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THE COMPARATIVE ROLES OF SERVICE CENTRES WITHIN THE URBAN SPACE OF THE BRONG-AHAFO REGION

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DECLARATION

I, Austin Adams Donkoh hereby declare that this submission is my own work and that to the best of my knowledge, it contains no materials previously published by another person nor material which has been presented for the award of any degree of the University, except where due acknowledgement has been made in the text.

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DEDICATION

I dedicate this thesis to my mother, Abene Donkor and Father Ahmed Donkor, for their roles in making this a success.

ABSTRACT.

The Brong-Ahafo Region urban space is a very vibrant one, consisting of a number of Towns which principally play a pivotal role in the region's socio-economic developmental trajectory. They provide essential services in administration, health care, education, commerce, industry and jobs to serve its inhabitants and peripheral populations, which culminate in a varying degree of functional importance. However, as a consequence of glaring inequalities on the functionalities of towns, population is expectedly found concentrated among various settlements as a reflection of the service delivered.

Using the Brong-Ahafo Region's urban space as a homogeneous entity, this research sought to assess and compare the inter-urban functional disparities between seven competing municipal growth points in the Region, in a bid to evaluate their viabilities in regional planning owing to the trends of population growth and urbanisation tendencies.

It was identified that population growth was still a major determinant of the urbanisation dynamics even though at reduced rates in recent times. Population distribution was found to be fairly even across board. Many of the service centres had lesser degree of centrality and functional adequacy, in that their populations overwhelmed the service facilities available making their urbanisation dynamics demographically induced rather than vibrancy in the socio-economic facilities. However, there is a strong spatial interaction between many of the settlement, with Sunyani especially serving as the most prominent destination nodes for many of these interactions.

The study has therefore put up several suggestions including; the development of integrated Settlement Hierarchy at the local level to counter-magnet the big towns, Proper Physical Planning and definite boundary definitions.

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ACRONYMS AND ABBREVIATIONS

BAR	Brong-Ahafo Region
CPT	Central Place Theory
CERGIS	Centre for Remote Sensing and Geographic Information System
DHS	Demographic Health Survey
ERP	Economic Recovery Programme
GES	Ghana Education Service
GHS	Ghana Health Service
GNFS	Ghana National Fire Service
GPS	Ghana Police Service
GPRS	Ghana Poverty Reduction Strategy
GSS	Ghana Statistical Service
GUMPP	Ghana Urban Management Pilot Programme
LGCSP	Local Government Capacity Support Project
MMDAs	Metropolitan Municipal District Assemblies
MDP	Municipal Development Planner
MTDP	Medium Term Development Plan
NPC	National Population Council
NUP	National Urban Policy

RNI	Rate of Natural Increase
SAP	Structural Adjustment Programme
SMA	Sunyani Municipal Assembly
SSA	Sub-Sahara Africa
TFR	Total Fertility Rate
TMA	Techiman Municipal Assembly
TPP	Trans-Pacific Partnership
UN DESA	United Nations Department of Economic and Social Affair
UN-HABITAT	United Nation Human Settlement Programme

CHAPTER ONE

GENERAL INTRODUCTION

1.1 Introduction

The functional importance of urban areas is central in regional planning, since towns and cities render a wide range of services to serve its own growing populations and that of the hinterlands. Towns are seen as the interfaces for intense socioeconomic interactions among individuals and firms, that propel a region's productivity and economic growth (Ratcliffe 2004). Within a region's urban system, however, towns differ in their socioeconomic and demographic makeups, which reflect in the functional roles they play and also in the spatial interactions between these individual nodes. Some of these differences can be traced to the spatiotemporal variations in the local resources (mineral, population, location, market) upon which the initial growth was based during the early stages of the development of the urban pattern (Adams et al 2005), which may have crystalized the comparative advantage of the town.

As the town's economy is opened for investment in socioeconomic facilities, within the framework of government's developmental strategies, and market liberalization in a globalised World, it takes on additional responsibilities, albeit may still maintain its towering initial functions as a market centre, administrative area or mining town (Ncube et al 2010). On this, Owusu (2005) postulates that the availability of diverse opportunities, the proximities of socioeconomic amenities and service infrastructure in the urban centres, is a propeller for the growth of towns. Consequently, population is found concentrated among particular settlements of varying sizes from smaller towns to giant cities (Ali and Varshney 2012), as a reflection of a varying degrees of centrality.

Towns in Africa are likewise known to be places where many services and wealth are created (Grant 2008), because activities and services that offer jobs and investment capitals are more concentrated in them. These settlements offer a diverse range of essential services that are relatively limited in the rural areas (Grove and Huszar 1964). These specialized services may be educational, commercial, industrial, communication, administration and many others high order services. However, these services are rendered by various settlements in varying degrees, which are usually a function of their population sizes. Thus within the urban space, both smaller and larger towns exhibit different ranges of socioeconomic functions and interactions, to form a continuum of settlement system. The most populous settlements exhibiting many and a more diverse range of services, and are higher up the urban hierarchy (Berry and Horton 1970). Therefore, the size, distribution and centrality of towns within an urban system have important implications on the region's socioeconomic growth and planning. Thus for a steady progression of the economy of a region, it is imperative to ensure the proper growth and management of its towns (Owusu 2005).

Urbanisation tendencies in Ghana are increasing steadily with the current figure approximating at 51% (GSS 2010). Between 1948, 2000 and 2010, the number of urban settlements had increased from 41 to 364 and 463 respectively and also with an associated population from 570,597 to 8,278,636 and 12,545,229 (Songsore 2009; GSS 2010). In the 2010 population and housing census, the population of the Brong-Ahafo Region (BAR) for instance stood at 2,310,983 with an urbanisation rate of 44.3 %. This was on the back of an increase form 15.6% (1960), 22.1% (1970), 26.6% (1984) and 37.4% (2000). However, the region exhibits a wide range of urban

growth points (service centres), whose distributions, population size and centrality needs critical attention.

Even though the current urbanisation trends in Ghana and particularly in the BAR is overwhelming, the process could actually generate national and regional development if properly managed. This is because it is widely acknowledged that the demographic and economic changes thereof, is one means by which improvement in socio-economic development could be achieved in a developing country such as Ghana (GUMPP 2010). Development agents are therefore tasked to harness this demographic dividend to achieve a prosperous urban system so as to ameliorate the incessant urban blights (slum, poverty, congestion, sprawl) for a sustainable urban growth.

Several approaches have been applied to explain the empirical regularities of the urban milieu's trajectory. The Central Place Theory (CPT) which serves as a guiding framework for this research is one of such established paradigms. It identifies the population distribution, functional roles and spatial linkages of service centres across the urban space of a region.

1.2 Problem Statement

All settlements, however crude or sophisticated, intrinsically render a particular form of service(s) to serve its inhabitants, though in varying degrees. Towns and cities principally play a pivotal role in national development by providing essential services in administration, health care, education, commerce, industry and jobs opportunities which are relatively in dearth in rural areas, hence radiate growth impulses (Cheshire and Malecki 2004). Thus the formation of a pyramidal shape of settlements-continuum from a number of hamlets to a rather more complex megalopolis is a reflection of the gradations in the functions each play within a settlement

system. These glaring spatial imbalances in services delivery have always resulted in concentration of population in few towns (Freira 2006), which is largely deemed detrimental to any steady and sustainable regional development strategy. To promote a sustainable and a steady urban system, it is broadly argued that a hierarchy of settlements system, with a relatively balanced population distribution, which is at par with an equitable distribution of socioeconomic amenities is more ideal, as this also eases the intense pressure on the few service facilities available (NUP 2012).

One prominent feature of Ghana's 51% level of urbanisation, however, has been a skewed distribution of the urban populations and consequentially, the numbers of service infrastructure provided. There is a relatively heavier concentration in the large towns (regional capitals), as manifested by Accra and Kumasi, which alone account for about 37 percent of the total urban population (GSS 2010). These situations do not only compound the urban blight (sprawl, congestion, slums, poverty) but also tend to stifle the growth of other secondary towns, impeding a broad-based regional development process which would have benefitted a larger proportion of the national population (Huff and Lutz 1989). The Ghana National Urban Policy (NUP) Action Plan for instance, advocates the creation, promotion and growth of small and medium-sized towns (including district and regional capitals) as "growth points to serve as counter-magnets to the fast growing cities like Accra and Kumasi" (MoLGRD 2012, p. 3).

The Brong-Ahafo Region which serves as the intervening opportunity between the northern regions and the other southern regions, encompasses a number of these potential growth points within its urban space. Indeed, with reference to the LGCSP (2013) report on urban hierarchy, the BAR contains eleven (11) of the sixty-two (62) medium size town (20,000-99,999) in Ghana

(second only to the Eastern Region's 13), and therefore expected to receive a number of migrants into its urban space. Though still below the national average, a 44.5% urbanisation rate is still significant, and it requires the needed facilities to ensure its sustainability and competitiveness. This is because the optimality of urban growth is reflected in the capacity of the urban centre to provide equitable socioeconomic facilities to the people in an adequate manner (Yuan et al 2012; Ali and Varshney 2012). Perhaps, it is at the most critical point in time to assess the functional capacities of the urban space of the region to provide adequate facilities to sustain its urbanisation trends for a proper regional planning, to be given the utmost attention.

Conventional theories have broadly sought to suggest that the growth of towns is the synergic interplay between population, infrastructure and economics. The question as to which of these parameters commands the greatest impulse along the growth trajectory of settlements, is beyond the direct purview of this research. The focus here is to analyse the dynamics of these growth impulses (population, infrastructure and economics), as the bases for assessing and comparing the functional capacities of identified growth points. As growth points do these centres have the minimum service requirements to guarantee their competitiveness and to ensure a balance growth? What range of functions are rendered by these towns, and how have that influenced their growth impulses? What degree of spatial linkage exists between these growth points, and how that further crystalises their individual centralities?

Studies on the functional roles of towns in regional development abound, and most of these have concluded that towns as growth points have overwhelming influences on the growth or decline of the underlying rural areas. For a town to play its role as a service centre efficiently, it will depend

on its functional capacities (Yuan et al 2012). However, due to the apparent spatial inequalities in settlements functional capacities, some towns are bound to be more viable and competitive than others even within similar space ecology of competing towns. Using the Brong-Ahafo Region's urban space as a homogeneous region, this research assesses and compares the inter-urban functional disparities between competing growth point in the Region. This is in a bid to evaluate their viabilities in regional planning owing to the trends of population growth and urbanisation tendencies. Emphasis is given to the degree of centrality, sphere of influence and spatial interaction of growth points.

1.3 Research Questions

From the ensued problem, the following questions are proposed.

- How has the region's population change occurred over time, and what has been the effect of this of their urban dynamics?
- As growth points, do these centres have the minimum service requirements to guarantee their competitiveness and to ensure a balanced urban growth?
- What range of functions is rendered by these towns, and how does that further influence their urban growth impulse?
- What degree of linkage exists between these growth points, and how that further crystalises their centrality/functional base?

1.4 Objective

The study seeks to deliver a comparative analysis on an inter-municipal disparity in functionalities, in a bid to assess the degrees of centrality of growth points and their roles in

regional development of the Brong-Ahafo Region's urban space. The purpose of which is to adopt a regional planning strategy for a multiple nuclei of development attractions. To achieve this, the study specifically seeks to:

1. Assess the spatiotemporal dynamics of changes in population and its impacts on urbanisation trends within the municipalities.

2. Examine the functional structures and the distribution of service activities as indicators of urban growth and population concentration across the municipalities.

3. Analyse the spatial interactions and linkages between inter-municipal nodes in the view of their economic zones and vehicular flows for an integrated spatial development.

1.5 Relevance of the Study

City management is a herculean task to many development agents and academicians alike, all across the world, and more so in developing countries like Ghana. This is because they render diverse phases to the developmental trajectory of a country. To identify settlements by their functional capacities and spatial disparities, which are integral in Urban Geography, will offer an opportunity to adopt a comparativist approach, to examine the spatial or locational differences and similarities between countries, regions and settlements within regions. The results of this research is therefore expected to be useful to empirically offer an insight, into an inter-urban disparity that can be easily identified by earmarking centres that are poorly served or deprived of essential services (Huff and Lutz 1989) as juxtaposed against the size of its population. It is also intended to serve as a base for predictions of future patterns of growth, since service generally become inadequate with time. This information will help city authorities in the overall

management for a sustainable growth of the Ghanaian urban space and more so, the Brong-Ahafo on the need to resource other allied peripheral localities.

1.6 Scope of the Study

Geographically, the study is conducted in the Brong-Ahafo Region, a very vibrant urban space in Ghana which serves as an intervening opportunity between the North and the South, and consists of a number of very prominent medium-sized towns. As a comparative study, the research specifically focuses on the seven foremost towns in the region which also coincides with seven of the eight municipalities in the region, hence render similar functional importance. These include the Sunyani, Wenchi, Dormaa, Berekum, Asunafo North, Techiman and Kintampo North Municipalities. Conceptually, the study seeks to establish the roles of these municipal nodes as centres of demographic movement as well as service delivery, and therefore interact with each other in a myriad of ways. As high order settlements playing a central place role, how viable have these individual settlements been? The research therefore assesses and compares the inter-urban functional disparities between competing growth point in the Region in a bid to evaluate their viabilities in regional planning owing to the trends of population growth and urbanisation trends. The study is undergirded by the central place concept, where high order settlements render a high order function as indicators of settlement's centrality.

1.7 Organisation of Study

The study is organised into five thematic chapters. Chapter looks at the general background information including statement of the problem, which assesses the nature and the extent of the problem at hand. By this it outlined certain questions deemed relevant to guide the study. These questions helped to draw up the main purpose of the study in the objectives. The chapter

concludes with some relevance for doing the study, the general scope of the study, and relevant terminologies and their defined contextual usages.

The Second Chapter reviews literature about the subject from various sources. The first section of this chapter deals with conceptual issues that define the study, and builds into how cities in Africa have emerged and grown over time, demographic determinants of urbanisation, the role of government in growth in Ghana, and how infrastructure influences population concentration, as well as the prospects and challenges of the urban space. It further develops a conceptual framework that seeks to explain how cities in Africa and for that matter Ghana have grown and the strategies that can be used to effectively manage them.

Chapter Three of the study gives a profile of the study area from the regional perspective and narrows into the municipality level. It further spells out the methodology used to carry out the entire study including research design, sampling techniques, data sources and means of analysis and presentation. The focus of chapter four is to bring to bear the general analysis of data as presented using cross tabulation, maps, and other graphical presentations including graphs and charts. The Broad thematic areas in this chapter include; the spatiotemporal population change and urbanisation dynamics, the functional structure and spatial distribution of facilities as indicators of population concentration, as well as the spatial interaction among these identified spatial nodes. The final Chapter seeks to bring out the major findings from the study, gives some recommendations and then draws a conclusion.

1.8 Definition of Terms

Many concepts and terminologies have been used in this research, a clarification and their contextual usages are therefore very necessary to understand the gist of the subject matter.

1.8.1 Urban Centre: As stated by Herbert and Thomas (1990), the use of the term urban is ambiguous, because it connotes different meaning across space and time. Broadly however, it is used interchangeably to refer to a town or a city. Two basic attributes of a settlement; population and function have been used to define a town. In high density regions like Japan, a population of 30,000 is what defines an urban settlement. Whereas 5000 people are used in Ghana, a population of 200 is about enough in Sweden (UN-HABITAT, 2008). Functionally, Urban places can be distinguished from rural settlements. Usually, over 70 per cent of the active population should be engaged in the non-agricultural sector and more into manufacturing and service delivery. In Israel for instance, a combination of the two criteria as indicated above are what define urban centre. Due to the difficulties in casting an urban centre from a rural centre, scholars are inclined to write on a settlement continuum, even though Coombes (2000) described the continuum model as being too "restrictive". Perhaps, the combined usage of the two criteria as stated above is more appealing, so as avoid a wide proliferation. However administrative centres (National, Regional, local capitals) are generally acknowledged as towns, since they usually have relatively higher populations and also provide a heterogeneity of functions. In this research however, the urban centres as so defined, refers to *medium-sized town* (between 20,000-99,999 population) by the LGCSP (2013) report, they are municipal capitals, administrative centres, and also provide a multiplicity of functions to serves its population. It therefore adopts the combined usage of both population and functionality criteria. From hindsight, this fall into

the whole scope of what an urban centre should be. But the question of interest being that, are these urban centres so defined, functional or merely demographically induced?

1.8.2 The Urban System: Urban Geographers do not usually study individual urban centres in isolation, but rather in a complex mix with other centres, with which they have direct or indirect interactions with. This is because the functionality or centrality of one town is dependent on its location within a frame of centres. Maksoud (2003, p. 1) therefore defines the urban system as the "frame within which all urban settlements are organised and interact with each other regarding their sizes and functions". The interconnectivity can either be of a dominant relationship or interdependency. In this our cluster of urban system, we expect all centres to enjoy mutual benefit in the course of their spatial interactions.

***1.8.3 Central Place*:** This is the settlement or location within which one or more central functions are performed relative to its underlying settlements. Thus the location from where high order good and services are concentrated. It is used here as a synonym, not explicit though, with terms like growth pole, growth point or node. This settlement is generally considered as the growth point for its surroundings hinterlands, since it provides a multiplicity of high order function to serve it populations and those of the underlying hinterlands. There are varying echelons of central places, ranging from a global, national centre and to a localized center. The point of notice is that, within an urban system of a number of central places, some settlements are more endowed in service delivery than others, hence more central. The central places as so considered here are at the district level, consisting of (7) municipal capitals, and are expected to provide varying ranges of functionality for its hinterlands. The research therefore seeks to explore the functional disparity among these central places of similar levels.

