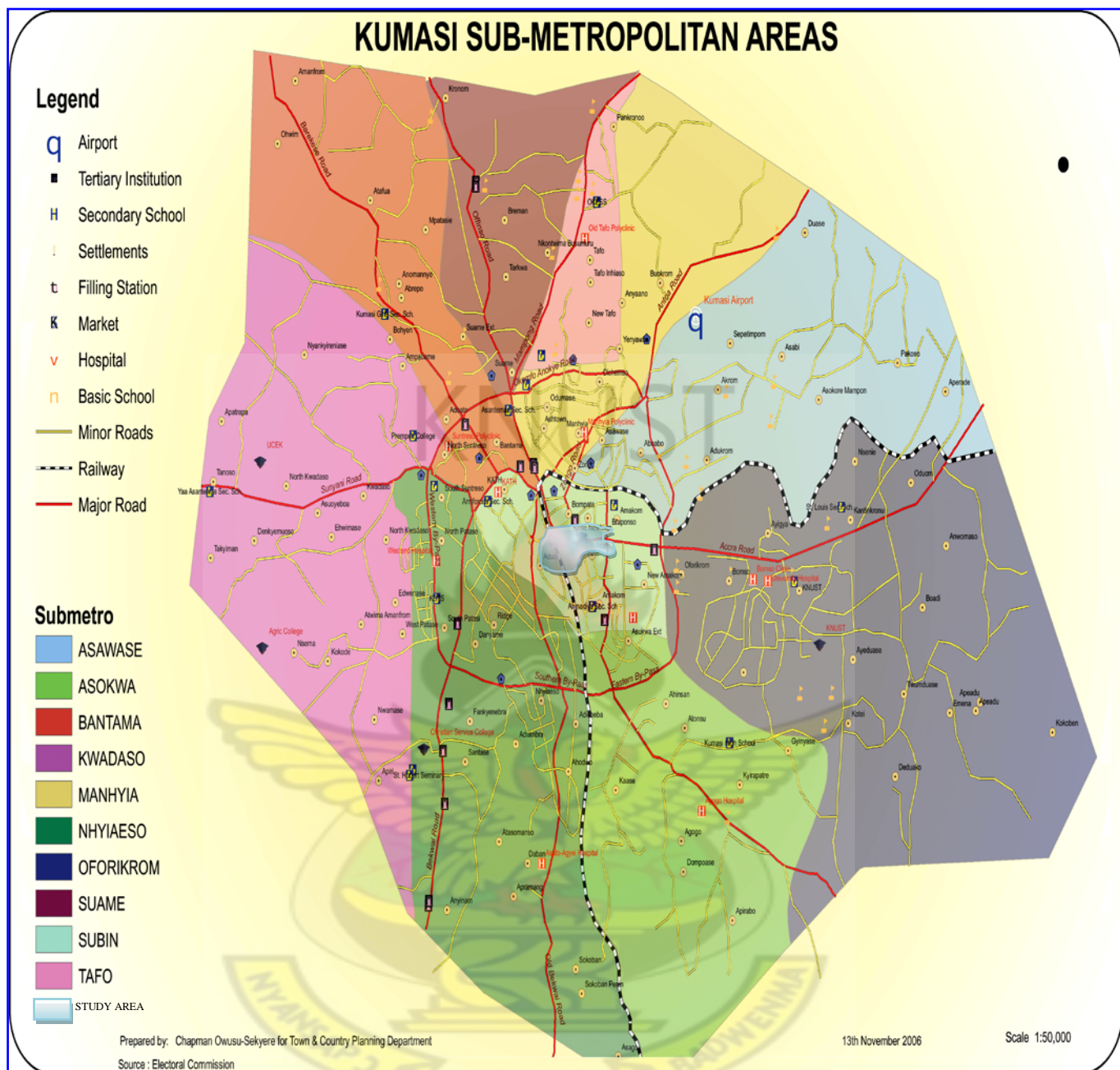


FIGURE 4.3 A Map Showing the Location of the Study Area

4.4 Characteristics of Respondents

The people consulted for information in this study are house owners of Adum, Asafo and Fanti Newtown in the Kumasi metropolis as well as business owners whose businesses are located in these same areas. The ages of these respondents range from 18 years to 70 years. Aside 81.1 percent of business owners whose residences are located outside the study area all the other respondents live in these three communities.

All the business owners are private individuals. They finance their businesses from personal sources. 72.5 percent of the respondents raised their initial capital from personal sources. 26 percent raised their initial capital from loans while 1.5 percent got their initial capital either from friends, family members, or through inheritance. Regarding the means through which the business men now finance their activities, 93.2 percent use plough back profit while 6.8 percent make use of loans.

The study revealed that 28.8 percent of businessmen have been in business up to two years while 31.1 percent of owners have been in business between two and five years. Those in business between five and ten years account for 24.2 percent while 15.9 percent have been working for over ten years. See Table 4.1 in appendix B. Among the reasons for which some of the businesses located in these areas was proximity to market, high demand for goods, good transportation system, and accessibility to raw material and utility services. The study revealed that some of the businesses relocated from other areas to settle in the study area. Among the reasons why most of them relocated include closeness to their customers and the need to increase sales and profit since many people travel to the Central Business District for their services.

4.4.1 Adum Residential Area

Most buildings in Adum were built over the past fifty years while majority of them have been redeveloped. See table 4.2 in appendix B. Most of such buildings are being reconstructed purposely to meet the demands of the increasing population in the metropolis as a result of urbanisation which brings in its wake diverse changes in

the life of the urban folks. Only a few of the buildings were constructed in recent times. This is because the area is wholly developed and there are few vacant plots.

In this area, all the respondents had at least one shop in their building. This means that they have all changed the use of these buildings from being purely residential to mix uses. As a result, the number of habitable rooms in a building decreased drastically, especially when it comes to large buildings like two-storey and three-storey. The study showed that buildings with accommodation of one to ten rooms accounted for 27.3 percent of the total number of houses. However, buildings with eleven to twenty rooms accounted for 54.5 percent whilst larger and high-rise buildings, which have twenty-one to forty rooms accounted for only 5.2 percent. The principal building material used in Adum is sandcrete and corrugated iron sheets.

4.4.2 Asafo Residential Area

The study revealed a trend showing that most of the buildings in Asafo were built before independence. The study also unveiled that majority of the buildings constructed from 1998 to 2008 are redevelopments. All the people interrogated corroborate that there is no more space for further development. Also, the studies revealed that majority of houses were originally meant for residential purposes. Again, the study indicated that 88.2 percent of respondents originally used their buildings for residential purposes but has now changed to commercial or mix uses. Landlords who have changed the original purpose of the land use cited financial reward as the benefit enjoyed.

4.4.3 Fanti Newtown Residential Area

The study revealed that most buildings in this area were constructed before 1957. Buildings constructed within this period accounted for 57.1 percent. The study showed that all landlords had accommodated at least one shop in their building units. However, majority of residents have now changed the original purpose of their houses. It showed that 78.6 percent of house owners originally put up their house for residential purposes. All the landlords agreed that some benefits were being enjoyed from the land use change. The building materials commonly used in this area is sandcrete and bricks with corrugated iron sheets. Sandcrete is however in the majority and accounted for 64.3 percent, followed by bricks which accounted for 28.6 percent.

4.5 Development Pattern and Structure of Study Area

The pattern of development in the study area is redevelopment of housing both public and private as shown in figure 4.4. The study revealed that new development hardly takes place due to lack of free space for development. Any development undertaken in these areas is redevelopment of old structures hence space is becoming a scarce commodity in the study area. 86 percent of respondents agreed that there is acute problem with land for expansion purposes. This means that the area is developed to capacity, so further expansion is always a problem. The only way possible is the demolishing of old structures to give way for high rise buildings.

The common building types are single storey, two storey, three storey and compound houses. The study revealed that single storey buildings accounted for 46.5 percent and it is the most common type of building in the area. The second most common building type is the compound house. This constituted 30.2 percent of total building units. Two storey buildings make up 14 percent while three storey buildings accounted for 9.3 percent. Thus, most of the buildings are being transformed from compound houses for purely human habitation to commercial buildings. It showed that the changes in these housing types in the area are in response to rapid urbanisation.

The major road from the central bus terminal joining Adum, Fanti Newtown and Asafo and several other streets are aligned with light that gives extra beauty to the area. The area is also endowed with many public offices and financial institutions. Notable among these are the central post office, the museum, the bank of Ghana and central police station. Aside its commercial status, the study area provides employment for many people in and outside the region. Thus, the area provides many social and economic services that impart on the landscape. As a result, the area records very high populations during the day time as people travel from far and near to do business. Economically, the study area is the lifeline of the whole city.

In this case, it is revealed that the major land uses in the study area are commercial, residential, educational, and civic and culture. Commercial land use alone takes the

greater chunk of the land in the area as shown in figure 4.2. Over 70 percent of the land in the study area is dedicated to commercial activities. To this effect, the area has been rezoned residential-commercial by the Town and Country Planning Department. The fast growing rate of urbanisation in the city shows that in the near future commercial land use will take the whole stretch of land of the study area. Residential land takes only 20 percent and yet it is being threatened by the fast commercial growth of the area. Civic and culture and educational uses take less than 10 percent of the total land area.



Figure 4.4 Redevelopment of Housing in the Study Area

4.6 Urban Land Use Planning and Management

The government of Ghana is committed to ensuring that development is controlled as much as possible. The study revealed that much work has been done by government to streamline the nation's land sector and also ensure proper urban management. It indicated that issues such as urban upgrading and land use planning have been included in the Ghana Poverty Reduction Strategy II, which is steering the growth of

the economy. To this effect, a new national land policy was launched in 1999 with a long term goal to stimulate economic development, reduce poverty, promote social stability and improve security of land tenure. This means that it would simplify the process for accessing land and making it fair, transparent and efficient. In this way, it would help develop the land market and foster prudent land management. This will instill order and discipline in the land market and curb the incidence of land encroachment, unapproved development schemes, multiple or illegal land sales, land speculation and other forms of land racketeering. Thus, such policies would ensure that every socioeconomic activity is consistent with sound land use through sustainable land use planning in the long term national interest.

The study revealed that, in a bid to control and manage land use, government is implementing a national land policy through the Land Administration Project (LAP). This project is meant to address issues such as urban upgrading and land use planning. It was revealed that since the inception of the Land Administration Project in 2003, it has achieved many successes including developing a computerized land information system for land sector agencies. This information system has helped in the implementation of the new lands policy. In addition, the programme has brought together all the major stakeholders in the land sector. The six major land sector agencies including the Lands Commission, Survey Department, Land Evaluation Board, Lands Title Registry, Office of the stool lands and Town and Country Planning Department have been captured under the project for the implementation of the new national lands policy.

At the metropolitan level, the study indicated that development control experts have been placed on the field to make sure there is sanity in the system. The planning department is affirmative that there has been major re-zoning in the residential areas under study in the Metropolis. Thus, in areas where the change has become rampant, residential land use has been rezoned for commercial use. In this regard, applicants who submit their development plan no longer go through re-zoning processes, which is the laid down procedure that developers need to follow if they want to effect a change in any land use.

4.7 Challenges of Development Control in the Study Area

Development control experts face a number of challenges which hinder the smooth running of their operations. The study showed that inadequate building inspectors, logistics and political interference are some of the challenges. Other challenges noted are financial constraint, lack of enforcement of development control laws and inadequate public education about the activities of the unit. The study revealed that only 150 development permit applications are granted in a year due to the challenges faced by the department. However, failure to grant these applications sometimes triggers impatient developers to develop their properties without permission. This means that all such developments will not be in line with the proposed plan for the metropolis. In view of this, the plan is thrown out of gear.

Also, the study revealed that some residents simply do not receive permit while others receive it but will not keep to the specifications outlined in the plan. It showed that only a few developers follow procedures for receiving permit but countless number of them do not, either intentionally because they think the processes are cumbersome or are not aware of them.

Again, the plans of major residential areas in the metropolis have not been updated over the past ten years due to the challenges being faced by the Planning Department. This is likely to encourage unauthorised development. The norm is that for every five years there must be updates of the plans to keep pace with the current trend of development of the metropolis. However, these challenges can be reduced if there is a well documented strategic plan or structure plan for Kumasi together with prompt financial and legal backing framework. This will help speed up implementation policies regarding spatial plans, thereby making planning a more proactive activity.

4.8 Residential and Commercial Land Development

Access to residential land in the study area is low. The study showed that 76.7 percent of landlords have leasehold title to the lands they acquired. It also revealed that 23.3 percent of landlords hold free title to their lands through inheritance from family members. Those who bought the land are entitled to 55 to 99 years of

ownership. The study showed that all the people purchased their land legally from the Adumhene, Asafohene or Fanti Newtownhene who represent the Ashantehene. It revealed that these landlords acquired the requisite planning permission without condition from the KMA and therefore have legal right to the land. The study indicated that 93 percent of landlords received permit before putting up the buildings. The remaining 7 percent is made up of buildings whose real owners are no more alive and their caretakers could not give exact account of their status. It also showed that 65.1 percent of the landlords received permit from the then Kumasi City Council (KCC), while 34.9 percent of the landlords were given permission by the KMA.

Again, the study revealed that 89.4 percent of business owners passed through the right procedure for registration of their businesses and obtained permission without condition from the KMA for the spaces they use. Only 10.6 percent of the business owners however, did not go through the right procedure for permission and are therefore operating illegally.

The study also indicated that 90.2 percent of business owners pay property rate to KMA while only 9.8 percent do not pay anything at all. Even though there is a high payment rate, the amount of property rate paid by businesses varies depending on the size of economic activity. It showed that payment is generally between GH¢5 and GH¢30. Only 7.6 percent of business owners pay below GH¢10 while 64.7 percent pay below GH¢20 with 17.7 percent paying between GH¢20 and GH¢30.

4.9 Land Use Change

The changes occurring in land use in Kumasi are becoming rampant. The study showed that the major cause of this change is rapid urbanisation of the city. This factor is having negative impact on the form and structure of the city of Kumasi. The interview with landlords revealed a swift change in the use of buildings. It showed that 79.1 percent of buildings were put up purposely for residential accommodation. However, many landlords have now changed their building status with only 11.6 percent of buildings now used as residential accommodation. 88.4 percent of buildings are now being used for commercial and mix purposes among others as shown in figures 4.9 and 4.10 in appendix B. This underscores the fact that

urbanisation is changing the pattern of urban land use in Kumasi in particular and Ghana in general.

The study also revealed that among those who changed the original use of their land space, 30.3 percent admitted seeking permission while 69.7 percent did not obtain permission before changing the use of the land. The study also showed that 45 percent of landlords who changed the original use of their land did so by permission with pay from the KMA while 55 percent had permission without pay. Most business owners who changed the use of the space without permission said it is the responsibility of landlords to obtain permission. However, some landlords and other users said they were not aware of the existence of such procedures while others stated they will obtain the permission later. A few land users were of the view that the fee for receiving permission is too high and that prevented them from obtaining permission.