1.8.4 Central Function: Any type of service or activities which are peculiar or limited to central place such that those activities are relatively in dearth in the complementary regions, are referred here as central function. Central functions are however locational specific, as stated by Rahaman and Noor (2005). Functions considered central in one region may not be central enough in another location. However, most tertiary activity in education, banking or communication, have a generic application. In this research, functions under considerations are intrinsically centralized and occur generally in towns, hence draw populations. To cut ubiquity, this research restricts itself to higher order functions, whose functional sphere goes beyond their immediate locale.

1.8.5 Functional Unit: The individual occurrence of a function constitutes a functional unit. Within the whole sphere of an educational function in Ghana for instance, there are levels from basic to tertiary. The individual incidence of these constitutes a functional unit. A multiplicity of these functional units defines the degree of centrality of a settlement. Generally, a myriad of the individual central functional units is located in towns or urban centres and to a limited extent in the rural areas.

1.8.6 Homogeneous Region: homogeneity used in this research is defined in the context of a "*uniformity or a uniform region"* (Hoover and Giarratani 1984, p. 244). The study area, and for that matter, the region, is defined on the assumption of sharing some common internal and readily identifiable set of characteristics. Politically, it is under the same administrative and geographical demarcation; the Brong-Ahafo Region. Principally, influenced by similar factors of production (mode of production, economic activities), similar climatic and vegetation zone (the transition zone) such that, changes to external factors similarly affect the whole region in similar ways.

CHAPTER TWO

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1 Introduction

The dynamics of the urban milieu in Sub-Saharan Africa (SSA) offer one of the most intriguing and challenging issues on the development trajectory of the Third World. It is generally the hub of an effective socioeconomic prosperity, since most activities that offer better life and human developments are concentrated in them. Perhaps, more paradoxically, the blights of the urban settings offer the most fascinating phase of the urban environment. In this section I take a comprehensive assessment of scholarly publications deemed relevant to understand, appreciate and to confront the problem at hand. I begin by building into the theoretical underpinnings of the urban settlements and their functionalities, and then into forces determining a settlement's centrality. Recognition is given to demographic forces as well as the social infrastructure. It delves further into the whole sphere of urban planning, taking notice of the role of government in all these considerations. There is also a cursory review of the Ghana urban policy plans over the years.

2.2 The Concept of Centrality

The terms *pole, centre and node* for the purpose of this research is jumbled together and may be used interchangeably. Centrality or nodality loosely depicts that location of greatest accessibility. This has severally been assumed statically to imply a geometric point, but Berry and Horton (1970 p. 7) postulate that the qualities of "nearest, closest, and most central point" is too ambiguous and do not exclusively identify centrality. Hillier (1999) on the other hand identified centrality as applied to the spatial structure of a settlement, to have both a functional and a spatial feature. Functionally, it means a distinctive concentration of service activities in a certain

settlement or a location in a settlement relative to the underlying areas. As Christaller (1933) puts it, Centrality is *"the capacity conferred on a town to offer goods and services to an external population"* (as stated in Ofori 2012, pp 7). Therefore, towns that render the most numbers of functions have the highest degree of centrality, hence surplus services for surrounding rural spaces.

Linearly, centrality means a mid-point location of a settlement system as a whole. Though midpoints are usually of greatest accessibilities, they are of limited importance if not coupled with other central place activities (Owusu 2005), due to the prominence of transportation technology. The point of notice is to understand centrality more as a process rather than as a static phenomenon, in that with time, the centrality of a settlement could either be solidified or diffused. Therefore, the absoluteness of a location (centre) may not be as important as its relativity (function) within a system of settlements. The question of interest in this research is therefore to analyse the functional structure and the degree of centrality of individual central settlements. By this, we would be in the position to assess the spatial disparities in the degrees of centrality, as to which settlement is able to meet the service needs of its population and also with excess services available for the underlying hinterlands to access.

From the preceding argument, it can be stressed that the centrality of a settlement is usually functionally defined to mean a concentration of socioeconomic and demographic activities in a prominent place relative to its tributaries locations (Hillier 1999). Thus centrality is explicitly defined as a function of services rendered by a settlement to its complementary regions. As settlements continue to grow and become more complex, they tend to further attract a legion of the population as well as a multiplicity of services activities to serve the people, hence the higher

the degree of centrality. Therefore, it is possible to measure the centrality score of a settlement or a number of settlements. This involves a collation or aggregation of all socioeconomic activities that the settlement provides (Kukadapwar and Adane 2006), which gives a clue as to which settlement is poorly served or otherwise.

As indicated above, history has shown that the make-ups of central places do shift and diversify with time. Settlements therefore grow from small to large towns and diffuse to form a hierarchy of settlement system (Berry 1970 as stated in Ofori and Asiedu 2013). In this research the proposition is that a well-defined pole/centre plays a critical role in the location and absorption of people and service facilities, and an equally important role in diffusing development to other underlying locations. Hence, the measurement of the centrality scores of a number of settlements is important for regional planning. This is because the scores as so obtained provide a cue on the attraction force individual settlements command over their complementary areas, as well as interactions among other competing centres in the delivering of services. Centrality score is also a good indicator to study the trends of population concentrations that gives us a cue for future predictions in managing space.

2.3 Functional Indicators of Settlement Centrality

As has been stated, all settlements render certain kind of service(s) to its population. The relative incidence or aggregation determines which settlement is more central. Geographers and other allied discourses have used a myriad of settlement's functions as indicators of the centrality of a settlement. In pointing out the indicators of centrality, Qureshi et al (2011) prefer to distinguish between functional towns and administrative towns; (by which they assert that, not all local

administrative capitals are functional), However, geographers generally acknowledge administration, as a functional indicator of central places. Rahaman and Noor (2005) as well as Berry and Horton (1970) have highlighted that what constitutes a central function is culturally specific, in that certain services like dispensaries and grocery stores, considered as central function in one society, may not be central enough in another.

However, higher education, special healthcare, administrative and communication services are considered generic indicators of settlement centrality, since these are essential attributes in socioeconomic development of settlements. We take a cursory review of some of the roles or functionality indicators as manifested in central places.

2.3.1 Administrative function: National, Regional and District capitals house the headquarters of the administrative offices of the Central and Local governments, and these are called administrative towns. At the Regional level, they house the decentralized quarters of the Ministerial Departments and Agencies (MDAs), Regional commissioner, Courts, Police Station and employ a large numbers of civil servants as well as attracting a lot more people to access services rendered. Relatively, it stands to become the most central location in the Region, district or area of concern. At the various echelons of centrality, any settlement that performs such function as Regional capital, district or local level capital or even a traditional council signifies centrality, at least within its catchment area. It must be stated that, most district capitals are usually recognized merely for their administrative function.

2.3.2 Commercial function: Many ancient towns were famous because of their strategic roles to provide trading activities or transportation routes for merchants to link market centres (Dickson, 1969). Timbuktu, Gao and Kano for instance, were examples of ancient commercial towns in

West Africa (Buah 1998). These towns show evidence of centrality and may grow to take on several other administrative and economic roles while still maintaining their towering roles in trading. In Ghana during recent times, the retail and banking sectors have come to play prominent commercial roles. Any settlement that offers these function can relatively be identified as a central settlement. In this research, the focus is on banking service and market activities. Generally, commercial towns provide a wide range of functions in the service industry to serve their population.

2.3.3 Industrial function*:* Mining and manufacturing areas are normally characterized by their endowments in identified resources such as harbours, minerals, sources of power and other activities that reduced the cost of industrial productivities. Industrial functions involve services in the manufacturing and construction sectors and seek to provide a range of consumer and producer goods. They employ a large proportion of the population and these centres are often well populated. Obuase and Tema are two examples of such towns in Ghana, whose large populations can be attributed to their industrial functionality.

2.3.4 Social Services: Educational and health facilities are essential attributes in development, hence indicators of centrality. The numbers as well as the distribution patterns of educational institutions and health facilities are very significant services in the understanding of the development process of settlements, particularly in a developing society. However, the level on the educational ladder provides varying degrees of population concentrations and attractions. In this research, since the settlements under consideration were limited to higher order settlements, basic education is considered as a ubiquitous function and does not influence centrality of

settlements. Therefore, this sector is limited to second cycle and tertiary educational institutions. On healthcare facilities, maternity homes and clinics are also exempted.

2.3.5 Communication function: Functions in the communication sector are generally concerned with the production and distribution of contents designed to inform and entertain, thus the business of conveying information. It is one of the rapidly changing service sectors. It includes local news stands, post offices, Telecommunication, radio, television and internet access. Their stretch of influence is normally trans-regional, because their potential market is huge due to the needing high point of daily circulation. The availability of these services in a settlement will usually be a good indication of how central the settlement is.

2.3.6 Cultural function: Some towns are famous for religious, historical or recreational purposes. Places of pilgrimage such as Jerusalem and Mecca are considered as religious towns. There are also towns famous for their aesthetic values. These provide hospitality as well as tourism functions. Such settlement will usually attract population and its attendant service infrastructure to themselves and are likely to become central locations.

2.4 AN OVERVIEW OF THE CENTRAL PLACE CONCEPT

2.4.1 Theoretical Framework

The urban space performs a multiplicity of functions and it is therefore expected to exhibit more complexities than the rural space. Studies on the functionalities of a range of central settlements within an urban system have likewise tended to be quite complex and intriguing. In attempting to determine the centrality of settlements within a system of urban centres, one of the essential tasks, according Grove and Huszar (1964), is to identify towns by their functional roles, so as to

ascertain a classification of the existing orders of central places. One body of knowledge which describes the relationship between centralised settlements with respect to their functional capabilities and spatial linkages is by means of central place relationships (Christaller 1933).

The Central Place Theory (CPT) has been employed severally to explain the empirical regularities in settlements and service centres with respect to their sizes, locations, interdependence and functions within a settlement system. Berry (1970 as cited by Ofori 2012), posits that the CPT provides an important theoretical base for much of urban geography. For this research it is the undergirding theory that would help to define the functional importance, size, sphere of influence and spatial interactions between a number of central place settlements. It becomes necessary to take a close review of some basic tenets of the theory.

2.4.2 Central Place theory (CPT)

Walter Christeller's Central Place Theory brings to bear the functional relations between a number of settlements. According to Berry and Horton (1970), CPT attempts to explain the spatial arrangement, size, number and functional roles of settlements within a settlement system. A Central place is therefore the settlement which provides central goods and services not only for its own residents but also for people living in nearby clusters (complimentary region). The Central place exists because it performs essential services for surrounding areas (Kukadapwar and Adane 2006). In our study area of central places, we shall analyse the range of *essential services* performed and how that has helped these central places to crystalise their centrality and population concentration.

The theory fundamentally consists of **two** basic concepts which are necessary for our definition of settlement's sphere of influence and spatial interaction.

2.4.2.1 Threshold:

This concept of the CPT connotes the minimum population that is required to bring about the provision of certain goods or services (Berry and Horton, 1974). Every central service activity requires a sizeable population for its utility; this is referred to as the threshold population. The threshold is usually measured in terms of the population size, large enough for the survival of a particular service. Various services therefore require a minimum population for their utility. For an optimum utility of a service for instance, there ought to be a corresponding optimum population size, above which there is a decrease in its marginal utility, below which the service does not attain its full potential. Likewise, for every centre, there is a minimum service requirement to ensure a balanced growth. Achieving the balance between population and infrastructure has always been a conundrum for development agents, more so in the Third World (Ofori 2012).

2.4.2.2 Range of good or services

The range of a good, service or centre is the average maximum distance people will travel to purchase or access a good or a service (Berry and Horton, 1974). Range delimits the market area for the good, service or centre. Each service will have difference range beyond which users will ideally prefer accessing from other competing central places, owing to similar ecological conditions. In our context, the range of a service or a centre, defines the sphere of influence (economic zone) of the centre or the service. Cities such as Accra have a national sphere of

influence, whereas a small hamlet or village may only have a sphere of influence of a few of kilometres.

From these two concepts, the lower and upper limits of goods, services and settlements can be identified. With the upper and the lower limits, it is possible to see how the central places are ordered in a system of towns. On this score Thomas' (1962, as stated by Harvey 2007, pp 102) postulation that towns of similar size and functions are usually located at a corresponding distance apart, may be said to be sound.

2.4.3 Order of Services and Settlement

Another concept of important recognition in the CPT is *order*. Services are classified on a scale of relativity from a lower to a higher order. Lower order services are needed frequently and are readily available in the immediate locale, users therefore need not travel longer distances to access them. Higher order services on the other hand are accessed less frequently and so not readily available, users therefore travel farther to utilize them (Rodrique 1975). In an urban centre like a municipality (which is considered a higher order settlement), services such as basic schools, clinics and police posts, which are readily available in most neighbourhoods, are considered as lower order services, although they can be a higher service in a rural community. Whereas services like a University, Regional Hospital and Radio Stations are inherently considered as higher order services. In sum, higher order services are location-specific while lower order services are located in both lower order and higher order settlements alike. Therefore, in defining the degree of centrality of a higher order settlement, lower order services become too ubiquitous and do not contribute much to which settlement is more central or not.

From the above discussions so far, the following could be postulated.

- A Central Place is a settlement which provides one or more services for the population living within and around it.
- Simple basic services (e.g. grocery stores) are said to be of low order while specialized services (e.g. universities) are said to be of high order.
- Having a high order service implies there are low order services around it, but not vice versa.
- Settlements which provide low order services are said to be low order settlements.
- Settlements that provide high order services are said to be high order settlements.
- The sphere of influence is the area under influence of the Central Place.

Studies on central places are important for policy makers to strategize for a balanced and a sustainable urban spatial structure and facilitates in understanding the functional linkages between different settlements of the region. To carry out a comprehensive regional planning strategy, it is imperative for planners to acknowledge the functional interdependency of various settlements within the region. A comparative study of central places and their functionalities gives cues about functional capacities of individual settlements and how they spatially interaction with each other. This is the angle as applied in the Municipalities in the Brong-Ahafo Region.

2.5 Policy Context of the CPT

Central to policy making and the developmental agenda in developing countries is the question of reducing developmental disparities across space. Inasmuch as spatial disparities in

development are not a new phenomenon in regional development, it is the magnitude of the imbalances that catches the eye of stakeholders or policy makers (Qureshi et al 2011). Spatial inequalities in socio-economic developments are one of the indicative ways of assessing the general wellbeing of individuals and societies across space and time. They provide the opportunity for governments to assess which regions of a country are most deprived of essential facilities, as this feeds into their general schemes of policy decision making and subsequent budgetary allocations (Sorenson 2001). Indeed, the whole discourse of policy making is tilted towards reducing spatial inequalities in population and infrastructure facilities (Eminsang 2011). Disparity between regions in a country according to Kanbur and Venables (2005) is an indication on overall national inequality across individuals (the other component being inequality across individuals within each geographical unit or region). Thus when spatial inequality goes up, with all other things being equal, national inequality does too. The urban space of many developing nations perhaps provides one of the widest disparities in educational facilities, service infrastructure, health care systems and many others that are a challenge to our developmental agenda.

The CPT is one theoretical paradigm that can be adopted to bring development down to the peripheral areas in Ghana. Through the Ghana decentralisation scheme, district level growth points are set up to attract development to themselves and their underlying hinterlands. They tend to serve as receptacles for excess population and investments from big towns like Accra-Kumasi (Owusu 2005; Eminsang 2011). The conundrum however, has been the infrastructural deficits in the targeted growth points themselves and their inability to absorb and ensure a fairly equitable distribution of wealth and population. Indeed, some of these district capitals are

themselves below a minimum development threshold let alone the capacity to diffuse the expected development down to their peripheral areas (Eminsang 2011). Qureshi et al (2011) define such towns as merely administrative rather than functional. A study that assesses and compares the disparities among identified central places as growth points for distribution of development is of a cosmic importance for policy makers and urban planners. This is the subject matter of this research work.

In short and at least in principle, policy makers should be able to influence the organization of space through targeted infrastructural investments and budgetary allocations. They should not renege and allow market forces alone to be the determining force for spatial organisation and population distribution. There should be a conscious strategy to build the capacity of district growth points to perform their functional roles for its surrounding areas with the view of improving the region's spatial economy.

2.6 The Concept of Settlement Hierarchy

An important concept needing recognition in an urban system is hierarchy. Heilbrun (1992) wrote: "A hierarchy is by definition a systematic arrangement of the classes of an object", in which case the object being an urban centre. The central place hierarchy describes the relationship between a central place or a number of central places (higher order places) and its tributary areas (lower order places). This hierarchical arrangement can be explicitly pointed out for anyone to identify. There are several ways of doing this classification. The three most common ways, as proposed by Waugh and Bushell (2001) are:

1. *By Population*
2. *By the number and range of services provided*
3. *By sphere of influence*

2.6.1 Population Size

Settlement hierarchy based on population sizes are usually the simplest and commonest because of the seemingly availability of population data (Waugh and Bushell, 2001). Drawn as a pyramid, it shows approximately the numbers of settlements in each group and the distance apart that there might be. A conurbation which is at the top of the hierarchy are generally limited in number and located well apart. A number of hamlets would be at the bottom of the hierarchy because of their low population; many settlements can easily meet this standard. Two points are to be noted;

a. As settlement size increases their number decreases, hence there are many hamlets and villages but few conurbations.
b. As settlement size increases, so the distance between them increases.

These propositions are however not absolute since a number of these big towns could grow into each other forming a mega city with time.