The study also indicated that 73.5 percent of respondents occupied the land at a time when there were active economic activities at the area. However, only 26.5 percent of people occupying the land were there when no serious economic activities were going on. On current situation of economic activities prevalent in the area, 76.5 percent of land users assert that the rate of economic growth is increasing. This is depicted in figure 4.5. However, 21.2 percent of users stated that the rate of business growth had remained the same while 2.3 percent of the respondents were of the view that it is rather decreasing. See figure 4.6

The department of Urban Roads confirmed the occurrence of changes in building types and usage. Adum for example is occupied with high rise buildings and becoming more commercialized as seen from figure 4.5. The level of economic activity in the study area in the past was not as high as it is today. More services and offices are being located in these areas. In fact, these changes are occurring because people are changing their way of business. The changes are however having negative impact on service delivery in these areas. It is noted that the major problems being posed by the changes include lack of parking lots and traffic congestion. However, the best solution that can be prescribed for the short term is for metropolitan guards

to help enforce parking regulations. In the long run, parking should be incorporated into the metropolis's spatial plans.



Figure 4.5 Pictorial Presentation of Increasing Rate of Economic Activity in the Study Area



Figure 4.6 Pictorial Presentation of Areas of Less Economic Activity

The electricity and water companies which have been operating in these areas since independence supported the assertion that land had mix uses in terms of residential and commercial. The study showed that economic activities have increased due to population growth, economic growth and advancement in technology. Hence, people have pulled down old buildings and are putting up ultra modern structures. Many shops have also sprung up in the area with most houses being turned into shops. The whole area has become a business area.

The changes in land use, however offer some advantages to the utility companies since it increases the revenue base within the same square of land. The increase in economic activities has been associated with expanded water and electricity supply to all services and commercial activities. Consequently, the utility companies are unable to meet the high demand for power and water by the businesses, although it tries to upgrade its distribution systems. Other problems faced by the companies resulting from the change in land use include low capacity of transformers. In this case, transformers meant to serve certain areas may tend out to be too small due to rapidly increasing population. The study also showed that since the whole area is developed, it is difficult to get right-off ways for sub-stations and transmit high voltage power. However, these problems could be avoided if proper city planning is observed. For instance, utility reservations should be encouraged in the city's planning schemes.

4.10 Implication of Land Use Change for Physical Development

Due to rapid urbanisation and the subsequent increasing prevalence of commercial activities in the city, land use in the Adum, Asafo and Fanti New Town residential areas is changing to satisfy the needs of the urban society. Urban growth associated with increased commercial fortunes, also come with pressure on available land resource. The study confirmed that land use pattern of the study area is changing drastically. Where as the area used to be a residential area as demarcated in the 1963 plan for Kumasi, it has recently been rezoned residential-commercial. Until this exercise the physical layout or plan was thrown out of gear since development in the area took its own course. Certainly standards and specifications outlined as planning

regulations were ignored by many since the area was neither a residential nor commercial area. The study revealed that only a few people applied for change in use of the land they occupy. As a result of the changing land use in the study area, land values are appreciating speedily. This means that some residents are being priced out of the land market. Land users in the low and middle income category who cannot afford such prices resort to encroachment, particularly at the outskirts of the Central Business District and end up developing squatter settlements.

Also, the study revealed that there are few vacant plots of land in the study area. This means that adjoining lands in terms of industrial and open spaces are being evaded as an intervention for residential land use. Ultimately farmlands and reserves are being encroached upon, living the “Garden” City a “Concrete” City. Thus, physical development seemingly is at its peak, therefore it is not feasible to make new investment in land. Land is not available for buying and selling in the future. However, development on old plots and reconstruction of compound houses to multi storey buildings is possible. An example of this can be seen in figure 4.7.



Figure 4.7 Reconstruction of Old Buildings into Multi-Storey

The change in land and building uses is also exerting pressure on facilities available in the area. The study revealed that about 58.9 percent of businesses have no parking space close by for customers to park their cars before transacting their businesses. As a result, many cars are parked along the main street thereby obstructing vehicular and human traffic. This is shown in figure 4.8. Also, due to land use change it is becoming more difficult to provide certain services in the area. Controlling of waste is a major problem in the area. Also, the electricity company finds it difficult to get right off ways for substations and transmission of high voltage power. Furthermore, tracking the supply lines of the water company is a problem because many buildings are being reconstructed. The land use change has also brought about congestion in the study area. This therefore necessitated the development of an interchange in the study area to link the three suburbs to other parts of the city.



Figure 4.8 Traffic Congestion in the Study Area

4.11 Implication of Changing Land Use for Land Values

The management of land resources is essential for the development of every economy. Urban land management is key for a vibrant growth of the commercial and industrial services that serves as engine of growth of the entire city. Changes occurring in land use in urban areas therefore cannot be over emphasized. Generally, land values in urban settings are high. This is due to the influx of people into these areas. The high population numbers is associated with increased need for accommodation and jobs. This therefore calls for extra space for development of residences, commercial centers, industrial sites and other public institutions.

Land in the Central Business District however attracts higher values than those at the periphery of urban areas. Consequent upon the liberalisation of the economy, retail trade took a different dimension and this called for extra land in the Central Business District for business activities. Residential land is therefore affected leading to limited spaces available for residential accommodation. The conversion of residential properties, in the study area, into commercial use certainly puts pressure on residential land. Subsequently, land values tend to be high and continue to rise due to the shortage that is created. As a result, rents are very high in the study area compared to other residential areas in the city which are not significantly affected by the land use change. Land owners however, enjoy these higher returns on land.

Since the area under study forms the core part of the Central Business District, land values in the area are higher. Therefore, many people are unable to afford the high prices and are compelled to move to look for land elsewhere. This practice certainly is affecting other areas since people who move from the Central Business District will have to compete for land and accommodation at the periphery. Consequently, it is resulting in subsequent increase in land values at these areas as well. Although the amount of rent charged per habitable room differs from one landlord to the other, it reduces when getting to the periphery. Rent in the study area is as high as GH¢100 a month, with 8.3 percent of charges ranging between GH¢81 and GH¢100 a month. However, 54.2 percent of landlords usually charge as low as GH¢5 and GH¢20 a month.

CHAPTER FIVE

SUMMARY OF FINDINGS, IMPLICATIONS FOR PLANNING, RECOMMENDATIONS AND CONCLUSION

5.1 Summary of Findings

5.1.1 Institutions Managing Urban Land Use Problems

The study showed that there are development control experts on the field committed to regularising changes occurring in the land use pattern of the city of Kumasi. Notable among these institutions are the Town and Country Planning Department, Building Inspectorate Division, Lands commission and urban roads. However, the institutions are faced with many challenges which hinder the smooth running of their operations. Financial constraint, inadequate building inspectors, logistics and political interference were some of the challenges noted. Despite these challenges the officers are still delivering in their best capacities. Therefore, much attention should be directed to these departments to enable them perform creditably.

5.1.2 Tools for Managing Urban Land Use Problems

The study revealed that the land development experts have been applying many land use management tools to mitigate the adverse impacts of rapid urbanisation on land use in the city. Zoning techniques are applied to implement the master plan. Residential areas are zoned into first class, second and third class residential areas to guide development. Building and land development permits are also granted to developers in order to direct the course of development. Major re-zoning is also taking place in the selected residential areas being affected by changes in land use. In areas where the change is becoming rampant residential land use has been rezoned for commercial use. Normally, updates of plans should be carried out every five years to capture new developments. However, the study recorded that over the past ten years there has not been any update of the plans of major residential areas in the Metropolis. Also, it is to be noted that many building and land development permit applications are received in a year but only 40 percent are able to be granted due to the challenges being faced by the institutions.

5.1.3 Problems Posed by Changes in Urban Land Use

The major problem of land use change in the city is human and vehicular traffic congestion. It is admitted that the current changes occurring in the urban land use will pose problems in the future. Some of the problems noted are conflicting land uses, inadequate land for future expansion, deficit in the city's housing stock, high rents leading to development of slums, blighted areas and associated environmental effects. For these problems to be solved there is the need for a proactive strategic plan or a structure plan for Kumasi.