2.6.2 Range and Number of Services

Settlements are not solely defined by population but also by their functional roles, even though population size of a settlement can affect the type and number of services it provides (Henderson 1974). The smallest settlements like hamlets with no more than 100 people have perhaps just one

or two service(s), if any. Cities are larger and will usually have an array of basic as well as several essential services and offer a wider range and greater choice. Due to the concentration of services in these larger towns they gradually assume a central role in a system of centres in a region. Irrespective of the population size, however, a well-served or functional settlement can assume an overwhelming position on the hierarchy as the foremost location. What is obvious is the fact that, with time, it tends to attract towards itself a significant portion of the population due to its initial socioeconomic prowess.

2.6.3 Sphere of Influence

Sphere of influence is sometimes called the market area of a settlement or a service, and it is the area affected or served by a settlement or a service (Ali and Varshney 2012). Thus the socioeconomic zones of control of a settlement or a service are the sphere of influence. The services of a hamlet or small village are mostly localised, hence the spheres of influence of those settlements aer therefore very limited. However, a large town serves the needs of its local inhabitants, and also has sufficient services to attract people from other complementary towns. It therefore has a large sphere of influence. Larger settlements like municipalities have a much larger sphere of influence than smaller ones. They have a stronger spatial interaction and connectivity with other centres and tend to attract people from a much wider range to access the facilities available. The sphere of influence is a useful way of organizing municipalities, towns and villages into a settlement hierarchy. The larger the settlement the greater its sphere of influence. It provides a clue for an insight into the usefulness of a settlement as well as the number of services it provides.

2.6.4 Implication for Urban Planning

A hierarchical categorisation of urban centres according to their function, population and sphere of influence is important to urban planners (Krugman 1996). A Settlement's functional roles as reflected in the ranges and amount of services and facilities available exert a gravitational pull for population concentration (Henderson 1974). For a balanced growth however, Berry and Horton (1970) proposed an array of competing growth points that sidesteps population spill over from a single central settlement. They propose a strategy that diffuses concentration from a single location as most ideal for a balanced regional planning. Hirschman (1968) writes that the development of a number of *growth points* or *growth poles* is the surest means to reduce regional inequalities and a condition for growth itself. Songsore (2009) on the other hand indicated that it was imperative to promulgate the development of medium-size towns in order to diffuse both entrepreneurial and infrastructural innovations from the centre to the peripheral areas a region.

For a prosperous and a sustained regional development therefore, planners bid to provide optimum service facilities. This should meet the needs of majority of the population in a way to avoid an under-supply or otherwise and also for a judicious use of an already limited financial resource (Krugman 1996). This is however a difficult issue to deal with, thus ensuring an efficient utility and accessibility of a hospital to serve as many people as possible, as well as the consciousness of not building too many facilities in a concentrated area to the detriment of other competing areas.

Broadly, government in its various units is the cardinal authority that spearheads the spatial diffusion of service facilities in Ghana (LGCSP 2013). When, where and the number of facilities are principally statutorily controlled. For instance, government may earmark economic zones, as

in Tema, as well as create districts in its decentralising process to direct growth and development. Understanding the roles of government in population and infrastructural diffusion in varying levels of settlements is therefore imperative for a broad-based spatial development. This topic on government's role would however be explored profoundly later on in the chapter.

2.7 The Trends and Patterns of the Urbanisation Dynamics

Approximately, about one of every two persons in the World is a "cityzen" (UN-HABITAT 2013), in that virtually a half of the World's population lives in cities. These urbanisation levels however vary across space, with figures as high as over 75%, in the most developed nations of Western Europe, North America and Australia. Southeast Asia and Sub-Saharan Africa still remain the least urbanised regions, with a respective 42 and 40 per cent of their population living in urban settlements. Expectations are that by 2020 all regions of the world will be mostly urban, with more than 60 percent urbanites (UN-HABITAT 2013).

2.7.1 The Growth of Towns in Africa

According to Dickson (1969) history has shown that African towns emerged in antiquity owing to their commercial viabilities (Timbuktu, Gao, Kano, Techiman), as well as serving as leading terminuses and distribution points for trade across the continent. Buah (1998) also argued that the proximity to an important resource (Johannesburg, Freetown), as well as serving as administrative capital (Kumasi) of ancient empires which predates Colonialism, were the foremost reason for formation of pre-colonial towns. However, European invasion with its westernised market economy that allowed for investments in resource-rich towns and also

establish administrative centres, became the impulses for the current urbanization trends (Aero 1992 as stated by Owusu 2005), since these factors promote the population concentration.

Notwithstanding, Fay and Opal (2000) seem to suggest that post-independence Africa was still under-urbanised although its socioeconomic structures had been modified significantly from colonial periods relative to how it was in the pre-colonial days. This was because the policies of colonial authorities curtailed the influx of population, hence concentration was controlled. The period of 1960-80 (SAP and ERP years) however, experienced the greatest rapidity in Africa's urbanisation process. This the World Bank (2010) referred to as resulting from an "urban bias" policies that gave town dwellers a comparative advantage on social facilities, wage differentials, food pricing and also favoured urban consumers over rural producers. This was further exacerbated by worsening physical conditions (drought) and civil strives in the rural areas during same periods (Songsore 2009). With the onset of population exodus in the wave of globalisation and Structural Adjustment Programmes, in an informalised economy, the urban space has come to be synonymous with the phenomenon of strangers' quarters (Zongo) syndrome, a menace for development planners, more as a results poor planning and infrastructure deficits (Songsore 2009).

2.7.2 Urbanisation in Ghana

Since 1948, the number of urban settlements in Ghana have escalated about nine folds from a mere 41 to a whopping 364 in 2000 (GSS 2005). During this same period, the urban population had also increased from 570,597 to 8,278,636 (Songsore 2009). With a population of 24,223,431 in the 2010 census, Ghana's urbanisation rate stands at 50.9% (GSS 2010). By 2025 it is

projected that the population would be about 31million, of which the urban population is expected to hover around 17million, representing about 55% of the total population (GSS 2010).

An overview of table 2.1 provides a break-down of the regional urbanisation dynamics from the 1960 to 2010 censuses. Except for Greater Accra Region, all others fell below 30% urbanisation rate in both the1960 and 1984 census, haven increased very marginally over the period. In the Western and the Central Regions for example, their rates had actually plummeted from the 1970 rates of (26.9% and 29.1%) to (22.6% and 28.8%) in the 1984 census. The Upper East and West Regions were overwhelmingly rural in 1960s' with a share of urban population only at 3.9% and 5.0% respectively. This only increased to a corresponding12.9% and 10.9% in 1984 census. It was at the turn of the millennium through to the next decade that most recognizable upsurges were recorded across board. In 2000, six of the regions were more than a third urbanised, a figure that had increased to eight by 2010, with the exception of the Upper Regions. The Greater Accra and the Ashanti Regions for instance recorded as high as 90.5% and 60.6% respectively in the 2010 PHC, making them the most significant contributors to the national rate of 50.9%. Indeed, these two regions still stand as the only regions with figures higher than the national average.

2.7.3 The Brong-Ahafo Region Urbanization Trends

The Brong-Ahafo Region has also experienced its own population change over the period. With a population of just over half a million (587,920) and the fifth most populous in the 1960 census, it recorded a population of (2,282,128) in the 2010 PHC, an increase of (288.2%) over the period of five (5) decades, though now the sixth most populous region in Ghana. It has been experiencing an average growth rate of 2.7% since the 1960s. This significant percentage increases in its total population had also reflected promptly in its urban population. With about

15.6% urban dwellers in the 1960, it recorded about 44.5% urbanization rate in the 2010 PHC, making it the fourth most urbanised region in Ghana in 2010 from a sixth in 1960. As stated above, the region contains some of the most prominent towns in Ghana. According to the LGCSP (2013), it contains eleven (11) of the sixty-two (62) medium-sized towns in the country, a feat only bettered by the Eastern Region at thirteen (13). However, Sunyani (78.1%), Techiman (59.9%), Berekum (65.5) and Kintampo (56.7%) municipalities are the only administrative centres with more than 50% urban population in the Brong-Ahafo Region. These are presented in table 2.1.

Table 2.1	**Distribution of Population by Region and Urbanisation Rates**									
REGIONS	**1960**		**1970**		**1984**		**2000**		**2010**	
	Total Population	***Urban Rate***	***Total Population***	***Urban Share***	***Total Population***	***Urban Share***	***Total Population***	***Urban Share***	***Total Population***	***Urban Share***
Western	626,155	24.7	770,087	26.9	1,157,807	22.6	1,924,577	36.3	2,325,597	42.4
Central	751,392	28.0	890,135	29.1	1,142,335	28.8	1,593,823	37.5	2,107,209	47.1
Greater Accra	541,933	72.6	851,614	85.3	1,431,100	83.0	2,905,726	87.7	3,909,764	90.5
Volta	77,285	13.1	947,268	16.0	1,211,907	20.5	1,635,421	27.0	2,099,876	33.7
Eastern	1,044,080	21.1	1,261,661	24.6	1,680,890	27.7	2,106,696	34.6	2,596,013	43.4
Ashanti	1,109,133	24.9	1,481,698	29.7	2,090,100	32.5	3,612,950	51.3	4,725,046	60.6
Brong-Ahafo	587,920	15.6	766,509	22.1	1,206,608	26.6	1,815,408	37.4	2,310,983	44.5
Northern	531,573	13.0	727,618	20.4	1,164,583	25.2	1,820,806	26.6	2,468,557	30.3
Upper East	468,638	3.9	542,858	7.3	772,743	12.9	920,086	15.7	1,031,478	21.0
Upper West	288,706	5.0	319,865	6.7	483,008	10.9	576,583	17.5	677,763	16.3
NATIONAL	***6,726,815***	***23.1***	***8,559,313***	***28.9***	***12,296,081***	***32.0***	***18,912,079***	***43.8***	***24,223,431***	***50.9***

Source: Population Data Analysis Report, 2005, GSS 2010.

2.8 Determinants of Urbanisation in Africa

As has been indicated, towns and cities do not grow in a symmetrical proportion owing to the spatial variations in their socioeconomic make-ups. Whereas certain cities as manifested in the West are promoting de-urbanisation, others in Sub-Saharan Africa are facing an urban sprawl (UN-HABITAT 2013). A variety of political and socioeconomic factors have been adduced to have intrinsically influenced the propensity of settlements to grow at various stages of a country's developmental trajectory. These may include: locational proximity, national policy, corporate decisions, regions' comparative advantages, in-migration, natural population growth and other sociopolitical forces. From these axioms, Quintana and Royuela (2013, p. 102) have posited that the growth of towns is a complex interaction between "infrastructure, economic and people". However, it is widely acknowledged that demographic forces are the proximate determinants of urbanisation. This is followed in the discussions below.

2.8.1 Demographic Forces and Population Concentration.

Conventional theories have established that demographic forces are the underlining causes of urbanisation especially in Sub-Saharan Africa. Migratory dynamics and natural increases such as mortality and fertility rates have severally been cited as the immediate demographic determinants of the urbanisation of a country. These elements are more prominent in the early stages of a country's socioeconomic developments (Agyei-Mensah 2002). In this section we focus on analysing the demographic dynamics of population changes over the years, as to which strand takes precedence in Ghana and study area of concern. From these, the research will focus on how each of these demographic forces has influenced the growth of the towns over the years so that

precautionary measure can be taken where necessary to avert any future repetition of the ills of urbanisation.

2.8.1.1 Natural Population Growth and urbanisation

The Rate of Natural Increase (RNI) as defined by United Nation Population Fund (2009), is the algebraic subtraction of the crude death rates from the crude birth rates. Therefore, natural population growth is the result of excess fertility over mortality generally due to relative improved infant mortality rates. According to UN-HABITAT (2006), in most developing countries today, the major contributor to urban growth is no longer dominated by rural-urban migration, because many more migrations now occur between smaller towns and cities or cities to cities. Natural population increase has therefore become the major contributor to urban growth especially in Sub-Saharan Africa where birth control measures are of lesser importance (Yaro et al. 2011). UN-HABITAT (2006) asserts that towns hitherto considered to be rural have assumed an urban status, not necessarily due to rural-urban movements but rather growth within towns themselves. This manifestation they argue, has led to the reclassification of hitherto rural areas into urban, thus increasing the number of urban centres and further speeding the rate of urbanisation.

This phenomenon is highly pronounced in Ghana as reflected in the number of areas defined as urban, having escalated about nine folds from 41 as in 1948 to 364 in 2000 (GSS 2005). The United Nations estimated that natural increase alone is the cause of about 60 percent of urban growth in cities of the world and even more in Africa (UN-HABITAT 2012). In Ghana for instance, Agyei-Mensah (2002) observed that the transition from high to low mortality rates, especially between the 1960s and 1980s, particularly in the urban settings, is an important contributor to the growth experienced in the Ghanaian urban population. Such growth is an

indication that the country is moving from the first stage of the demographic transition model (where both birth and death rates are high), to the second stage (where mortality reduces and fertility still remains high) (Agyei-Mensah 2002). In a country where records on mortality rates, especially at the district level are difficult to obtain, the RNI is a difficult measure to undertake. However, Total Fertility Rates (TFR) could be used as an indicator to assess the trend of growth. In this research therefore, the TFR, though lopsided, has been used as a surrogate measure for RNI, due to the scanty nature of records on mortality rates.

Current records from the various Demographic and Health Surveys (DHS) indicate that TFRs in Ghana have declined over the years from a national average of 6.4 in 1988 to 4.0 in 2008. But this is still far below the ideal replacement levels of 2.1. Regionally, fertility rates are still very high, with the Northern Region recording as high as 6.8 even in 2008 haven recorded the same rate in 1988. The least as is to be expected, was recorded by the Greater Accra Region at 2.5, the closest to the replacement level. Estimates are that at the current rates Ghana will reach its replacement level by 2050 (DHS, 2008). This is represented in table 2.2

Table 2.2: **Total Fertility Rate by Region**

Region	1988	1993	1998	2003	2008	Estimates		
						2015	**2020**	**2050**
Western	6.1	5.5	4.7	4.5	4.2			
Central	6.6	5.6	4.8	5.0	5.4	-	-	-
Greater Accra	4.6	3.6	2.7	2.9	2.5	-	-	-
Volta	6.7	5.4	4.4	4.4	3.8	-	-	-
Eastern	5.7	5.1	4.4	4.3	3.6	-	-	-
Ashanti	5.9	5.6	4.5	4.1	3.6	-	-	-
Brong-Ahafo	6.9	5.5	5.4	4.8	4.1	-	-	-
Northern	6.8	7.4	7.0	7.0	6.8	-	-	-
Upper East	6.8	6.4	5.0	4.7	4.1	-	-	-
Upper west	6.8	6.0	6.1	5.5	5.0	-	-	-
National	**6.4**	**5.5**	**4.6**	**4.4**	**4.0**	**3.8**	**3.5**	**2.1**

Source: DHS 1988, 1993, 1998, 2003, 2008, Ghana Population Stabilisation Report, 2011.

2.8.1.2 Migration and Urbanisation.

Within the current waves of globalisation, socioeconomic inequalities and urban biased policies, migration tendencies will continue unabated because employment opportunities and spatial developments continue to be concentrated especially in SSA (Yaro et al, 2011). Between 1948 and 1960, migration was virtually the single most important course of urbanisation in the World, contribution 98% of World's urban growth (UN-HABITAT 2013). Towns continually offer the greatest levels of opportunity for the socioeconomic well-being and a better life style of an individual by serving as poles where money and wealth are centered (Owusu 2005). Businesses that offer more jobs and better wages are consolidated in towns and government policies are as well urban inclined, a phenomenon Lipton (1977) referred to as "urban bias". Thus Cities are perceived as places offering better opportunities such as higher salaries, better services and better lifestyles. The general aspirations of man towards a better life will mean an attraction of people from a less endowed space into urban areas which are expected to be more resourceful (Yaro et al 2011).

Perhaps the challenges of the pastoral life in the rural areas themselves in SSA provide a greater incentive to move. Comparatively, the Rural socioeconomic space, according to Nurkse (1961) is generally regarded as backward and uncivilised and lacking the basic facilities for health care, water, education, electricity power supply and an effective transportation system for industrial takeoff. Farming, the mainstay of a rural community, is still in its drudgery state hence productivity is hardly beyond a household's basic sustenance. Songsore (2011) further observed that the unfavourable trade terms, where farmers are not able to break even or balance their

sheets, also worsens the plight of the rural the population. The obvious repercussions have always been a massing of rural populations toward towns supposedly to better their odds.

The UN-HABITAT (2008) postulated that migration alone currently accounts for about 40 percent of urban growth in the world. In Ghana for instance, between the periods 1948 to 1960, about 98% of the urban growths were caused by migration from rural areas to towns; mining towns, market centres, administrative centres, port towns (Songsore 2009). Even though migration contribution to Ghana's urbanisation trends have persisted, data from the GSS (2005) indicates a declined rate over the years, haven plummeted from 54.5 (1960-70) to 25% (1970-84) and 37% (1984-2000). Inasmuch as a settlement received population into its space, it also gives out population to other settlements, the difference of which is termed as Net Migration.

2.9 Service Infrastructure and Urban Growth

The functional definitions of settlements are manifested in the type, range and incidence of service facilities rendered (Grove and Huszar 1964), which may include social infrastructure (housing, health facilities, educational), political infrastructure (district assembly, courts) and economic infrastructure (market, banks, transport facilities and industry). The infrastructural base of a settlement system is therefore a fundamental determinant for broad-based regional development and plays a pivotal role in the distribution and concentration of the population of a town. The question as to which of the two parameters, population or infrastructure, exerts the initial impulse may not be given an explicit exploration here. Our concern is to acknowledge the general view that population has a very high propensity to attract its own infrastructure base to itself (Yaro et al 2011). Inasmuch as infrastructure itself also have an intrinsic capacity to attract

population to well-endowed spaces (Rodrique et al 2009). As population grows however, existing infrastructure generally becomes inefficient and need to be replaced or upgraded.