5.1.4 Urban land use change

The changes occurring in major land uses, in some residential areas in the metropolis, have come to the notice of the concerned departments for the past five years. Adum, Asafo and Fanti Newtown are confirmed to be part of areas affected by this change. As a result of increase in economic activities, many dwelling units are being converted into commercial units in order to accommodate the increase demand for commercial land use. This situation puts much pressure on the land use of the city. The landlords also revealed that there is a swift change in the use to which their buildings are put. The study showed that 79.1 percent of buildings were put up purposely for residential accommodation but this has reduced to only 11.6 percent. 86.0 percent of such buildings are now being used for commercial and mix uses. This underscores the fact that the land use pattern of Kumasi is changing. This scenario is however hazardous because it is putting much pressure on residential land use.

The current trend evolving in the city is that residential land use is giving way to commercial land use while industrial and other land uses are gradually being converted into residential land use. These changes have however, altered the land-use plan of the city in such a way that, areas originally zoned for industrial and open spaces are being taken over by residential units. It must be noted however that the pockets of land designated for the other uses cannot be taken by residential land uses, considering the contribution of these sectors to the survival of cities and their inhabitants. This therefore calls for proper planning of the country's urban lands.

5.2 Implications for Planning

All the economic activities studied fall within the small scale category. This implies that they employ less than twenty people, use simple machines but produce relatively high output. Again, 72.5 percent of these businesses raised their initial capital from personal sources with over 90 percent however using their ploughed back profit for reinvestment. These private businesses can become the engine of growth and development of the economy if the government takes the initiative to facilitate their growth.

The survey revealed that the major land use change occurring in Adum, Asafo and Fanti Newtown is residential land use being converted to commercial land use. It indicates that 47.7 percent of land space were actually supposed to be habitable rooms meant for residential accommodation but has been converted into commercial and mix use. Also, 79.1 percent of buildings were put up purposely for residential accommodation but reduced to only 11.6 percent. The change has altered the land use plan of the city such that areas which were zoned for industrial use are being taken over by residential use. This means that the change is causing the total land intake for industrial use to be reducing at the expense of commercial use. Therefore, commercial land use keeps on increasing. This will affect open spaces and conservations in future and tend to create a platform for haphazard development in the city. This is devastating, considering the already existing backlog of residential accommodation in the country.

In addition, the rapid urbanisation of Kumasi has been attributed to over commercialisation, population explosion and increase in development. This has had negative impact on the form and structure of the metropolis. For instance, the problem of land use change has created high human and vehicular traffic congestion in the city which has led to inadequate parking places. Also, access to residential land is turning to be rather low. With rapid urbanisation it is expected that the rising population would be associated with increasing residential land but residential land use is rather decreasing. 86.0 percent of respondents confirmed that there is problem with land for expansion purposes in this area. This implies that future developers would face serious problems regarding land. It would also increase rent for land and

accommodation. People who may not be able to afford the rent will resort to the creation of squatter settlements and slums. This will impact negatively on the beauty and aesthetic of the city. There is therefore the need for prompt interventions and intense decisions that focuses on the future to help curb these problems.

The study showed that 10.6 percent of the businesses did not go through the right procedure for permission and are therefore operating illegally. This means they exempt themselves from paying property rates which is a potential for government revenue generation and a source of financing development projects. Thus, these businesses do not contribute their quota to the development of the city. In this case, development projects such as building of car parks, planting of ornamental trees and providing waste services would be possible if all these sources are appropriately taxed. The physical development and planning of Kumasi requires the involvement of all these businesses that have a prospect in the development of the city.

Also, the study showed that 58.9 percent of businesses did not have parking space close by for customers to park their cars before transacting business. As a result, they park along the streets. Only Adum is provided with on-street and off-street parking facilities, even though the roads in the other two residential areas are also under the jurisdiction of the Urban Roads. This causes delay in traffic leading to increase in travel time, lateness to work and low productivity. Parking lot is an important facility needed to complement transportation and therefore the physical development of Kumasi will be incomplete without it. It was generally noted that the increase in economic activities coupled with changes in land use have had negative impact on service delivery in the area.

5.3 Recommendations

This section is devoted to making relevant recommendations based on the findings of the study. Notable among the issues raised are managing urban land use change, development control, housing delivery and updating of plans.

5.3.1 Managing Urban Land Use Change

It is important that necessary steps are taken to reverse the negative impacts of rapid urbanisation on land use. The Kumasi Metropolitan Assembly must ensure that

developers comply with regulations as much as possible. There should be political will on the part of government that will ensure that bye laws passed by the Kumasi Metropolitan Assembly are enforced. Also, any new development that is undertaken must be a high rise building that will have one or two floors reserved for residential accommodation. Those who will default in this matter should be dealt with severely by the law. Also, the law should stipulate that any company that is buying an existing building either to use or redevelop be made to put up a decent house for the owner outside the Central Business District.

5.3.2 Parking Space

It is vital to provide parking facilities in the entire metropolis especially the Central Business District. Both on-street and off-street facilities should be provided by Kumasi Metropolitan Assembly and private investors under the 'Build-Operate-Transfer' system to ensure better performance. It is recommended also that charges be made low enough for people to afford so that patronage can increase.

5.3.3 Sanitary Facilities

Many of the stores in the Central Business District lack important facilities that will ensure smooth running of the businesses. To ensure that both traders and customers will relax and transact business in the Central Business District, sanitary facilities should be attached to every building. The KMA should make sure that they inspect the plans of landlords thoroughly and if these facilities are lacking they do not approve the stores to be put up.

5.3.4 Development Control

The key issue that must be considered that will bring sanity to the planning of our cities is public education. People should be made aware of the importance of development control and decongestion exercises. This will cut down on the wrong perception people have towards the exercise and help authorities execute their duties properly. It is recommended also that more building inspectors be trained and equipped with the needed logistics to enhance their performance. Politicians must also reduce their interference and active involvement in issues concerning development control and allow professionals to work. By so doing we will achieve our targets as development agents.

5.3.5 Updating of Plans

The development of the whole city will be thrown off gear if the planning department and other development agents are not up to task to ensure adherence to the specifications of the plan of the Metropolis. So the KMA should ensure that the plans are updated to help the department notice changes that are occurring and how to incorporate them into the development agenda of the city. Planners must also ensure that all stakeholders are brought on board before the detailing of the plan is done to ensure compatibility.

5.3.6 Housing Delivery

To ensure that we reduce the national housing development crisis, the Ministry of Water Resources, Works and Housing should embark on an annual housing delivery project. Such projects should be situated at the periphery of the central business district to help de-crowd the urban centres. The government should also ensure that prices of building materials are reduced for the low income urban dwellers so that they can be able to afford.

5.3.7 Waste Management

Effective waste management should be based on the promotion of waste policies. Therefore, the KMA should promote bye-laws which will aim at the integration of various bodies in the existing waste management and environmental control system through regional meetings and policy conferences with local authorities and development organisations.

5.4 Conclusion

The study of urban land use change is of much benefit to citizens as well as city authorities and policy makers. It will provide us with insight into the significant factors determining land use change. It will also help identify problems in terms of decreasing residential land use and provide the platform for better management of land resources in the Metropolis. The better management of land resources is essential for sustainability and for improving the quality of life of people living in the city.

With major changes being residential land use giving way to commercial land use, access to residential land is drastically reduced and new developments can only take the form of redevelopment of old structures. This has led to alteration of the land use plan of the city. Hence, effective land use planning should be based on promotion of policies. The government should support the Kumasi Metropolitan Assembly by ensuring that bye laws passed are enforced. Also, bye-laws should be passed by KMA to ensure that any new development undertaken particularly in the Central Business District is a high rise building with one or two floors reserved for residential accommodation. Those who will default should therefore be punished severely.

Another key issue that needs serious attention, in the planning of our cities, is public education. Awareness creation enlightens people of the importance of development control and decongestion exercises. This will reduce the wrong perception people have towards such exercises and help authorities perform their duties properly.

The KMA should endeavor to update its plans periodically. This will help the Planning Department to notice changes in land use and how to incorporate them into the development agenda of the city. Planners must also ensure that all stakeholders are brought on board in the planning process to ensure compatibility of uses. Adopting these measures will restore meaningful sanity to our urban areas and promote orderly growth of our cities.

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APPENDICES

Appendix A: Calculation of Sample

The following are calculations of the samples selected for the study. These consist of landlords and Business men in the three residential areas namely Adum, Asafo and Fanti- Newtown.

1. Calculation of sample size for Landlords

Sample Frame = 1450

Confidence Interval = 85%

Formula:

$n = N / 1 + N (\alpha)^2$ where n =sample size, N = sample frame and α = margin of error.

$$n = 1450 / 1 + 1450 (0.15)^2$$

$$n = 1450 / 1 + 1450 (0.0225)$$

$$n = 1450 / 1 + 32.625$$

$$n = 1450 / 33.625$$

$$n = 43.12$$

Therefore 43 landlords were interviewed in the study area.

2. Economic Activities

Assumption: Employment characteristics of the Metropolis will apply.

71.4% of the population of the Metropolis is within the economically active population. Out of the economically active 16% are unemployed.

Commercial/services constitute 71%, Industry/ manufacturing 24%, and Agric constitute 5%.

Source: www.ghanadistricts.com.

Table 3.1 Population for Study Area

Area	Population (2007)	Economically active population (15-64)	Employed	Total Sample	Commercial	Industrial	Agric.
Asafo	17676	12621	10692	44	31	11	2
Adum	7377	5267	4424	44	31	11	2
Fanti- Newtown	16280	11624	9764	44	31	11	2

Source: Authors Construction, 2008.

Years	Percentage of workers			Total
	Adum	Fanti Newtown	Asafo	
1-2	6.8	13.6	8.3	28.8
2-5	9.1	9.8	12.1	31.1
5-10	12.1	5.3	6.8	24.2
11+	5.3	4.5	6.1	15.9

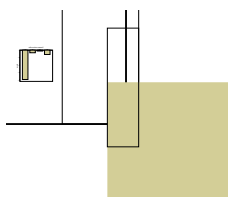
Appendix B

Table 4.1
Duration of Work

of Business Owners

Source: Authors Construction, 2008





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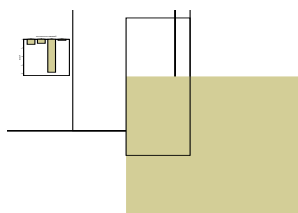
Figure 4.9 Original use of Building Units

Source: Authors construction, 2008

Table 4.2 Period of Construction of Buildings

Name of vicinity	Period of Construction				Total
	Before 1957	1958-1977	1978-1997	1998-2017	
Fanti	57.1	14.3	21.4	7.1	100.0
Newtown	35.3	23.5	11.8	29.4	100.0
Asafo	58.3	8.3		33.3	100.0
Adum	48.8	16.3	11.6	23.3	100.0
Total					

Source: Authors Construction, 2008



KNUST

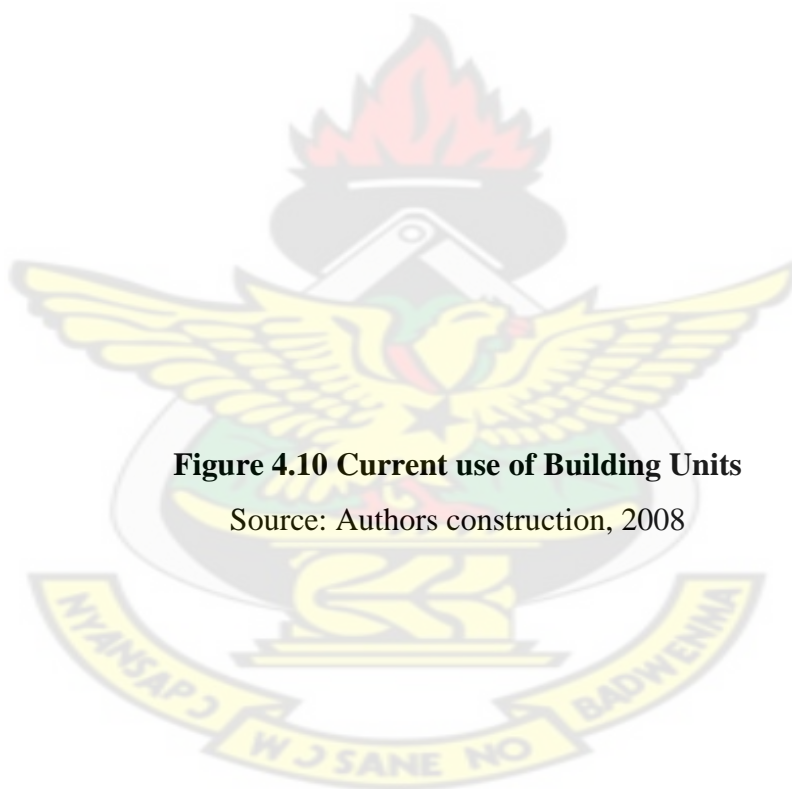


Figure 4.10 Current use of Building Units

Source: Authors construction, 2008

Appendix C
Kwame Nkrumah University of Science and Technology
Department of Planning

Urbanisation and Changing Patterns of Urban Land Use in Ghana: Policy and Planning Implication for Residential Land Use in Kumasi.

Strictly for academic purposes, confidentiality is highly assured.

QUESTIONNAIRE FOR ECONOMIC ACTIVITY SURVEY

1. Name of respondent
.....
2. Location
.....
3. Type of activity
.....
4. Size of economic activity.....
5. How many years have you been in this business?
1-2 years [] 2-5 years [] 5-10 years [] Others
(specify).....
6. Where do your customers come from?
Within Kumasi [] Outside Kumasi [] Others (specify)
.....
7. How many people are employed in your enterprise?
1-20 [] 20- 50 [] Others (specify)
.....
8. Why did you decide to locate your business in this area?
.....
.....
9. Has this area any special advantages that other locations do not have?
Yes [] No []

10. If yes, what are they?

a.

b.

c.

11. How did you acquire this space?

.....

12. Was your business registered?

Yes []

No []

13. If yes, with whom?

.....

14. Do you pay property rate?

Yes []

No []

15. If yes, to whom?

.....

16. How much property rate do you pay per month?

Gh¢.....

17. What was this space supposed to be used for initially?

.....

.....

18. Did you inform the institution you registered with before changing the use?

Yes []

No []

19. If yes, what procedure did you go through before changing the use?

a.

b.

20. If no, why?

.....

.....

.....

21. Was any one occupying the place before you acquired it?

Yes []

No []

22. What was it being used for?

Shop [] Residence [] Others (specify)

.....

23. How much rent do you pay for your store per month? Gh¢

.....

24. Did you relocate from another area?

Yes [] No []

25. If yes, why did you choose to relocate?

.....

.....

.

26. When you started operating in this area, were there many people selling here.

Yes [] No []

27. What is the situation now?

.....

.....

28. How did you raise your initial capital?

Personal savings [] Loan [] Others (specify)

.....

29. How do you finance your activity now?

Plough back profit [] Loan [] Others (specify)

.....

30. Do you get your inputs from Kumasi?

Yes [] No []

31. If no, where do you get them from?

.....

.....

32. Do you sometimes generate waste during your operations?

Yes [] No []

33. If yes, what kind of waste do you generate?

Solid [] Liquid [] Others (specify)

.....

34. How do you dispose of it?

.....

.....

.

35. Do you have a car park close by?

Yes [] No []

36. If no, where do you and your customers park your cars?

.....

37. Is your residence in this area?

Yes [] No []

38. Why did you choose to reside here?

.....