It critical to take notice of the roles of transport and communications infrastructure which are vital to spatial development and population concentration. The advantages of being connected to a transportation and communication facilities are just overwhelming. The construction and maintenance of roads, airports, habours, railways lines and other forms of transport systems determine to a large extent, the rate of growth of a settlement and its complementary areas (Rodrique et al 2009). Transport connectivity is perhaps the most important driver of city growth in developing regions (UN HABITAT 2013). Infrastructure development broadly has a huge trickling-down effect on other economic activities in a country, since most economic and entrepreneurial investment find face in the infrastructural base of a country.

The conundrum however as Satapathy (2007 p. 98) indicated, is the huge deficit in service infrastructure faced by developing countries, a deficit that has hindered their "entry into the elite group of economic powers". To Ncube et al (2010), improvements in the energy, transportation, health, communication and educational infrastructure need substantial investment to meet the rising needs of a surging economy and demographic changes if developing countries are to make any headway with their socio-economic prosperity. Despite the general dearth in the social and economic infrastructure base of developing countries including Ghana, national and regional administrative centres are much more pronounced in their infrastructural base than their peripheral areas and are bound to be net receivers of population.

This study will therefore seek to analyse the inter-municipal disparities in the socio-economic service infrastructure, as a way of defining the functional indices of the individual municipalities. It is evident that government policy directions command a huge weight in the attempt to propel economic growth. This it does through a myriad of fiscal policy directions via the growth of socio-economic infrastructural development.

2.10 Government Policy and the Growth of Towns

Since the city of the 21st century plays a more diverse role in national development, the role of government in that development cannot be overemphasized. Government controls the direction and momentum of growth, playing an overwhelming role in determining which town grows and at which pace (Sorenson (2001). This is even more pronounced in Africa, where government in its various tiers is present in every fibre of our societal underpinnings. When central authority adopts a macroeconomic policy direction or reforms, its target is usually sectorial specific and/or locational specific, with some areas reaping more benefits than others. In the areas of infrastructural development, apparently governments are the major if not the sole players responsible for determining where a road for instance is constructed which can sometimes be influenced by even mere social ties (MLGRD 2013). Thus, physical assets and amenities – water, sanitation, power supply, road networks – required to sustain both the population and the economy are statutorily managed. Government provides the niche to be explored by investors and other corporate interests for population to react upon.

In Ghana, one of the major policy strategies adopted in achieving a balance population growth has been the Decentralisation policy. It seeks to set up smaller towns into local level

administrative capitals, with the intention of serving as both administrative and economic growth poles that should have a greater domino effect on its tributaries (Owusu 2005). Central government cedes authority to sub-regional bodies to manage their local resource based on individual locational needs. More so, it is expected to provide the string for development at the local level and for our purpose, divert migration to other potential attractive nuclei, in order to avoid concentrations in few big towns (Katsiaouni 2003, Owusu 2005). Notwithstanding this, Owusu (2005) acknowledged that although Ghana's decentralisation is deemed to be highly successful as purposed, her urbanisation patterns have virtually not changed over the years. Accra-Kumasi prominence continues and there still remains massive concentrations in the regional capitals (LGCSP 2013). The point of note being that, a balanced spatial diffusion of development and populations from national capital to district capitals, remains one of the basic prerogatives of government policies decisions. Government is one of the most visible entities that can provide the counter mechanism to market forces, so as to ensure spatial equilibrium, by creating a multiple nucleus of development and population attractive centres (Owusu 2005).

2.10.1 A Reviewed of Urban Management Policies in Ghana

Generally, an effective urban management and development plan is crucial to the successful development of the "prosperous city" (UN-HABITAT 2012 p.5). In Ghana, it is at the behest of Ministry of Local Government and Rural Development (MLGRD), to adopt, implement, monitor and evaluate urban policy action plans, as well as to provide related public services infrastructure (LGCSP, 2013). With an urbanisation rate of over 51%, urban management perhaps needs greater attention now than at any time in Ghana's urbanisation history. Ghana has had a long history with its decentralisation process, as an urban management strategy, intended to promote

medium-sized towns, as economic growth points to spearhead the distribution of population in the phase of its urbanisation tendencies. All other strategies are expected to feed into this cardinal principle of developing a hierarchy of towns that ensure an equitable distribution of population among settlements of varying sizes (LGCSP 2013).

Evidently, urban management intervention in Ghana has tended to be tentative and patchily fragmented in various policy documents; Vision 2020, Medium Term Development Plan, Ghana Poverty Reduction Strategy I & II and so on. It is worth noting that, these are basically aimed at poverty reduction, rather than a comprehensively forward-looking action plans focusing specifically on the general urban and regional planning managements in Ghana. Hence urban management over the years has tended to be ad hoc and tackled through a number of policy intervention strategies generally under sponsorships of donor agencies without a clear-cut action plan. The Ghana Urban Management Pilot Programme (GUMPP) for instance is one of such sponsored programmes, and was piloted for selected Metropolitan-Municipal District Assemblies of Kumasi, Tamale, Sekondi-Takoradi and Ho (GUMPP 2010).

2.10.2 The National Urban Policy

The Ghana National Urban Policy (NUP), launched on 14th April 2013, represents the most comprehensive and participatory policy document on urban management in Ghana. It attempts to provide policy guidelines aiming to promote both sustainable urban development and also show environmental consciousness for prosperous growth of towns and cities in Ghana. It is generally an Action Plan proposal, whose implementation is expected to help ameliorate the dismal disparities in socio-economic development in the country. The NUP is pursued through twelve

key thematic policy objective areas in 76 initiatives and 277 activities. It details all expected interventions and their related actions within a five-year period. These twelve thematic areas are itemised as:

1. Re-distribution of urban population (3 Initiatives and 17 Activities)
2. Integrated hierarchy of urban centres (4 Initiatives and 17 Activities)
3. Urban economic development (8 Initiatives and 31 Activities)
4. Environmental quality of urban life (12 Initiatives and 51 Activities)
5. Planning and management of urban growth and sprawl (4 Initiatives and 18 Activities)
6. Infrastructure and services (8 Initiatives and 27 Activities)
7. Adequate and affordable housing (6 Initiatives and 19 Activities)
8. Urban safety and security (8 Initiatives and 21 Activities)
9. Urban governance (8 Initiatives and 27 Activities)
10. Climate change and adaptation (6 Initiatives and 17 Activities)
11. Research in urban and regional development (3 Initiatives and 8 Activities)
12. Urban development finance (6 Initiatives and 24 Activities)

The policy document is expected to encapsulate the needed framework to address the incessant retrogressive trends of urban management issues in Ghana, barring any implementation hitches. The underlining point is the recognition that a hierarchical population distribution in an equitable infrastructural base of urban centres seem the obvious means of offsetting the kind of exponential growths that characterise Accra-Kumasi and other allied regional capitals (Ewusi 1976, Owusu 2005).

2.11 Challenges of Urbanization

Cities have been variously described as the home of prosperity; which tend to promote the well-being of their inhabitants. However, because of poor urban planning and management systems of their spatial structures, the expected opportunities have created vulnerabilities such as joblessness, slum dwelling, urban sprawl, deteriorated social amenities, favelas, social exclusions and poverty, which have become synonymous with urban life (Brueckner and Helsey 2009). These urban blights are bound to fester because the trends are not slowing in any way as globalisation tendencies would bring even greater challenges to the world cities especially those in developing countries (Brueckner 2000).

2.11.1 Poor Spatial Planning

One major challenge that confronts city managers in Ghana and the sub-region as a whole is poor spatial planning. In Ghana, spatial planning does not keep pace with urbanisation, thus spatial planning documents are outmoded and obsolete before implementation begins (LGCSP 2013). The result of this situation is a lack of co-ordination between physical planning and economic programmes leading to urban sprawl and under-serviced urban neighbourhoods. The rapid sprawl of urban residential development to the city fringes, coupled with a gross lack of basic infrastructure and services, is the outcome of the lack of spatial planning and the non-enforcement of development regulations in the urban areas (Ewusi 1976). There is a general sense of anarchy and indiscipline in many Ghanaian urban areas, especially in Accra and Kumasi, where urban growth only responds to development, rather than a structured scheme of spatial planning (NPC 2011). The Brong-Ahafo Region's urban space has sometimes been praised as one of the best in Ghana (LGCSP 2013). Could this have been as a result of proper spatial planning?

2.11.2 Urban Sprawl

Like the adage *if you fail to plan, you plan to fail*, the result of poor planning has been the menace of sprawl. Sudhira et al (2001) asserted that urban sprawl is the outgrowth along the periphery of cities usually occurring along highways. While the definition of urban sprawl may not be rigorous, the general consensus is that urban sprawl is characterized by an unplanned and uneven pattern of growth driven by a multitude of processes, that result in inefficient resource utilization. Urban sprawl is generally caused by rapid urbanisation, high rent in city centres and the availability of cheaper accommodation and transportation at peri-urban areas. "Among the undesirable effects of sprawl are unplanned outgrowths, which are not aesthetic and sprang in an unhygienic manner" (Fay and Opal 2000 p. 9). Freire (2006) therefore recommended that a pattern of land use in an urban agglomeration should exhibit low levels of some combination of eight distinct characteristics: density, continuity, concentration, clustering, centrality, nuclearity, mixed uses and proximity.

2.11.3 Poverty and Rural-Urban Economic Inequality

The general assumption has been that urban dwellers in African countries are economically better off than their rural counterparts. Urban incomes are perceived to exceed those generated by rural economic activities and the rural- urban income gap is regarded as the main cause of rapid urbanisation, which is largely fueled via rural-urban migration (Songsore, 2009). Urban residents are perceived to have superior services facilities, such as piped water, schools and clinics which are important elements of their higher living standards (Owusu 2005). A common syndrome paradoxically perhaps, has been the apparent replication of rural poverty into the urban space. There has been a significant reduction in the standards of living of the urban poor, who

experience shortages of life's basic necessities: food, water and shelter, a similar plight to that of the rural dwellers (Ewusi 1976). A very prominent locality in the Ghanaian urban space where much of this urban poverty is pronounced has been the menace of stranger's quarter syndrome, popularly referred to as *Zongo* communities (Songsore, 2009).

2.12 Urban Management

The management of urban space is a herculean task for urban planners, as they struggle to deal with the incessant inter-sectorial urban blights and its allied issues. Van Dijk (2008 p.7) defines Urban Management as "the effort to co-ordinate and integrate public as well as private actions to tackle the major problems inhabitants of cities are facing, in an integrated way, to make a more competitive, equitable and sustainable city". To be specific:

- Urban issues are inter-related hence approaches to management should be integrated.
- The focus should be on the major issues urban dwellers are facing.
- The goal should be to achieve equitability and sustainability for a competitive city.

The adoption and implementation of an Integrated Growth Poles Strategy in urban management that recognise the hierarchy of settlements are essential if urban space is not to disintegrate.

2.13 Conceptual Framework

The growth of the urban space as stated earlier is a complex interaction between population growth, increased economic activities and infrastructural development in a space of government policy direction in a globalized word. Figure 2.1 depicts how these complex parameters interact in the urbanisation process of a settlement in most developing countries.

Usually, the initial growth in most developing countries is propelled by demographic factors in the form of migration and natural population increases. Infrastructure development (social and physical) also plays a fundamental role in response to population needs. The urban space then stimulates the growth of many more economic activities, further reinforcing the ensuing urban base in a virtuous cycle. Indeed, government's role in this cycle and regional development as a whole cannot be overemphasized, since most often than not, government decides on when and where an infrastructure facility and/or an economic activity should be located, sometimes with the intention of refocusing the direction of population concentration. It should be noted that communications infrastructure, particularly transportation, is fundamental to the growth and concentration of population, since the advantages of being connected to a large town are overwhelming.

As population grows further however, existing infrastructure becomes increasingly inadequate and obsolete needing to be replaced or upgraded. Studies have shown that government's initiatives on city managements and improvements in infrastructure in most African countries have tended to be a matter of adhocracy, due to initial poor spatial planning policies. Increased economic activities in retailing, banking, telecommunication and industrial development by both

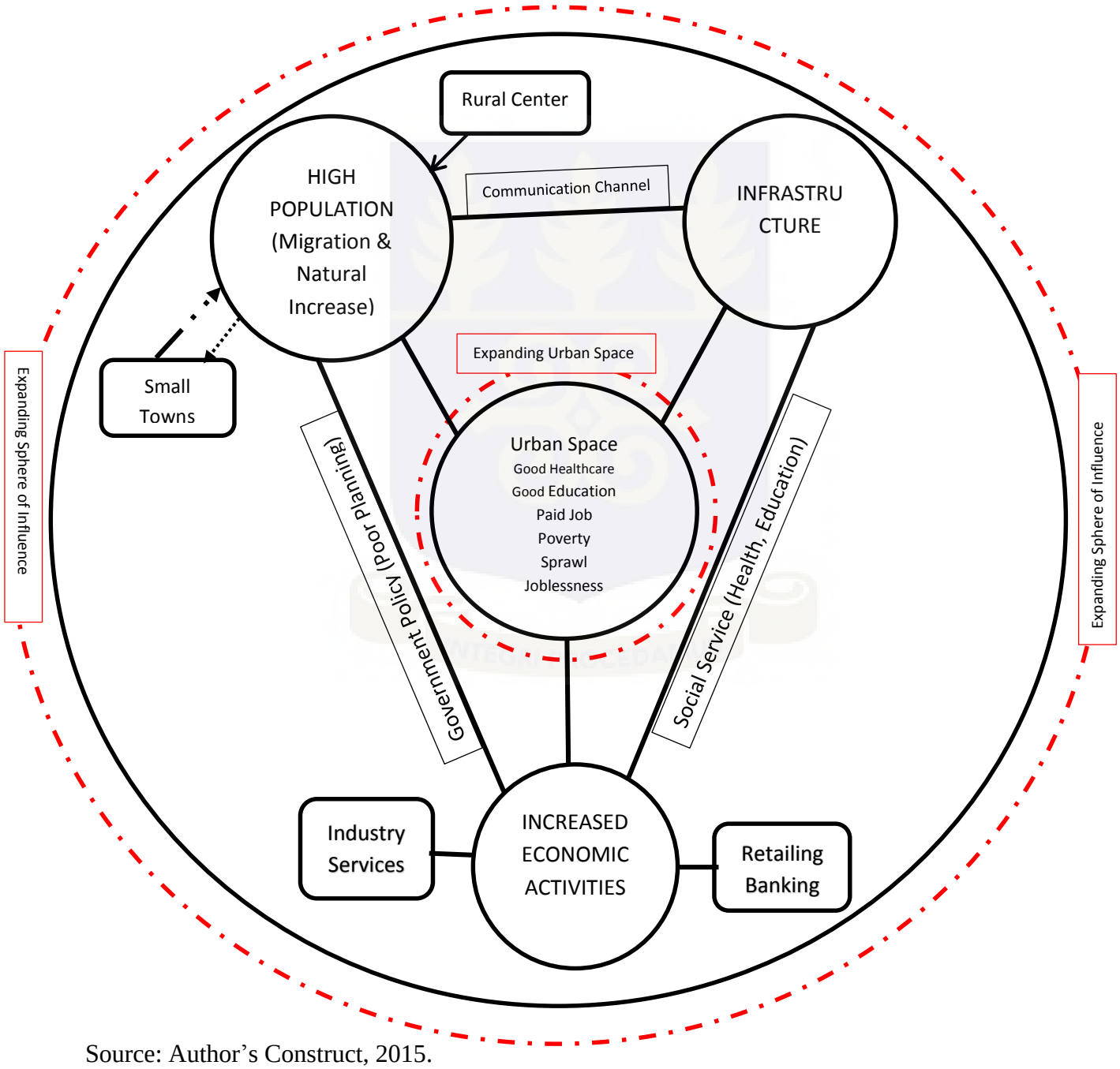
government and entrepreneurs, further expand the urban space even into complementary areas. If the settlement happens to be the only foremost town in the locality, its sphere of influence expands the more, because it becomes the focus of all flows (labor, capital, investment, vehicular) from tributary settlements. This continues until it meets an intervening opportunity which can counteract the incessant growth and influence.

However, because of poor planning of the urban spatial structure, development has become synonymous with population growth rather than the accompanied investment in social and economic infrastructure. By this tainted growth, the urban space expands only at a deteriorating rate. This degrades the expected prospect of cities (good education, good healthcare, paid jobs) that consequents into vulnerabilities with attendant urban blights: joblessness, slum dwelling, urban sprawl, deteriorated social amenities, favelas, social exclusions and poverty which have become synonymous with urban life in many developing countries.

From the stated objectives, the study seeks to analyse the spatial disparities in these complex interactive parameters (population, infrastructure, and economics) and how they manifest in the study area. Thus what are the dynamics of changes in population and how these contribute to the expanding urban space? Secondly, to examine the distribution and the functional structure (infrastructure and economic activities) of service activities, as indicators of urbanisation and population concentration. Lastly, to analyse how these municipal nodes interact with each other through flows, even as their economic zones of influence increase.

In figure 2.1, an increased population growth, resulting from the urban settlement's own natural growth, and a feed up from smaller towns and villages, in the space of an increased economic activities, the urban space and its economic zone of influence expands the more, but at a deteriorating rate due to inadequate infrastructure and service facilities.

Figure 2.1. THE SPATIAL DYNAMICS OF THE URBANIZATION TRIAD.



Source: Author's Construct, 2015.