.....

.....

39. How much do you pay for your residence per month? Gh¢

.....

40. What tenancy agreement do you hold?

Freehold [] Leasehold [] Others (specify)

.....

41. Do you face any problems in your business as a result of where you are located?

Yes [] No []

42. If yes, what are they?

a.

b.

c.

43. What are the problems you encounter in carrying out your activity?

a.

b.

c.

44. What suggestions will you make for these problems to be solved?

- a .
- b.
- c.

KNUST



**Kwame Nkrumah University of Science and Technology
Department of Planning**

***Urbanisation and Changing Patterns of Urban Land Use in Ghana: Policy and
Planning Implication for Residential Land Use in Kumasi.***

Strictly for academic purposes, confidentiality is highly assured.

QUESTIONNAIRE FOR LANDLORD/LANDLADY

1. Name of respondent.....
2. Name of vicinity.....
3. When was this house constructed?
Before 1957 [] 1957-77 [] 1977-1997 [] 1997-2017 []
4. Did you receive building permit before putting up this building?
Yes [] No []
5. If yes, from who did you acquire it?
.....
6. If no, how did you manage to complete the building?
.....
7. From whom did you acquire the land?
.....
8. What kind of title do you hold?
Leasehold [] Freehold [] Others
(specify).....
9. Do you have problem with land for expansion purposes?
Yes [] No []
10. If yes, what are they?
a.
b.
11. How many habitable rooms are in this house?
.....

12. How many of the rooms in this house are used as shops?

.....

13. What was the type of building unit?

Single storey [] Two storey [] Others

(specify).....

14. Has the building type been changed since it was put up?

Yes [] No []

15. If yes, what type of unit was it changed to?

Single storey [] Two storey [] Others (specify)

.....

16. What major building materials did you use in the construction of this building?

Sandcrete [] Landcrete [] Mud [] Others (specify)

.....

17. How much rent do you take for a habitable room per month? Gh ¢

.....

18. How much do you rent a room for a store per month? Gh ¢

.....

19. What was this house originally used for?

.....

.....

20. What is the use of the building now?

Residential [] Commercial [] Mix use [] Others (specify)

.....

21. Do you enjoy any benefits from the land use changes?

Yes [] No []

22. If yes, what are they?

a.

b.

c.

23. Have you been approached by anyone before to change either part or the entire building apart from residential?

Yes []

No []

24. If yes, who?

.....

25. Which other use were you asked to change the building to?

.....

.

.....

.

26. Were any financial rewards attached to the proposed change?

.....

.....

27. Did you finance the construction of the building alone?

Yes []

No []

28. If no, what were your other sources of finance?

Family []

Loan []

Gift []

Others (specify)

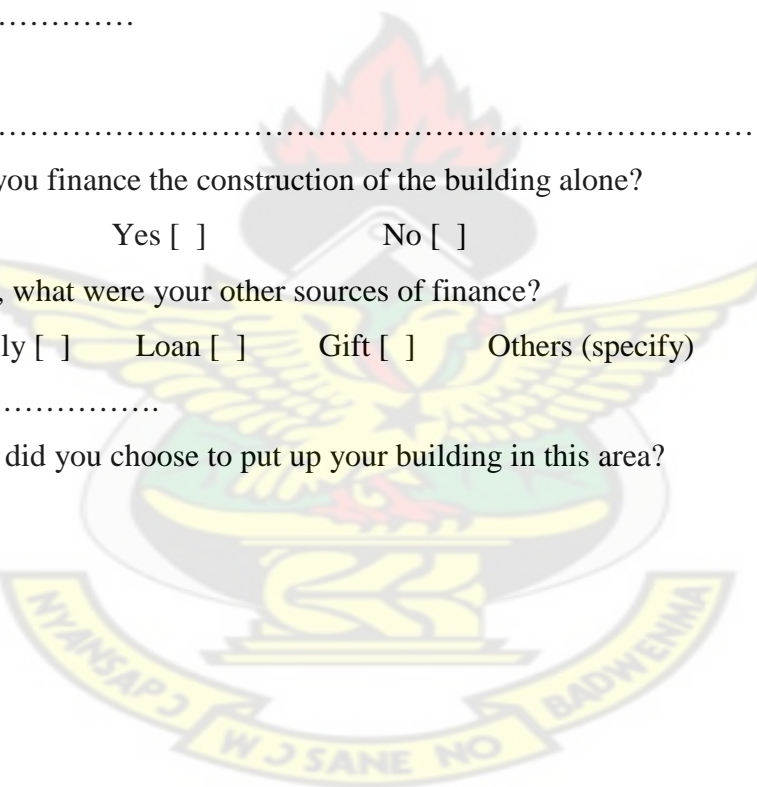
.....

29. Why did you choose to put up your building in this area?

a.

b.

c.



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**QUESTIONNAIRE FOR BUILDING INSPECTORATE DIVISION OF
KUMASI METROPOLITAN ASSEMBLY**

1. Are you aware of the changes taking place in the pattern of land use in Kumasi?

Yes []

No []

2. Are the following residential areas also affected by the change; Adum, Asafo and Fanti Newtown.

Yes []

No []

3. Which major land uses are changing?

a.

b.

c.

4. In your opinion what is causing the change?

a.

b.

c.

5. When did you notice these changes?

.....

.....

.

6. Has these changes been regularised?

.....

.....

.

7. Are there any procedures for changing an existing land use?

Yes []

No []

8. What is the appropriate procedure for changing the use to which a particular land is put?

- a.
- b.
- c.

9. Are the procedures being followed?

Yes []

No []

10. If no, why?

.....

11. Are there any regulations for controlling development in these areas?

Yes []

No []

12. If yes, what are they?

- a.
- b.
- c.

13. Are people adhering to regulations regarding development control in these areas?

Yes []

No []

14. If no, why?

.....

15. What logistics does your outfit use for the smooth running of its work?

.....

16. Does your outfit have all the needed logistics?

Yes []

No []

17. If no, why?

.....

18. What impacts if any will the changes in land use have on the urban economy?

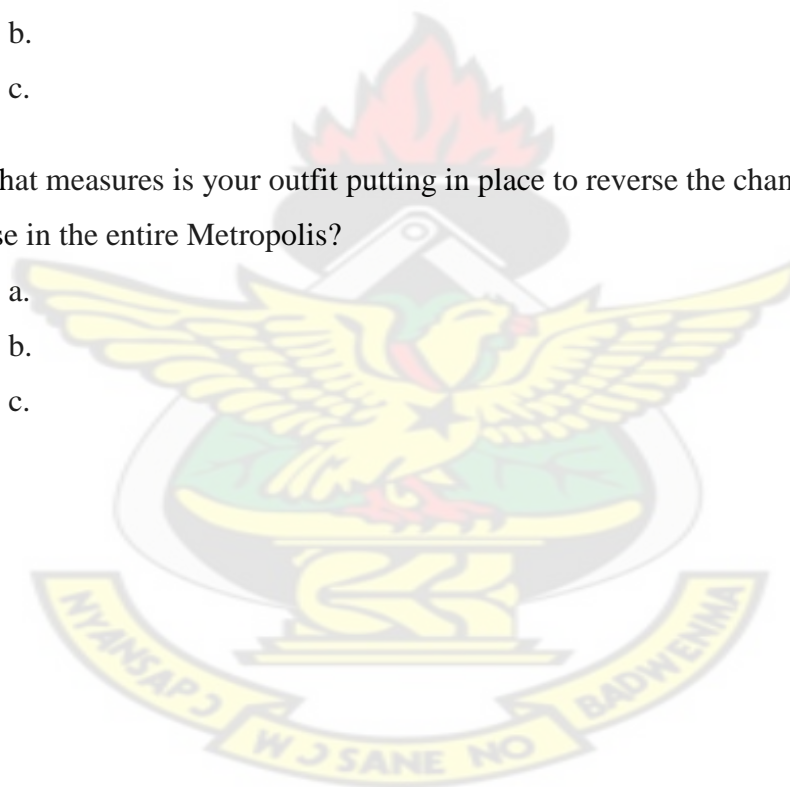
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19. What problems is your outfit facing in regulating this change?

- a.
- b.
- c.

20. What measures is your outfit putting in place to reverse the changes occurring in land use in the entire Metropolis?

- a.
- b.
- c.



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**QUESTIONNAIRE FOR TOWN AND COUNTRY PLANNING
DEPARTMENT**

1. Do you notice any changes occurring in major land uses in some residential areas in the Metropolis?

Yes []

No []

2. If yes, which land uses are actually changing to which ones?

.....to

.....

.....to

.....

3. Is the above mentioned change occurring in Adum, Asafo, and Fanti New Town also?

.....

4. How long has this come to your notice?

.....

.....

5. Has these changes been regulated officially?

.....

.....

...

6. What do you think are the causes of the change in these selected areas?

.....

.....

...

.....

7. How did rapid urbanisation change the form of the study area?

.....

.....

.....

8. How does land use change in the study area affect physical development of the study area?

.....

.....

.....

9. Has this change altered the land use plan of the Metropolis in any way?

Yes []

No []

10. If yes, how?

.....

.....

.

11. What is the pattern of development of the study area?

.....

.....

.....

.....

12. When was the last time you updated the plans of the major residential areas?

.....

13. Any lessons from the updates?

Yes []

No []

14. If yes, what are the lessons

.....

.....

.....

.....

15. What government policy is your outfit using to manage land use and development in the study area?

.....

.....

16. What issues are being addressed in this policy?

.....

.....

17. How is development being controlled in these areas?

.....

.....

.....

....

18. What are the challenges of controlling development in these areas?

.....

.....

..

19. How many development permit applications do you receive yearly from these selected areas?

.....

20. How many of these permits are you able to grant in a year?

.....

.....

21. Do developers in these areas receive permit before undertaking their activities?

Yes []

No []

22. If no, why?

.....

.....

.....

.

23. Do the developers normally keep to the specifications of the permit?

Yes [] No []

24. If the use to which a particular land is put is specified in the permit do developers adhere to that?

Yes [] No []

25. If no, why?

.....

 ...

26. What is the pattern of development of the study area?

.....

27. Has there been any major rezoning in the selected areas?

Yes [] No []

28. If yes, from which land uses to which land uses?

.....

29. Do you think the changes that are occurring in the urban land use will pose any problems in the future?

Yes [] No []

30. If yes, what are some of these problems?

.....

31. Can you identify any long term solutions to the problems?

.....

 ...

 ...

32. Is the urban land use change creating any problems now in the city?

Yes []

No []

33. What are some of these problems?

a.

b.

c.

34. What prompt measures can your department outline for curbing these problems?

a.

b.

c.

d.



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QUESTIONNAIRE FOR GHANA WATER COMPANY

1. Has your department extend its services to Adum, Asafo and Fanti New Town residential areas?

Yes [☐] No [☐]

2. If no, why?

.....

.....

.

.....

.

3. Since when did you start operating in these areas?

Adum

.....

Asafo

.....

Fanti New Town

.....

4. Does your service cover every house in these areas?

Yes [☐] No [☐]

5. If no, why?

.....

.....

...

.....

.

6. When you started your operation in these areas were they purely residential areas?

Yes [☐] No [☐]

7. If yes, did you notice any changes in these residential areas?

Yes [] No []

8. If yes, what change do you see?

.....

 ...

 .

9. When you started operating in these areas were there many economic activities in these areas?

Yes [] No []

10. If no, what is the situation now?

.....

 .

11. In your opinion what is causing the change?

- a.
- b.
- c.

12. Are the changes in these residential areas making your service delivery difficult?

Yes [] No []

13. If yes, what difficulties are they?

.....

 ...

14. Has the increase in economic activities in these areas increased your service provision to the areas?

Yes [] No []

15. If no, why?

.....

 ...

16. Are the commercial centers using water more than the residences?

Yes [] No []

17. If yes, do you supply water to the commercial areas more frequently than the residences?

Yes []

No []

18. Some times some of the business men have to reconstruct exiting residences to suit their purpose. Does this affect your pipe lines in any way?

Yes []

No []

19. If yes, in what ways?

.....

.....

.

.....

20. Does your outfit have any problems as a result of the change in land use in these selected areas?

Yes []

No []

21. If yes, what are they?

.....

.....

...

.....

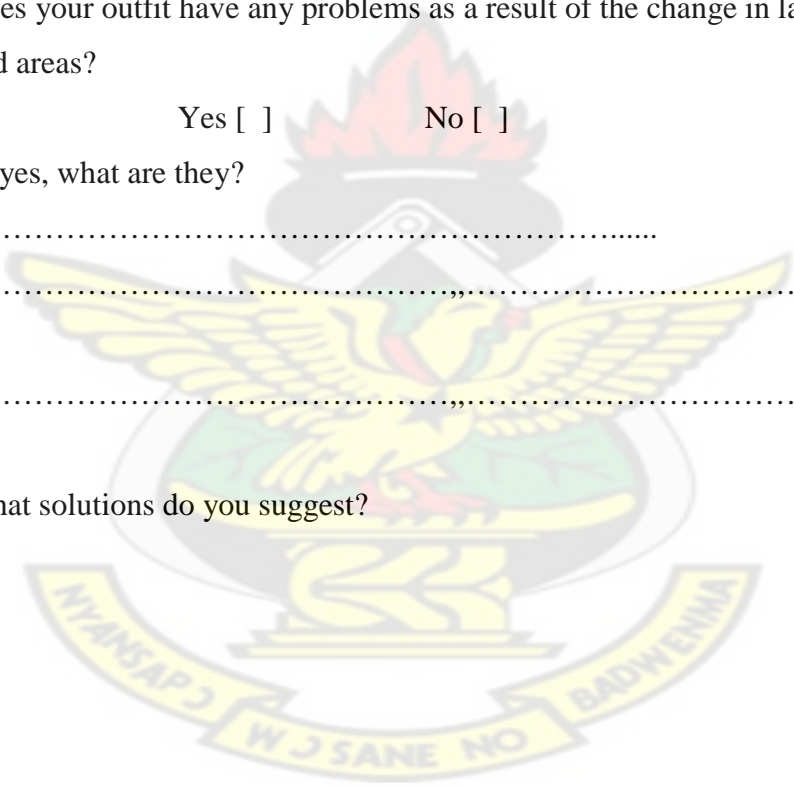
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22. What solutions do you suggest?

a.

b.

c.



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QUESTIONNAIRE FOR ELECTRICITY COMPANY OF GHANA

1. Is your outfit operating in Adum, Asafo and Fanti New Town residential areas?

Yes [] No []

2. If no, why?

.....
.....

3. When did you start operating in these areas?

Adum

.....

Asafo

.....

Fanti New Town

.....

4. Have you extended power to every house in these areas?

Yes [] No []

5. If no, why?

.....
.....

6. Were all these areas purely residential areas when you started operating in these areas?

Yes [] No []

7. If yes, are you noticing any changes in these residential areas?

.....
.....

.

8. Was the concentration of economic activities in these areas much high some few years back?

Yes [] No []

9. If no, what is the situation now?

.....

 .

10. In your opinion what is causing the change?

- a.
- b.
- c.

11. Are the changes in these residential areas creating any advantages for your company?

Yes [] No []

12. If yes, what are they?

- a.
- b.

13. Do you extend power to all the commercial centers?

Yes [] No []

14. If no, why?

.....

 .

15. If yes. has the increase in economic activities in these areas increased your service provision to the areas?

Yes [] No []

16. Has it been possible for you to meet the high demands?

Yes [] No []

17. If no, why?

.....