CHAPTER THREE

METHODOLOGY AND THE STUDY AREA

3.1 Introduction

This study is approached from the premise that higher order settlements (municipalities) serve as growth points and attract populations from nearby clusters. They provide variety of economic and infrastructural services which are relatively in dearth at their peripheries. Hence, the combination of their populations, economics and infrastructure bases tend to consolidate their centralities. Based on these assumptions all the settlements under consideration are classified as medium-sized towns (20000-99999) by the MLGRD's (2013) draft report on urban hierarchy and are coterminous with seven of the eight municipal capitals in the Brong-Ahafo Region, therefore considered individually as central places. They render a number of high order services in administration, commerce, education, healthcare and communication. Using the Brong-Ahafo Region's urban space as a homogenous entity consisting of individual urban districts, the existing administrative boundaries are used as the delimiting points as well as the basic spatial unit(s) of analysis for the study areas. These nodes encompass the Asunafo North, Berekum, Dormaa, Kintampo North, Sunyani, Techiman and Wenchi municipalities.

For flexibility, the study adopts the use of the Case Study research design strategy, which allows to espouse a comparative analysis in order to appreciate and explain the spatial dynamics of the identified individual cases (municipalities). This helps to establish a systematic approach in looking at cases, collecting data and analyzing phenomena.

3.2 Research Technique

This thesis generally employs the use of the mixed method. Quantitative techniques are used to empirically gather and analyse numerical data and to examine the centralities of high order settlements (7 municipalities) within the urban space of the Brong-Ahafo Region of Ghana. Generally, there are two approaches or indicators of measuring the centrality of a settlement as espoused by Rahaman and Noor (2005). The first approach has to do with the delimitation of settlement's sphere of influence, by identifying the footprint of the central settlement in its underlying peripheral areas, using flow analysis: labour flow, commodity flow, capital flow or investment flow. This approach has been used by Carruchers (1957) and Johnston (1966) (cited by Rahaman and Noor 2005). The other approach which undergirds this research is the use of service indicators (development indicators) which was propounded by Dickenson (1942, as cited by Cloke 1983) and used by Grove and Huszar (1964), Kukadapwar and Adane (2006) and Ali and Varshney (2012). This involves a collation of a number of identified central functions of settlement(s). For a comparative analysis, this approach has severally been used due to its flexibility and the readily availability of data. It is deemed more suitable for the purpose of this research in a space of data constraints on flows. However, to analyse the spatial interactions and linkages between separate nodes, flow analysis is used as a surrogate measure on the inter-urban linkages. Qualitative techniques which have also featured prominently would be expressed in the data sources.

3.2.1 ***Sampling Procedure***

This research generally employs the use of purposive sampling procedures in the selection of the unit of analysis (municipalities) as well as their functional attributes. As a comparative study, individuals (Municipalities) were deliberately selected to advance an unbiased comparison of

like cases (central places) due to their unique positions as the foremost administrative centres in the BAR. By 2004, each of these administrative demarcations had been classified as a municipality and have therefore experienced at least a decade of a municipality status, hence their comparability is apt. This sampling technique provides the greatest insight to appreciate and address the research questions of interest so as to enhance the understandings of our selected individuals. This is because, the information needed cannot be provided by any other individuals. Maxwell (1997 p.87, as stated in Teddlie and Tashakori, 2009 p.301) argues that when ‘‘particular settings, persons or events are selected, for the important information they provide cannot be gotten from other choices’’, purposive sampling is ideal. Notwithstanding, this procedure is not arbitrary according to Harvey (2007).

In selecting functions that define a central place, it would be a bit superfluous to consider all individual functional attributes of the settlement. The obvious is to be judgmental and select functions that generically serve the socio-economic wellbeing of its populace and therefore, influence population mobility. However, this selection was not arbitrary, it was done under the stringent guide of criteria used by established authorities like Grove & Huszar (1964) and Kukadapwar & Adane (2006) in the field and slightly modified with the help of the Municipal Development Planners (MDPs) to suit our course.

3.2.2 Selection of Variables

The study area of the research is the Brong-Ahafo Region’s urban space, an area with a number of urban settlements. The specific areas consist of all the seven municipalities which had been in existence since 2004 as stated above. According to Cheshire and Magrini (2009, p.31), the

functions of a settlement are the "drivers of spatial inequalities". Therefore, to establish the spatial disparities of settlements' functional importance or degrees of urbanisation, the variables selected are functions of urbanisation and spatial development. These variable Rahaman and Noor (2005) have referred to as the indicators of population concentration, because of their essentialities to the development and growth of a spatial entity. They generally serve the needs of the people and therefore influence the directions of population flow since certain settlements are more endowed than others. The variables include a four broad service activities (administration, commerce, social services, and communication) in thirty-one (31) levels as shown in table 3.1.

3.2.3 Score of Variables

Services command a varying degree of importance to its users. It is therefore imperative to consider the levels of importance and weigh them, as used by Grove and Huszar (1964) as well as Ali and Varshney (2012). This is expressed quantitatively by converting the functional base of a settlement into scores on the basis of frequency and importance (Benison, 2010). On this premise, three (3) levels of higher order services (as ranked by the various government agencies; Ghana Education Service, Ghana Health Service, Ghana Police Service, Ghana National Fire Service, Local Government) of functional weightages are identified (low, medium and high) and correspondingly scored to one (1), two (2) and three (3). In an educational service for instance, by GES categorization, we can identify secondary (second cycle institutions), training colleges (Nursing and Teacher) and Tertiary institutions (Universities and Polytechnics). A second cycle institution in this instance is considered a ubiquitous facility hence least weighted. For our purpose, services are scored on a scale of 1-3, with a score of (1) being the least order of service (secondary institution) and three (3) constituting the highest order of service (Tertiary institution). Thus a service considered ubiquitous is scored one (1) whereas a rare but highly

centralised function is scored three (3). Services like a military barracks that has a major pull on population but could not be categorized into any level were all put under the medium level and scored as two (2). The range of scores is limited to 1-3 to avoid any colossal overestimation or underestimation that could arise from an inaccuracy of the score assigned to a particular level of function, such that any imprecision would give a small margin of error of about a score of one (1). Table 3.1 provides the range of services under consideration and their assigned weightages.

Table 3.1 WEIGHTAGES OF SERVICES ESTABLISHED BY LEVEL

SERVICE/FUNCTION	LEVELS		WEIGHT	S/N
ADMINISTRATION	POLITICAL	Regional Co-ordinating Council	3	1
		Municipal Assembly	2	2
	COURTS	High Court	2	3
		Local Court (District/Magistrate)	1	4
	POLICE STATION	Regional Headquarters	3	5
		District Headquarters	2	6
		Station	1	7
	FIRE SERVICE	Regional Headquarters	3	8
		District Headquarters	2	9
		Station	1	10
	MILITARY	Barracks	2	11
COMMUNICATION	POST OFFICE & TELECOM	Radio Station	3	12
		Telcos	2	13
		Post Office	1	14
	TRANSPORTATION	Main Road Junction	1	15
		Dual Carriage Road	1	16
		Transport Terminal	1	17
		Trans-Regional Route	2	18
		Domestic Route	1	19
		Airfield	3	20
COMMERCE	BANK	Commercial	3	21
		Rural	2	22
		Microfinance	1	23
	MARKET	Daily	2	24
		Periodic	1	25
SOCIAL SERVICE	HEALTH	Regional Hospital	3	26
		General Hospital	2	27
		Health Centre	1	28
	EDUCATION	Tertiary (Univ./Poly)	3	29
		Training College	2	30
		Secondary	1	31

3.2.4 Data Source

To examine the stated problem on inter-urban growth disparity, the study essentially relied on numerical data from a number of secondary sources, both published and unpublished. Primary data that are empirically verifiable were also taken to corroborate where necessary.

3.2.4.1. Secondary Data

Generally, the 2010 Population and Housing Census (PHC) served as the main demographic reference data. However, references were made to the preceding censuses reports (1970, 1984 and 2000) where needed. The other secondary data were obtained from different governmental agencies and municipal assemblies which include Municipal Directorates of Education, Health Directorates, Statistical Service, Police service, Fire Service, Departments of urban roads and Municipality's composite budget reports (2013). Data from working papers, publications and books on the subject from Ghana and other countries' urban growths were also very useful.

3.2.4.2. Primary Data

The main source of primary data was through a personal face-to-face interview with all the seven Municipal Development Planners (MDPs) of the study areas. (see Appendix III, which shows the interview guide). They were chosen because of their special knowledge and expertise in their individual municipal's urban space. Interview questions were structured to allow for replication but with a lesser control. Their views on the qualities behind the numbers, on development strategies, challenges and ways forward were deemed relevant to corroborate the secondary data. This offered a more complete explanation to the trends identified in the numerical data. Various transport Unions (GPRTU, PROTOA) in each of the municipalities were also consulted to gather data on vehicular flows and the interconnectivities between municipal nodes. This data was

restricted to an average daily flow of commercial vehicles (taxi and trotro) from one municipality to the other, and figures were not altered in any way. The researcher's own on field observations which included transit walking through the principal streets were also very much relevant to the study.

3.2.5. Data Analysis

For analysis of the demographic dynamics of the municipalities, descriptive statistics are generally used to summarise the data which are presented in map, tables and graphs. To enable us to forecast on the dynamism of future demographic characteristics, the study seeks to project future growth. The arithmetic population projection is expressed as:

PP = P1 + (r × t) **r = (P2 – P1) / 10**	**Where:** **PP** = projected population, **P1** = population of base year, **P2** = succeeding year of base year, **r** = annual growth rate of population (i.e. **P1** and **P2**), **t** = time interval between the base year and the year of which projected population would be estimated.

To analyze the degree of functionality/centrality of individual settlements, the study employs the use of various advanced statistical techniques (descriptive statistics, mathematical models) (adopted from Kukadapwar and Adane, 2006) by accounting for all the considered variables and the weightages assigned. Since the degrees of centrality is a function of incidence and levels of services delivery, we can calculate for the centrality scores of individual centres using the assigned weightages as expressed in table 3.1. The equation used for calculating the centrality

scores of a settlement is the algebraic summation of all the weightages of the functional unit of the settlement. Therefore:

Centrality score of settlement **'C'** for service **'X'** =

No. of units of services **'X'** in settlement '**C**' ***** weightage assigned to function **'X'**.

Therefore, total centrality score of settlement '**C**' = Algebraic sum of centrality score for all considered functions. Thus $\mathbf{C = X_1 + X_2 + X_3 + \ldots\ldots X_n}$

Where $\mathbf{X_1, X_2, X_3, X_n}$ are various services considered for calculating centrality of a settlement.

For comparison as well as clarity on how individual settlements are poorly or otherwise served with service facilities as against their population, I computed for;

i. Ratio of Facility to Population (FPR).

   Facility to Population Ratio = Total Population / Total number of facilities

   (FPR = TP/TF).

ii. Adequacy or inadequacy of socio-economic facilities

The study adopts the use of Relative Level of Urban Functional Ratio, to analyse the adequacy level of functions. A ratio of more than one (1) in a town refers to the adequacy of function, while ratio less than one (1) refer to the inadequacy of function in the town. This is expressed as;

RLUF➔ $\frac{Ps}{Pt} \chi \frac{Ft}{Fs}$	Where, **RLUF** = Relative Level of Urban Function between 'a' town and study area, **Ps** = urban population of study area. **Pt** = population of the town, **Ft** = functionality level of the town, **Fs** = total urban functionality level of the study area.

3.2.6 Measurement of Population Distribution Using the Lorenz Curve.

Population concentration is a function of service endowment of centres since people are more inclined to settle in more resourceful centres (Yaro et al 2011). The study therefore attempts to analyse the degree of concentration in the distribution of population, using the Lorenz Curve and its associated Gini ratio. This is calculated by using the cumulative proportion of population distribution as against proportion of density measured in area (km^2) to compute for the Gini Concentration Ratio. The value of the ratio ranges from zero to one. Zero indicates a perfect even distribution where all settlements (areas) under consideration have equal proportion of the population. One indicates absolute unevenness, where almost all population are concentrated in a specific area of the study area. Thus, the higher the value, the higher the concentration of the population within a specific area. For instance, the Greater Accra Region which is the most concentrated Region in Ghana, had a Gini Ratio of 0.72 in the year 2000 (GSS 2005) and this is deemed detrimental to a sustainable regional development.

3.2.7 Measurement of the Socio-Economic Zones of Central Places

To graphically delimit the socio-economic zones of each settlement as represented by their spheres of influence, we have to establish the radius of individual settlements. Ali and Varshney (2012) as well as Kukadapwar and Adane (2006) used the equation below to calculate the radius (sphere of influence) and the degree of centrality in of Aligarh and Maharashtra Districts in India respectively. Mathematically, this is represented as;

$D = \frac{TC * TA}{C}$ $R = \sqrt{\frac{TC*TA}{\pi*C}}$	**Where:** D = Degree of influence. TA = Total area of the region. TC = Total centrality value of a settlement. C = Total centrality of all considered settlements in the study region. R= Radius of circle indicating degree of influence.

3.2.8 Analysis of Qualitative data

Much of the qualitative data obtained through a face to face interviews were analysed generally by means of interpretation, inferences and cross referencing. This included the use of embedded quotations from the various municipal development planners (sometimes by direct quotations) to corroborate the secondary data and information from other institutions.

3.2.9 Limitations

It is worth to acknowledge that there were some difficulties encountered that restricted this research work and need to be pointed out. The broad classification of services seems to suggest that various services under similar categorization have equal value. However, it is acknowledged that some services have higher social values than the others. Nevertheless, the individual social values of services are not the purpose of this research, but rather their importance in defining an urban centre. On another level, not all central services rendered in a particular settlement were accounted for, especially with respect to retail patterns and this was due to data unavailability. However, as data become available, it would be appropriate to fine-tune along the line. It is also

acknowledged that the definition of the BAR as homogeneous region, seem as though the region has no interactions with the outside. However, this is done only to secure the originality of the region as a uniform administrative entity, with several socio-economic functions and internal flows, since interactions with the outside is difficult to assess. Lastly, due to the difficulties in assessing flows (Labour, capital, investment) and financial constraints, the study could not analyse the direct impacts of the municipal capitals on their immediate underlying hinterlands, which could have given a broader insight to the problem at hand.

3.3 PROFILING OF THE STUDY AREAS

3.3.1 Background of the Region

This section provides a general background of our study area, from the regional view into the individual municipalities. This is intended to provide a political and a socio-economic overview of the seven municipalities. Information on socio-economic issues, however relevant, maybe a bit scanty here, because, they would be used in details in the ensuing analyses section. The Brong-Ahafo Region is one of the ten administrative regions in Ghana which lies between longitudes $0^0$15'E to 3^0W and Latitudes $8^0$45'N to $7^0$30'N. It is the second biggest by land size with an area of 39,557 km^2 (SMA, 2012). The Region was carved out of the former Ashanti Province in March 1959 when the Brong-Ahafo Bill was passed under a certificate of urgency by Parliament. The Brong-Ahafo Act was enacted after receiving the Governor General's assent. Sunyani is the administrative capital of the Region (GSS 2013). There are currently 27 administrative districts (8 municipalities and 19 districts) in the region.

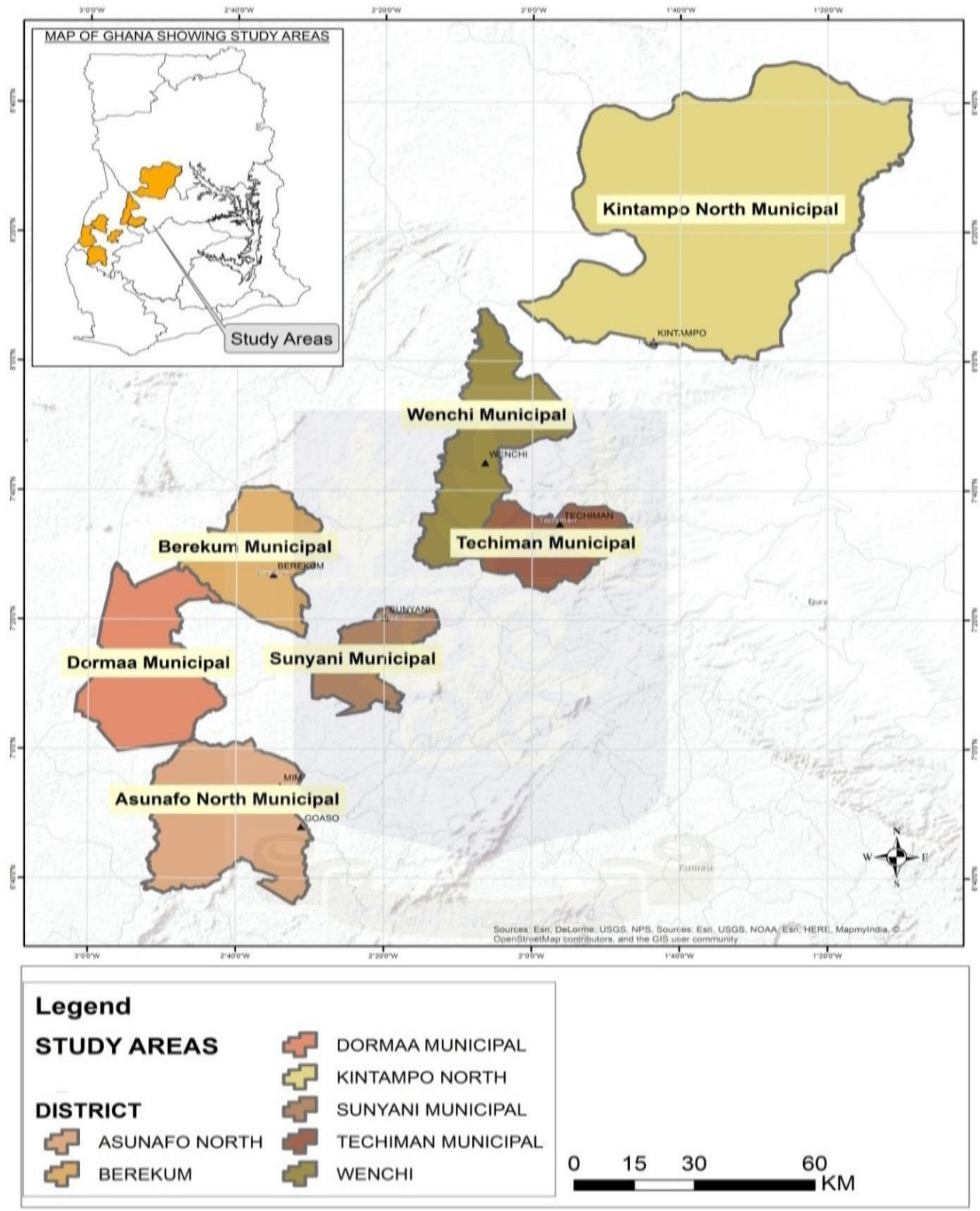
3.3.1.1 Relief, Climate and Vegetation

The Region lies within the middle belt of Ghana, with heights from 229 meters to 376 meters above sea level. The topography of the region is fairly flat thus suitable for large scale agricultural mechanization. It falls within the Wet Semi-Equatorial Climatic Zone of Ghana, with a monthly temperature between 23ºC and 33ºC with the lowest around August and the highest being observed around March and April. It has a high relative humidity which averages between 75 and 80 percent during the rainy seasons and 70 and 80 percent during the dry seasons, an ideal condition for luxurious vegetative growth (SMA, 2012).