 .

18. Are the commercial centers using power more than the residences?

Yes [] No []

19. If yes, does it contribute to a denial of adequate power supply to the residential areas?

Yes [] No []

20. If no, how do you manage the situation?

.....

.....

.....

...

21. Does your outfit have any problems as a result of the change in land use in these selected areas?

Yes [] No []

22. If yes, what are they?

.....

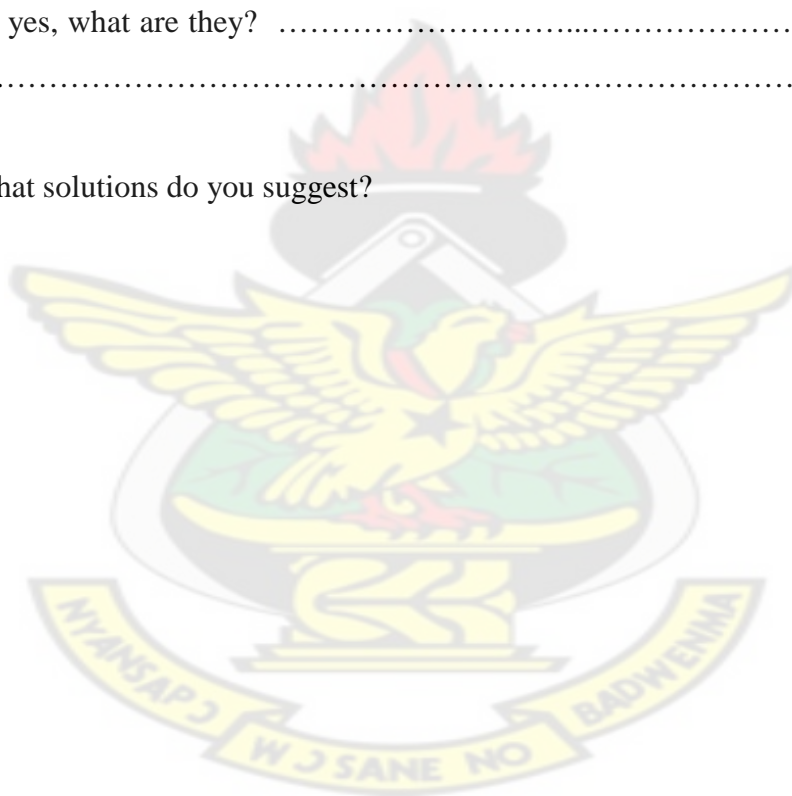
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23. What solutions do you suggest?

a.

b.

c.



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QUESTIONNAIRE FOR URBAN ROADS

1. Are the roads in Adum, Asafo and Fanti New Town residential areas under your jurisdiction?

Yes []

No []

2. If no, why?

.....
.....
.

3. Do you provide parking lots in these areas?

Yes []

No []

4. If no, why?

.....
.....
.

5. For the past ten years were these areas purely residential areas?

Yes []

No []

6. If yes, are there any changes in these residential areas now?

.....
.....
.

7. What changes are occurring

.....
.....
.....
.....

8. Was the level of economic activities in these areas high in the past as it is today?

Yes []

No []

9. If no, what is the situation now?

.....

 .

10. In your opinion, what is causing the change?

a.

b.

c.

11. Does the change in these residential areas have any positive impacts on your service delivery?

Yes [] No []

12. If yes, what are they?

a.

b.

c.

13. If no, why?

.....

14. If yes, has the increase in economic activities in these areas increased your service provision to the areas?

Yes [] No []

15. Are you able to meet the demands?

Yes [] No []

16. If no, why?

.....

 ..

17. Are you able to extend roads to all the necessary areas?

Yes [] No []

18. If no, why?

.....

.....

.....

..

19. Does your outfit have any problems as a result of the change in land use in these selected areas?

Yes [] No []

20. If yes, what are they?

.....

.....

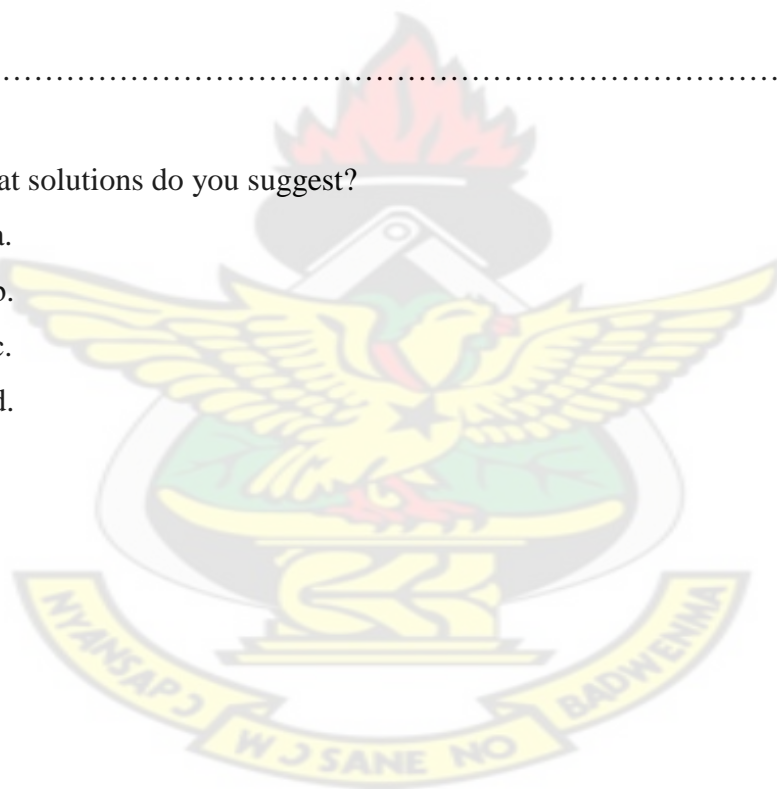
...

.....

...

21. What solutions do you suggest?

- a.
- b.
- c.
- d.



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QUESTIONNAIRE FOR WASTE MANAGEMENT DEPARTMENT

1. Does your outfit extend its services to Adum, Asafo and Fanti New Town residential areas?

Yes []

No []

2. If no, why?

.....
.....
.

3. Since when did you extend your operations to these areas?

Adum

.....

Asafo

.....

Fanti

New

Town

.....

4. Does your service cover each house in these areas?

Yes []

No []

5. If no, why?

.....
.....
...

6. Were these areas purely residential areas at the time you started your operations?

Yes []

No []

7. If yes, do you notice any changes in these residential areas?

Yes []

No []

8. If yes, what are they?

.....

 .

9. Were there many economic activities in these areas in the past?

Yes [] No []

10. If no, what is the situation now?

.....

 .

11. In your opinion what is the cause of the change?

a.

b.

c.

12. Are the changes in these residential areas having any positive impacts on your service delivery?

Yes [] No []

13. If yes, what are they?

.....

 .

14. If no, why?

.....

15. Has the increase in economic activities increased waste production in these areas?

Yes [] No []

16. If no, why?

.....

 .

17. What environmental problems are associated with the waste generated by these economic activities in the selected areas?

.....

 .

18. Are you able to collect all the waste generated in these areas?

Yes [] No []

19. If no, why?

.....

 .

20. If yes, was there the need for you sometimes to collect refuse from commercial areas more frequently than the residences due to the nature of waste they produce?

Yes [] No []

21. What methods of collection do you use in the various areas?

a..... b.....
 c.....

22. What are the advantages of using such methods?

.....

 .

23. What problems are involved?

.....

 .

24. Do you encounter any problems in your activities as a result of the change in land use in these selected areas?

Yes [] No []

25. If yes, what are they?

.....

 .

26. What solutions do you suggest?

a.

b.

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