The average rainfall is also at about 88.987cm, on a double maxima rainfall pattern. The main rainy season is between March and September with the minor between October and December. This offers two farming seasons in a year to support agricultural productivity. However, the rainfall pattern is changing over the years as a result of deforestation and depletion of water bodies resulting from human activities (TMA, 2013).

The Region falls largely within the Moist-Semi Deciduous Forest Vegetation Zone. This vegetation zone also contains most of the valuable timber species such as Wawa, Odum and Mahogany. As indicative of the characteristics of this vegetation cover, tree crops such as cocoa, citrus and cashew thrive well in this zone. As a result of lumbering and farming practices, most of the forest areas have been degraded, especially northwards where it transitions into the Guinea Savannah zone (SMA, 2012).

Figure 3.1 District Map of Brong-Ahafo Region Showing the Seven (7) Municipalities



Source: CERGIS, 2015.

3.3.2 Studied Municipalities

The research is studied from seven of the eight municipalities in the Brong-Ahafo Region which include the; Kintampo North, Dormaa, Berekum, Asunafo North, Wenchi, Techiman and Sunyani Municipalities. All of these had attained their municipality statuses by 2004 and therefore have had over a decade to implement and influence policy direction. A quick overview is expressed in the following paragraphs.

3.3.2.1 The Kintampo North Municipality

The Kintampo North Municipal Assembly was established by LI 1871 as a Municipality in 2007. However, as a local government authority, the Assembly has been in existence since 1988. Geographically, it is the central most location in Ghana, sited between latitudes 8º45'N and 7º45'N and Longitudes 1º20'W and 2°1'E. It shares common boundaries with five (5) other districts in the Country, namely; Central Gonja District to the North; Bole District to the West; East Gonja District to the North-East (all in the Northern Region); Kintampo South District to the South; and Pru District to the South- East (all in the Brong-Ahafo Region). The Municipal Capital, Kintampo, is about 130km away by road from the regional capital and lies east of the BAR Capital, Sunyani. The Municipality has a surface area of about 5,108km², thus occupying a land area of about 12.9% of the total land area of BAR (KNM 2012).

Demographic Characteristics

The Kintampo Municipality, per the 2010 PHC had a total population 95, 480, comprising of 51.5% female and 48.8% male. With a growth rate of 2.6% it was estimated to reach 111,263 by 2012. The Municipality has a population density of 19 persons per square kilometer. This implies that there is little pressure on the land with large tracts of land available for agricultural purposes and this has attracted a large number of migrants from the northern regions (GSS 2010).

Economic Activities

Economically, the municipality is purely agrarian inclined. About 71% of the population is engaged in agriculture and its related activities as their main economic activity. The remaining 28.9% population is distributed among commerce, industry and services. The major food crops produced are yam maize, cowpea, cassava, rice, plantain, groundnuts, beans, cashew, mango, tomato, onions, water melons, garden eggs and soya beans. There are weekly markets at Kintampo, Babatokuma, Dawadawa, Gulumpe and New Longoro where communities undertake commercial activities. Tourism is a very prominent revenue base for the municipality and these sites include; the Kintampo Water Falls and the Fuller Water Falls which attract both local and international tourists. There are also the Slave Market at Kunsu and the European Cemetery at Kintampo (KNM 2013).

3.3.2.2 The Dormaa Municipality

The Dormaa municipality is located at the western part of the Brong-Ahafo Region. It lies within longitudes 3º W and 3º 30' W and latitudes 7º N and 7º 30' N. It is bound in the north by the Jaman South district and Berekum municipal, in the east by the Sunyani municipal, in the south and southeast by Asunafo and Asutifi districts respectively, in the south-west by western region and in the west and north-west by La Cote d'Ivoire. Dormaa Ahenkro is the municipal capital, located about 80 kilometres west of the regional capital. The municipality has a total land area of 917 square kilometres, which is about 3.1 percent of the total land area of Brong-Ahafo Region and about 0.52 percent of that of the country. It has 296 settlements, one traditional authority and one constituency, namely Dormaa Central (DMA 2013).

Demographic Characteristics

The 2010 population and housing census puts Dormaa municipality's population at 159,789, which consist of 48.9% and 51.1% male's and female's population respectively. The population growth rate of the municipality since the 1960s has gradually declined from 4.0% to 2.1% in the 2010 PHC. It has a population density of 179 persons per square kilometer (GSS 2010).

Economic Activities

Dormaa Municipality is basically an agriculturally based economy and this sector alone employs about 66.3% of the active labour force. Indeed, it is the most agrarian of all the seven municipalities in our study area. Cocoa had been the dominant cash crop and it brought many migrants from other parts of the country, until a huge decline in the sector in the late 1980s. The municipality is now one of the leading poultry production hubs in Ghana with a very high numbers of poultry farms. There are two active market centres in Dormaa Ahenkro on Tuesdays and Kofibadukrom on Fridays (DMA 2013).

3.3.2.3 The Berekum Municipality

The Berekum Municipal Assembly was established by Legislative Instrument (L.I 1988). The total land area of the Municipal is about 955 km^2 which constitutes about 2.4% the area of the BAR. Berekum, the Municipal capital is 32km and 437km North West of Sunyani the Regional capital and Accra, the National capital respectively. It is bordered on the south by Dormaa East, on the east by the Sunyani Municipal and Sunyani West District, on the west by Jaman North and South District and on the north by the Tain District (BMA 2013).

Demographic Characteristics

The total population of the Municipal is 129,628, with a male population of 46.1% and a female population of 53.9%. It recorded a growth rate of 3.3% and it was projected to reach 138,183 by 2012. It has a population density of 136 persons per square kilometer, as per 2010 census (GSS 2010).

Economic Activities

The Municipality is endowed with huge economic potentials. It is mainly an agrarian economy, with the major crops cultivated being maize, yam, vegetables, cassava, cocoyam and plantain. Also flourishing in the Municipality are the production of Cocoa, cashew, citrus and mangos. Agriculture alone employs 57 percent of the population whilst industry and Commerce employs 17 and 26 percent respectively. Berekum has one of the largest markets in Brong-Ahafo Region. The market attracts people from all the adjoining Districts (Jaman North and South, Dormaa, Asunafo South) and even from Ivory Coast because of its proximity (BMA 2013).

3.3.2.4 The Wenchi Municipality

The Wenchi Municipality was established under Legislative Instrument (L.I. 1471) of 1989 as a District Assembly and later upgraded into a Municipality under Legislative Instrument (L.I. 1876) of 2007. The Municipality is located in the Western part of Brong-Ahafo Region of Ghana. It is bounded to the South by Sunyani Municipality and to the North by Kintampo South District. It also shares a common boundary with Tain District to the West and Techiman Municipality to the West. It lies within latitudes 7º 30’ South and 7º 15’ North and longitudes 2º

17’ West and 1º 55’ East. In terms of land size, the Municipality covers 1,296.6 Square kilometres. (WMA 2013).

Demographic Characteristics

The population of the Wenchi Municipal Assembly stood at 89,739 in the 2010 census, of which 43,973 are males and 45,766 are females representing 49% and 51% respectively. It also recorded an annual growth rate of 3.0 percent. In 2012, the municipality’s population was estimated to be 147,301. The population density of the Municipality is 69 persons per square kilometre as compared to that of the Region which stands at 59 persons per square kilometre (GSS 2010).

Economic Activities

The municipality is generally agrarian and this sector employs about 58.1% of the labour force. Cashew production is a very prominent cash crop in the municipality. Industrial activities used to be very much visible in the municipality as it housed the defunct British American Tobacco Company and a Tomato factory. The Wenchi market, with Thursday as the market day, is the only prominent market centres in the municipality. It is a generally a food crop market (WMA 2013).

3.3.2.5 The Techiman Municipality

Prior to the attainment of a district status, Techiman was part of the then Wenchi District, later the Nkoranza District and more recently the Kintampo District. The Techiman District Assembly was created in 1989 by Legislative Instrument (L. I. 1472) and later upgraded to a Municipality by Legislative Instrument (L. I. 1799) of 2007 (TMA 2013) and redefined in 2012 under LI 2096. The total land size of the Municipal Assembly is 669.7km2. This area forms about 1.69 percent of the regional land area. The Municipal Assembly is situated in the central part of the Brong-Ahafo Region and lies between longitudes $1^0$49' E and $2^0$30' W and Latitude 8^0 00' N and 7^0 35'S. It shares common boundaries with four other districts; three in Brong-Ahafo Region and one in Ashanti Region. The Wenchi Municipal to the West, Kintampo South is to the Northeast, Nkoranza South District is to the South-East and Offinso-North District (in the Ashanti Region) is to the south (TMA 2013).

Demographic Characteristics

According to the 2010 Population and Housing Census of Ghana, the population of Techiman is 206,856**.** Out of the total population, females form about 51 percent and remaining 49 percent constitute male population. The population density is estimated at 309 persons per kilometer square (GSS 2010).

Economic Activities

The municipality is one of the biggest commercial centres in Ghana, especially with the presence of the famous Techiman market, where traders from various parts of the country and even beyond converge. Despite the high presence of commercial activities, agricultural also plays a major role, providing about 41% of total employment. Cashew growing is the most dominant

cash crop grown in the municipality. There are as well a number of small and medium scale industries in the form pure water production and bakery (TMA 2013).

3.3.2.6 The Sunyani Municipality

The Municipal Assembly was established by the Legislative Instrument (L.I.) L.I. 1924 of 2008. The municipality lies between latitudes 7º 20'N and 7º 55'N and longitudes 2º 30'W and 2º 10'W. It shares common boundaries with Sunyani West District to the north, Dormaa Municipality and Dormaa East District to the west, Asutifi District to the south and Tano North District to the east. It covers a land area of 829.3 km^2 which is about 2.1 percent of the total size of the region. The municipal is the foremost settlement in the Region, therefore houses the regional capital as well as the Regional Co-ordinating Council (SMA 2012).

Demographic Characteristics

The population of the Sunyani Municipal Assembly was recorded to be 123,224 in the 2010 census, with an annual growth rate of 3.8 percent. Out of the total population 61,119 representing 49.6 percent constitute the male population while 62,105 representing 50.4 percent are females. In 2012, the municipality's population was estimated to be 147,301. The population density of the Municipality is 147 persons per square kilometre as compared to that of the Region which stands at 59 persons per square kilometre (GSS 2010).

Economic Activities

The municipality has a vibrant economy with a myriad of economic activities. It has a higher rate of service activities in telecommunication, commerce, and tourism, which employ about 59% of the municipal's labour force. The agricultural sector also employs 26% of the labour force, much

of which are concentrated in the rural communities. In the area of industry, there are a number of medium and small scale industries. The Sunyani market (Nana Bosoma market) is a vibrant food crop market and it is very active on Wednesdays (SMA 2012).

3.3.2.7 The Asunafo North Municipal

The Municipal Assembly was established under the Legislative Instrument LI 1873 of 2008. The area of district is approximated to be 1,093km^2 which is about 2.7% of the regional land area. It lies between latitude 6^0 27'N and 7^0 N and longitude 2.52^0 W on the western side of the region. It shares common boundaries with Asutifi District in the North-East, the Dormaa Municipality to the North-West and Juaboso Bia and Sefwi-Wiaso District in the Western Region on the South-West and Asunafo South to the south-eastern border. It was carved out of the then Asunafo District in 2004 (ANM 2014).

Demographic Characteristics

The population of the Asunafo North municipality per the 2010 Population and Housing Census stood at 124,685 representing 50.4% male population and a 49.6% female population. It had a growth rate of 2.8%. The population density is estimated at 309 persons per kilometer square (GSS 2010).

Economic Activities

Like many others, the municipality is principally an agrarian economy employing about 64% of the potential labour force. Agriculture activities in the municipality are centered mainly on crop production (cassava, plantain, cocoyam, yams and vegetables) and few cash cropping, especially cocoa. About 44.5% of the workers in non-agriculture sector also engage in agriculture as a

secondary occupation. The predominant farming system in the municipality is mixed farming (81%), followed closely by plantation and mono-cropping which contribute 15% and 4% respectively (ANM 2014).

3.4 Conclusion.

This chapter sought to provide an insight into the general guidelines used in the data collections which are deemed reliable even though much of the method used were purposive. The adopted case study approached gives the opportunity to advance an unbiased comparison of like settlements. Within the context of my stated objectives, secondary data was very relevant. However, face-to-face interviews were conducted to corroborate the numbers and the qualities behind the quantitative data. On a higher level, mathematical models have been adopted which further enshrine the validity of interpretations. In profiling the study area, even though it was acknowledged that detailed information on socioeconomic factors on individual municipalities are relevant, it was suppressed to avoid an over repetition in the analyses that would follow. However, it was evident that the agricultural sector has had an overwhelming influence on the employment trends of the region's labour force.

CHAPTER FOUR

THE SPATIOTEMPORAL DYNAMICS OF MUNICIPAL URBAN SPACE

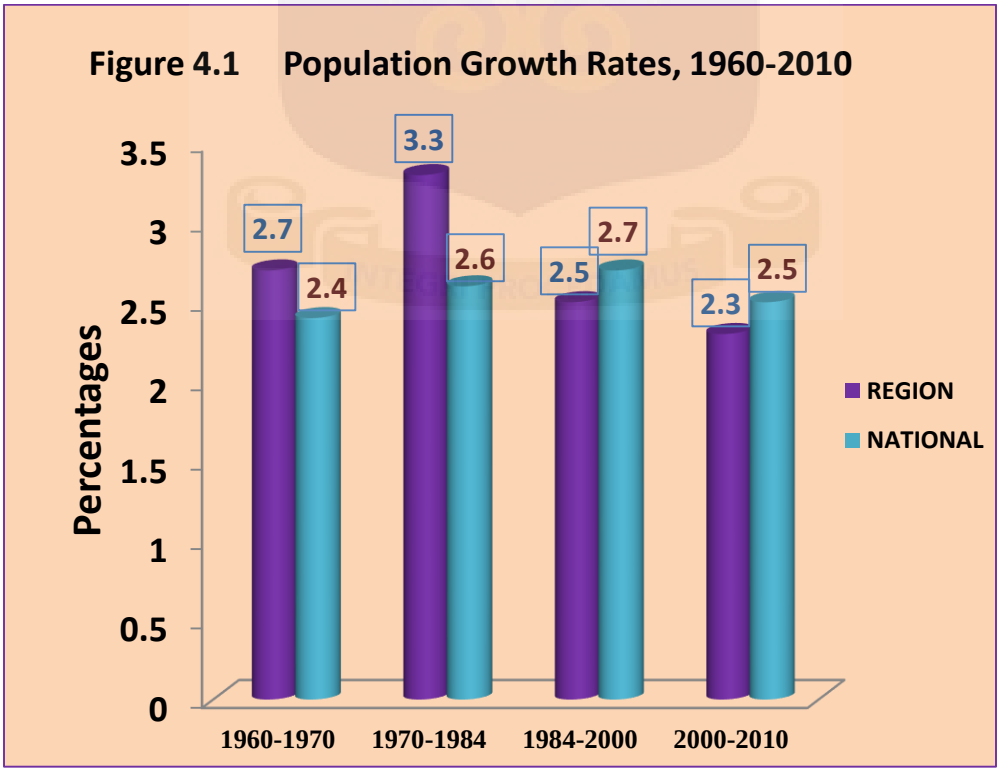
4.1 Introduction

As stated before, conventionally theories suggest that cities emerge from a synergic interaction between people, infrastructure and economic activities. The interplays between these parameters are therefore the indicators or drivers of spatial development and a subsequent urban growth and population concentration. However, these manifest themselves at varying degrees along the levels of a country's developmental trajectory and depending on which ever takes precedence at a point in time, drives the kind of urban system that are developed. In this first section of the analyses which tackles objective one, we explore the dynamics of population changes, as a factor of population concentration in the BAR urban space. Reference is given to demographic causes as well as the degree of concentration using the Lorenz curve.

4.2 The Spatiotemporal Dynamics of Population Changes

The study of population dynamics and their distribution in space and time are important source of information for administrative and socioeconomic planning, as well as for an overall national policy direction. It serves as indicator on the progress of development targets and for future predictions. In this section, the study brings to forth the spatiotemporal dynamics of population across space over the past five (5) decades. Emphasis is placed on the distribution (location) as well as the density, two closely related terms. However, distribution relates to the spatial pattern of spread whereas density denotes the ratio to physical space, as a means to assess their resource capacities.

Figure 4.1 compares the intercensal growth rates of four periods in the Brong-Ahafo Region as juxtaposed against the national rates over the same periods. Generally, the region has been experiencing an uneven growth over the period as compared to the steady national rates. Between 1960 and 1970, the BAR experienced a higher growth (2.7%) over the national rate (2.4%). This shot to a record high of 3.3% in the period of 1970-1984 even though the national rate had slightly increased only by a 0.2%. Within the last two decades however, the region has performed better and even fallen below the national growth rate, recording 2.5% (1984-2000) and 2.3% (2000-2010) respectively while the national rates remain fairly stable at a corresponding rate of 2.7% and 2.5%. From hindsight, it could be said that though a 2.3% regional growth rate is still considered high, the population has been increasing but at a declined rates and this is generally deemed as encouraging since the 2.1% replacement rate is well within sight.



Source: GSS 2010 Population and Housing Census.

4.3 Spatiotemporal Distribution of Population by Municipalities

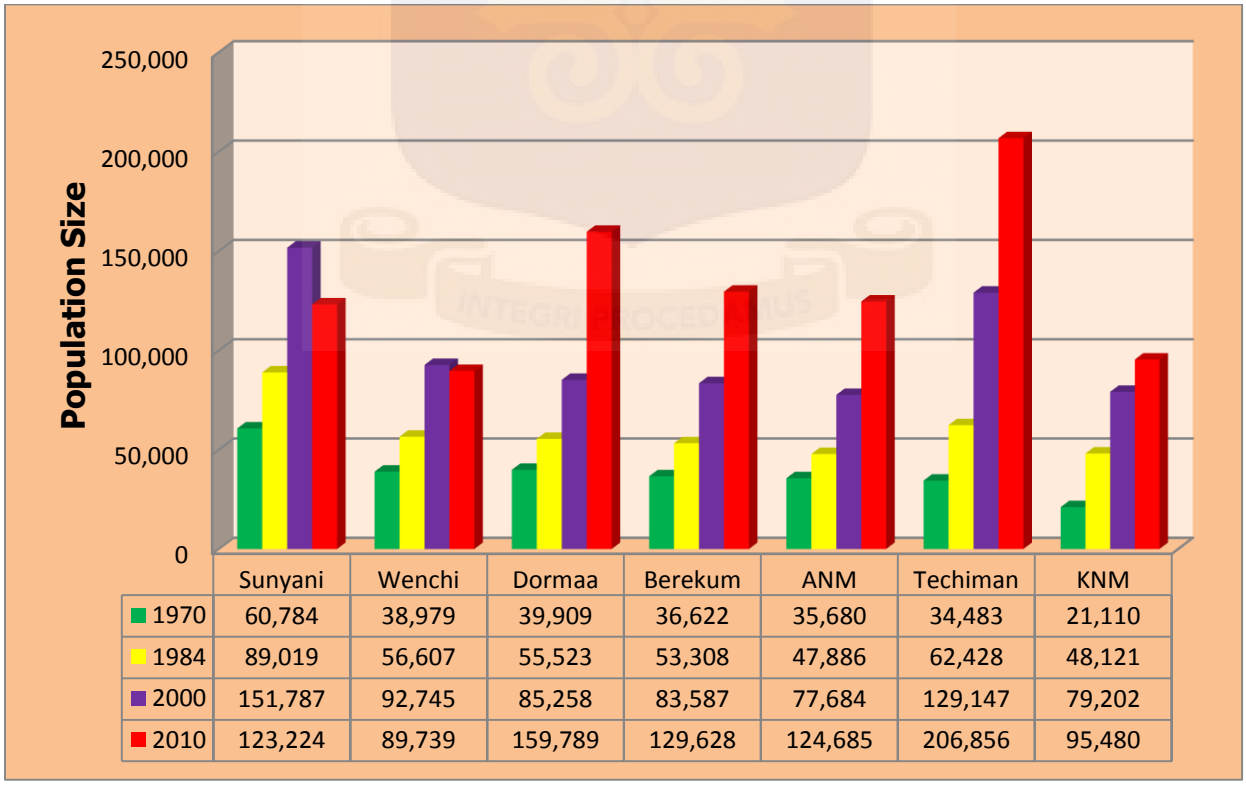
In Ghana, as Kofie (2001) puts it, the district level is the basic spatial unit for data collection, it therefore becomes imperative to mirror in on the municipal growths dynamics over the period. There are disparities in the population distribution across space and time within the urban districts of the Brong-Ahafo Region. The absolute numbers speak for themselves as populations of the municipalities have persisted unabated as shown in figure 4.2. Sunyani municipality had over the years been the most populous administrative demarcation in the region until 2000, haven over doubled from the 1970 (60,784) to 2000 (151,787). There was a slide to (123,224) in the 2010 PHC and this as iterated by the MDP *"was as a result of boundary redefinition of the Sunyani Municipality when towns like Chiraa, Odumase, Nsuatre, Fiapre and others, were carved out to form Sunyani West District",* whose population is almost as much as the Sunyani municipality itself.

From the 2010 census, Techiman is now the most populous municipality in the Region haven increased dramatically about six-folds over the period. Further probing revealed that unlike Sunyani Municipality, Techiman has many smaller settlements which all add up to the growth of the municipality. The growth of the Techiman Municipality can as well be explained from the literature, which suggest that the nodality (geometric position) of the municipality also plays an important role in its growth. Many movements from the northern parts of the country downwards, link up with Techiman which acts as an intervening opportunity absorbing some of these movements, hence, the rapidity of its growth. Wenchi Municipality had also been increasing until a slight fall in 2010 when the Tain district (which contained all but one hitherto towns; Badu, Seikwa, Brohani and Nsawkaw, in the Wenchi municipality) was created in 2004.

Significantly, Wenchi municipality was second only to Sunyani Municipality in the 1970 census. By the turn of the millennium into 2010, it had become the least populated of the seven. The Wenchi Township now remains the only town in the municipality as settlements like Awisa, Akrobi, Koase and Subinso No.2 are not yet considered as towns, at least by definition.

Dormaa, Berekum, ANM and Kintampo North Municipalities have however continued their incessant growth throughout the periods and have increased about four folds within the last four decades. Generally, the highest growths across board were recorded in the period between 1984 and 2000, when many of these settlements were yet opening up to the waves of globalisation, as this was also evident in the region's highest growth rate recorded at 3.3.

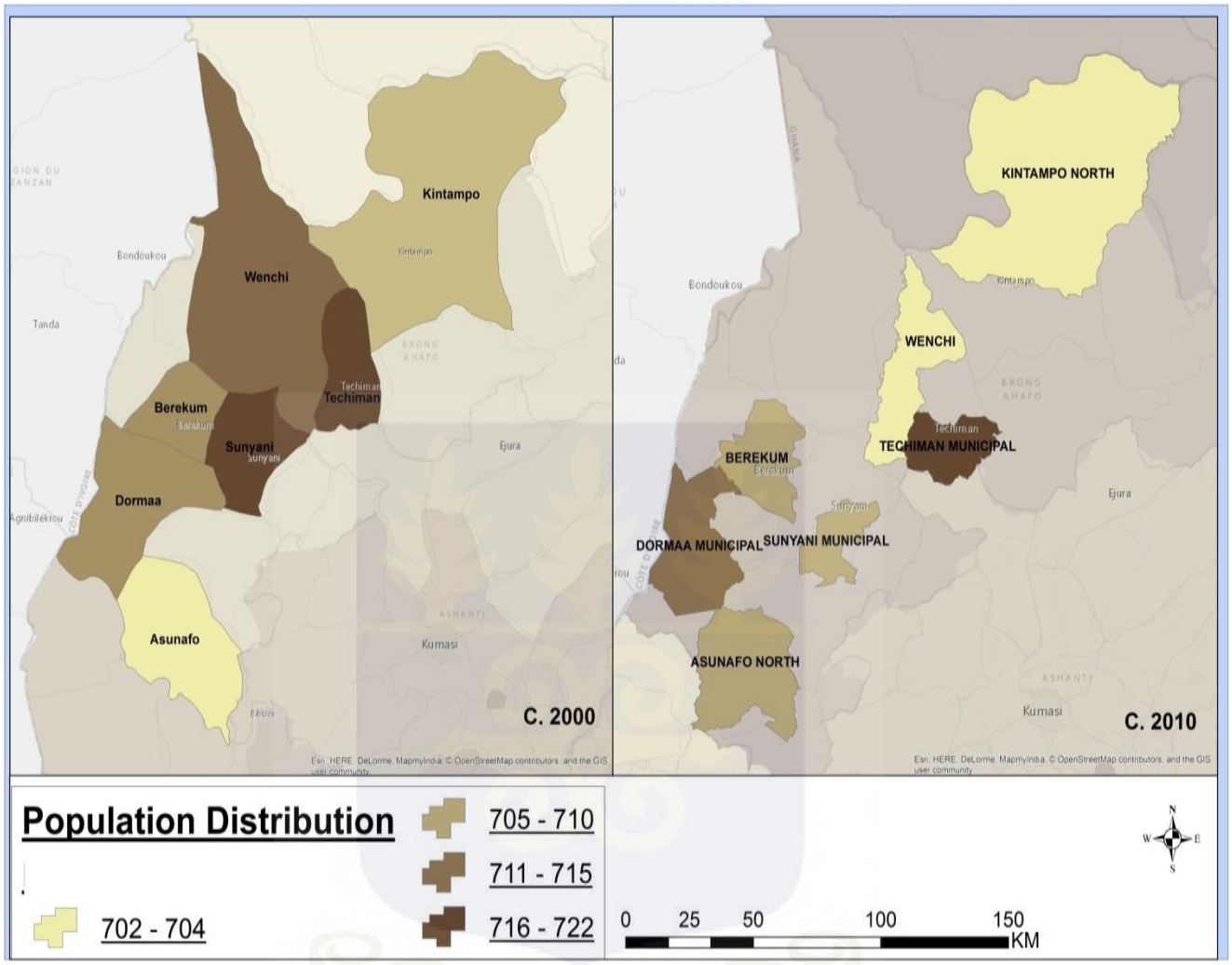
Figure 4.2 Spatiotemporal Distribution of Population by Municipalities



	Sunyani	Wenchi	Dormaa	Berekum	ANM	Techiman	KNM
1970	60,784	38,979	39,909	36,622	35,680	34,483	21,110
1984	89,019	56,607	55,523	53,308	47,886	62,428	48,121
2000	151,787	92,745	85,258	83,587	77,684	129,147	79,202
2010	123,224	89,739	159,789	129,628	124,685	206,856	95,480

Source: GSS 1970, 1984, 2000, 2010.

Figure 4.3 Population Distribution Map of the Municipalities, 2000, 2010



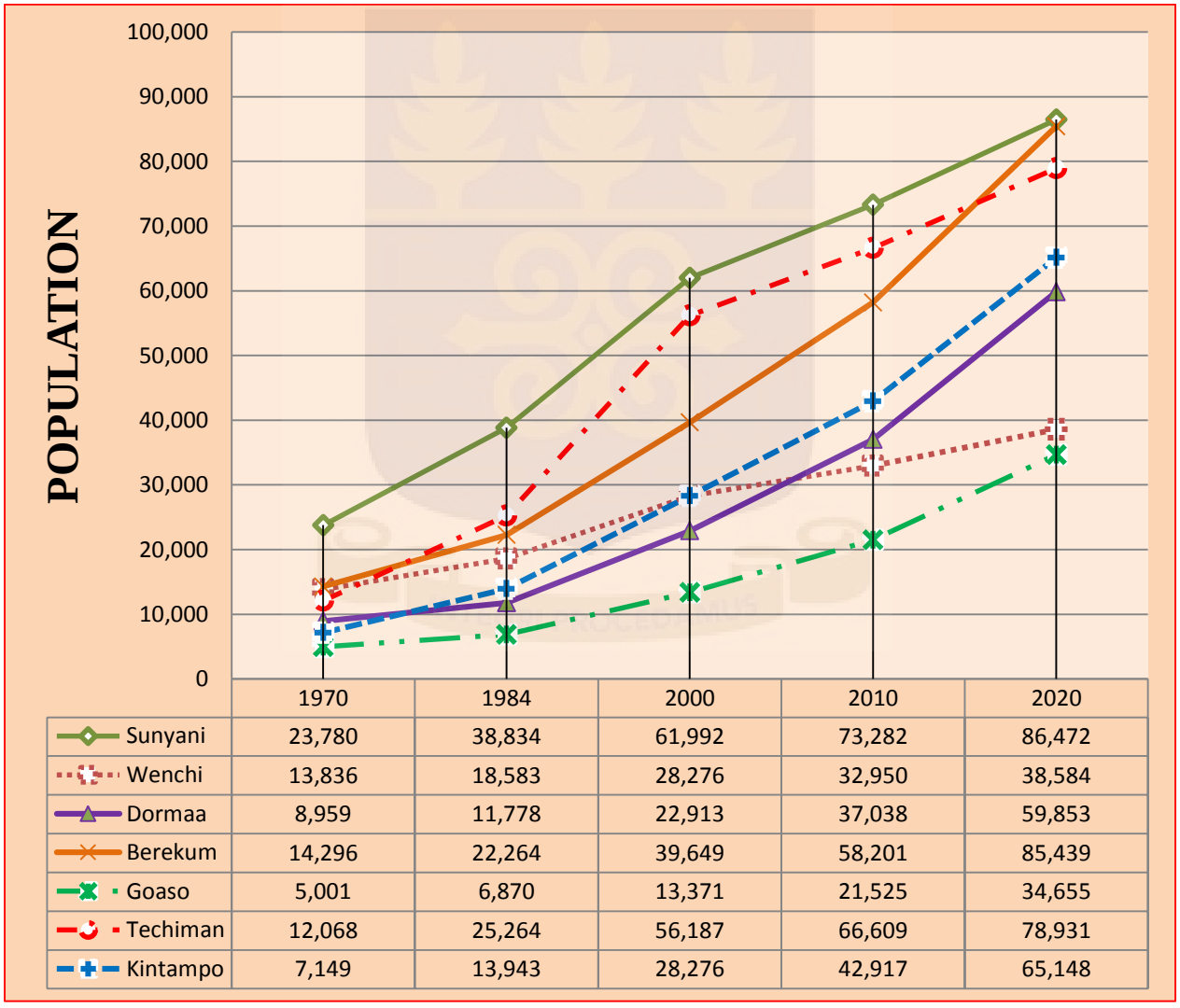
Source: Author's Construct, 2015.

4.3.1 The Spatiotemporal Distribution of Population by Municipal Growth Points

As the focal points of municipal decision making, the municipal capitals are generally the foremost settlements in their individual municipalities and with the expected domino effects, they tend to be the most populous settlements in all the various municipalities. Their incessant growths can be attributed to their prominence in service and industrial activities which tend to attract populations from their predominantly agricultural base rural peripheral areas, in line with

Arthur Lewis' (1954) "Dual Sector model", (*The rural surplus labour are attracted to the growing manufacturing/service sector where higher wages are assumed to be on offer)*. It is therefore imperative to assess the spatiotemporal population dynamics in these municipal growth points covering the periods 1970-2010 and make projections where necessary. This projection brings to bear the enormity of the population related problems that are likely to befall these towns in the next few years. This is represented in the figure 4.4a.

Figure 4.4a. Spatiotemporal Distribution of Population by Municipal Growth Points



	1970	1984	2000	2010	2020
Sunyani	23,780	38,834	61,992	73,282	86,472
Wenchi	13,836	18,583	28,276	32,950	38,584
Dormaa	8,959	11,778	22,913	37,038	59,853
Berekum	14,296	22,264	39,649	58,201	85,439
Goaso	5,001	6,870	13,371	21,525	34,655
Techiman	12,068	25,264	56,187	66,609	78,931
Kintampo	7,149	13,943	28,276	42,917	65,148

Source: GSS 1970, 1984, 2000, 2010

Figure 4.4a brings to forth the population changes of each of these growth points over the periods. Sunyani's lead has been unwavering across board as it has been the most populous town in the region throughout the periods. It has over tripled from 23,780 in 1970 to 73,284 in 2010. This is nothing too surprising owing to the prominence of economic activities in the town, as shall be seen later on. Closely matched has been Techiman Township, which has increased in five-folds from a mere 12,068 to a whopping 66,609 within the same period, bypassing towns like Berekum and Wenchi which hitherto were more populous. Wenchi's growth has been quite subtle over the years and it was only more populous than Goaso in the 2010 census. "*The close proximity to Techiman over the years, which has become a much more vibrant town I think is a contributing factor for Wenchi's slowness",* as indicated by the MDP (2014). Goaso's deceleration could also be explained by the presence of Mim (25,802), which stands to be the most populous town in the Asunafo North Municipality and therefore acts as a countermagnet to Goaso. It commands an equal, if not more growth impulse to population attraction. This scenario is supported by the literature that the creation of competing settlement, to serve as an alternative destination node is one of the surest strategies to reduce population concentration.

Using the 2010 municipal growth rates as a surrogate measure and all other things being equal, projections for the various municipal capitals were made for the year 2020, when the next census is expected to occur. Even though Sunyani (86,472) will still maintain its prominence, it is expected that this would be closely matched by Berekum at 85,439 inhabitants. Techiman (78,931) is also expected to continue its steady growth even though out paced by Berekum. On the contrary, the Techiman Municipal Development Planner was insistent that he expected Techiman to out-grow even Sunyani, becoming the most populous settlement in the region.

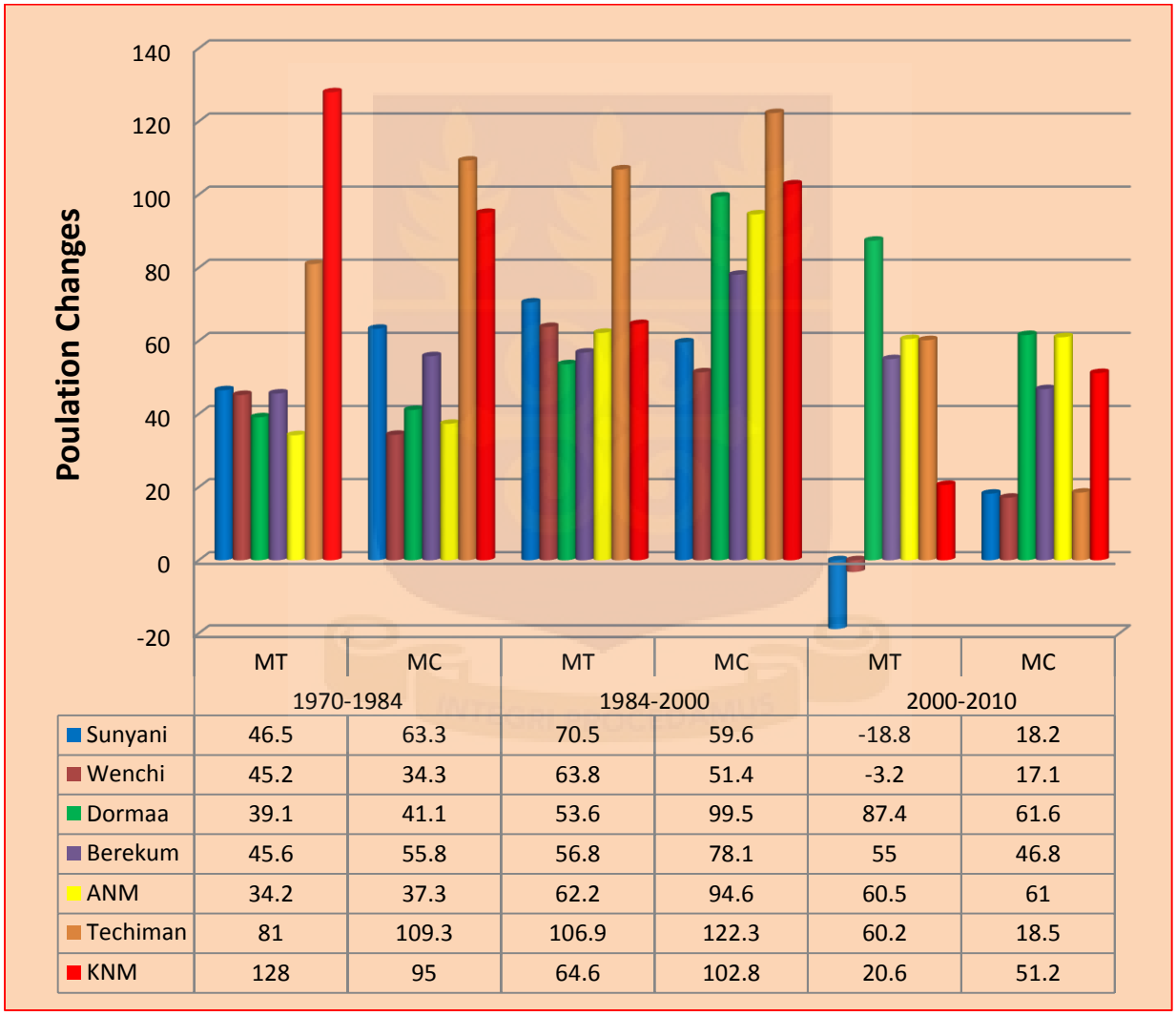
4.3.2 Intercensal Percentage Population Changes

Figure 4.4b seeks to assess and compare the percentage growths of population in each municipality as a whole, as against the municipal capital increases, covering three intercensal periods. This is intended to bring to forth the direction of movement whether the increases in each municipality were concentrated or distributed among several growth points.

Expectedly, the growths of individual municipal capitals have out-paced that of their municipal totals, which stand to suggest that there were more growths in the capital than in other peripheral towns, as suggested in the literature. However the growths within the Techiman municipality are particularly intriguing. From 1970-1984, the Techiman municipal population increased by 81%, much of this occurred in the Techiman township itself, which increased exponentially by 109.3%. From 1984-2000, where the highest figures were recorded across-board in all the municipalities, Techiman still showed the most prominence. The municipality grew by 106.9% whereas the Techiman Township increased by a whopping 122.3% over the fourteen-year period. Therefore between 1970-2000, Techiman remained the fastest growing as a municipality as well as a town. Indeed, in the 1970 census, but for the Kintampo North municipality, the Techiman municipality was the least populated among the other six. In the same census Techiman was the 4th most populous town of the seven towns. By the year 2000, as a town and a municipality, it had almost increased five-fold from just about 12,068 to 56,187 making it the second most populous town and municipality in the region, out-pacing Berekum and Wenchi. This was explained that, *during the period 1970-2000, the Techiman Municipality and more so, township became a very viable destination alternative to migrants from the northern parts of the country. Coupled with the famous Techiman market which had been an ancient market, received traders and buyers from all parts of the country and beyond. The municipal's urban space therefore took*

on a multiplicity of socio-economic activities which commanded huge growth impulses and population attraction. (MDP, Techiman, 2014). The growth rate has however been declining gradually in the last decade after attaining the feat as the most populous municipality in the region.

Figure 4.4b. A Comparison of the Intercensal Percentage Changes in Municipal Total, as against Municipal Capitals



	MT	MC	MT	MC	MT	MC
	1970-1984		1984-2000		2000-2010	
Sunyani	46.5	63.3	70.5	59.6	-18.8	18.2
Wenchi	45.2	34.3	63.8	51.4	-3.2	17.1
Dormaa	39.1	41.1	53.6	99.5	87.4	61.6
Berekum	45.6	55.8	56.8	78.1	55	46.8
ANM	34.2	37.3	62.2	94.6	60.5	61
Techiman	81	109.3	106.9	122.3	60.2	18.5
KNM	128	95	64.6	102.8	20.6	51.2

Source: Computed from GSS 1970, 1984, 2000, 2010

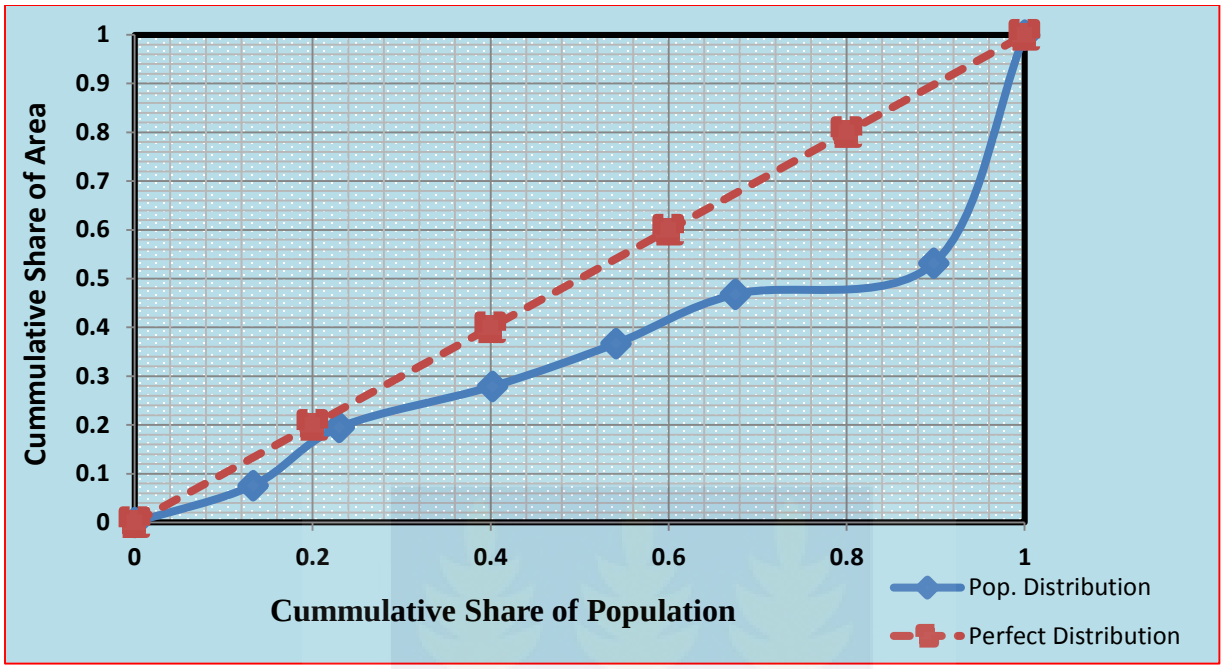
Key: *MT (Municipal Total)*
MC (Municipal Capital)

4.3.3 Concentration Index and Spatial Population Distribution

After a discussion on the spatial distribution of population, it becomes imperative to attempts to assess the degree of concentration of the population distribution across the municipal space. This is done by the use of Lorenz curve and its associated Gini ratio. Using population distribution as juxtaposed against Population density measured in square kilometres (Area in Km^2), the Gini Concentration index calculated for all the municipalities using the 2010 PHC was **0.229**, showing a fairly even population distribution. In other words, each of the municipalities under consideration proportionately has a fair share of population distribution such that no one municipality is overwhelmingly dominant beyond its spatial threshold. Notwithstanding, at the individual municipal level, a cursory review of the data in figure 4.2 as juxtaposed against table 4.4a reveals that there are concentrations toward the municipal capitals. This can be attributed to the fact that there are not many other competing towns in the various municipalities to acts as counter-magnets to the municipal capitals, hence almost all movement are channeled towards the foremost towns in each municipality.

To reiterate, in the case of the Asunafo North Municipality where Mim exerts an equal pull on population movement and also serves as a viable alternative destination node, urban population is equally shared with Goaso, the municipal capital. As a temporal analysis, it would have been more appropriate to compute for the Gini Ratio of other ensued years to assess the change over time, but the continuous redefinition of administrative boundary lines will not allow for a clearer temporal comparison.

Fig 4.5 Lorenz Curve on Municipal Population Concentration, 2010



Source: Computed from 2010 PHC. Gini Ratio = **0.229**

4.4 Municipal Urbanisation Dynamics and Population Density

This section analyses the dynamics of the urban milieu of the study areas. It starts with the intercensal growth rates of the municipal capitals and then delves into the urbanisation rates as well as the population densities.

***Table 4.1*: Annual Average Population Growth Rates of Urban Localities (1960-2010)**

Urban Localities	Growth Rates (%)		
	1970-1984	1984-2000	2000-2010
Sunyani	4.5	3.7	1.8
Wenchi	2.5	3.2	1.7
Dormaa Ahenkro	2.9	6.2	6.2
Berekum	4.0	4.9	4.7
Goaso	2.7	5.9	6.1
Techiman	7.8	7.6	1.9
Kintampo	6.8	6.4	5.2

Source: Computed from the 1970, 1984, 2000, 2010 census.

Table 4.1 brings to bare the annual growth rates as computed from the various censuses, which if juxtaposed against figure 4.4b above, gives clearer picture to the yearly rate of change of the foremost urban localities in the various municipalities. As stated above, but Techiman (7.8) Kintampo (6.8) and Sunyani (4.5) all the other urban centres experienced their highest intercensal growth rates in the 1984-2000 periods. Indeed, Dormaa Ahenkro had swelled by over two-folds from the 1984 figure of (2.9%) to (6.2%). However almost all the other urban centres, but Goaso, had plummeted in the 2000-2010 intercensal rates. Techiman had actually declined by 75% from (7.6) to (1.9) over the same period, only below Sunyani's (1.8%) and Wenchi's (1.7%). This was attributed to the fact that, many more towns have been emerging in the various municipalities, to act as intervening opportunities in the peripheral towns. Some of these towns which hitherto were givers of population had now become net receivers.

Table 4.2 also brings to forth the urbanisation rates as well as the population densities of the various municipalities as juxtaposed against their urban populations.

Table 4.2: **Municipal Urbanisation Dynamics and Population Density**

MUNICIPALITY	URBAN POP	MUNICIPAL CAPITAL		URBANIZATION RATES	LAND AREA KM^2	POPULATION DENSITY
		Total	%			
Sunyani	102,389	73,282	71.6	83.1	829.3	149
Wenchi	32,950	32,950	**100**	36.7	1296.6	69
Dormaa	54,532	37,038	67.9	34.1	917	174
Berekum	84,949	58,201	68.5	65.5	955	136
ANM	47,327	21,525	45.5	38.0	1,093	114
Techiman	123,939	66,609	53.7	59.9	669.7	309
KNM	54,212	42,917	79.2	56.8	5,108	19
REGIONAL	**1,028,473**	**-**	**-**	**44.5**	**39,557**	**58**
NATIONAL	24,223,431			**50.9**	238,533	**102**

Source: GSS PHC 2010

Sunyani, the most urbanised municipality (83.1) in the Region has about 71.6% of its urban population residing in the Sunyani Township, the most prominent urban agglomeration in the Region. Other peri-urban settlements like Abesim (16,862) and New Dormaa (5,118) account for the remaining urban settlements. In KNM, 79.2% of its urban population dwells in the Kintampo Township alone. Wenchi on the other hand with its 36.7% urbanisation rate, recorded a 100% of all its urban population leaving in the Wenchi Township, indicating that there are no other recognizable towns in the municipality which could serve as an intervening opportunity for Wenchi. Intriguingly, Techiman Municipality recorded the biggest urban population in the region, but percentage-wise, it is only 59% urban. Indicatively, Techiman Township, the foremost town, constitute just over a half of the total urban population in the municipality, the remaining half is distributed among other peripheral towns. In ANM, the whole urban population dwells in Goaso and Mim (25,802), the two foremost settlements in the municipality.

4.4.1 Municipal Population Density

Density, which denotes the ratio to physical space, is used to assess the resource capacities of settlements. In a predominantly agrarian economy and under technological constraints, land size is an important component for assessing the productivity levels of the population. The Brong-Ahafo Region is the second biggest by land size in Ghana. It recorded a population density of 58 people per square kilometer, making it is the third lowest after Northern Region (35) and Upper west regions (37), way below the national average of 102. The Techiman Municipality (309) is the most densely populated in the Region, followed at a distance by Dormaa (174), Sunyani (149) and Berekum (136). Wenchi and KNM recorded below 100 at (69) and (19) respectively. KNM's population density of 19 is still way below even the Northern region's (the least dense

region) average, therefore one of the least densely populated district in Ghana. Statistically, none of the municipalities can be classified as choked when compared with the Greater Accra Region's 1,205 persons/km^2. Since the BAR seemingly has a comparative advantage with its land resource and agriculture still the mainstay of the region, both intensive and extensive farming methods can be pursued vigorously making the region an agricultural hub of Ghana. It is observed that urban farming still features prominently even in their foremost towns of Sunyani, Techiman, Berekum and Wenchi.

4.5 Demographic Forces and Population Concentration/Urbanisation

As suggested in the literature, conventional theories have established that demographic forces are basically the underlining causes of urbanisation especially in Sub-Saharan Africa. Migratory dynamics and natural population increases (mortality and fertility rates) are the proximate determinants of the urbanisation trends of a country (Agyei-Mensah 2002). In this section the focus is on how each of these demographic forces has influenced the municipal population growths over the years, such that precautionary measure can be taken where necessary, to avert any future repercussions of the ills of urbanisation.

4.5.1 Natural Population Growth and urbanisation

The rate of natural increase has been recorded to be the leading cause of Ghana's urbanisation in recent times. However, due to the difficulty on getting data on mortality, we use Fertility rates of the individual municipalities as a surrogate measure to assess the contributions of the rate of natural increases on the population changes of the study municipalities.

4.5.1.1 Total Fertility Rates by Municipalities

Table 4.3 represents the total fertility rates of the municipalities from the five (5) Demographic and Health Surveys (DHS). The Brong-Ahafo Region's TFRs have gradually declined over the various DHS from as high of 6.9 (1988), 5.5 (1993), 5.4 (1993), 4.8 (2003), 4.1(2008). Indicatively, all the municipalities also recorded their highest total fertility rates in the 1988 Demographic and Health Survey and also their lowest in the 2008's, showing significant improvements over the years. With the exception of the Kintampo municipality (the northern-most municipality), all the other six recorded figures that are lower than the regional average. Perhaps, KNM's proximity to the Northern Region may mean it shares similar demographic characteristics as well.

Even though the Sunyani municipality's; the best performer, figure of 2.8 live births per woman is considered very impressive, it is still higher than the 2.1 replacement level. If TFR as has been indicated so far is anything to go by, it can therefore be established from the table that natural population increase is still a very significant determinant of the population growth of the region and more so, at the municipal level, because the lower the TFR and a subsequent reduction in RNI, the slower will the rate of population growth be and vice versa.

Table 4.3: **Municipal Total Fertility Rates**

MUNICIPALITY	1988	1993	1998	2003	2008
Sunyani	4.4	4.0	3.7	3.4	2.8
Wenchi	5.0	4.7	4.3	4.0	3.7
Dormaa	5.2	-	4.6	4.3	4.0
Berekum	4.8	4.3	4.1	3.9	3.6
Asunafo North	4.7	4.6	-	4.0	3.7
Techiman	5.1	4.9	4.2	3.7	3.3
Kintampo North	7.1	6.6	6.1	5.5	4.9
Regional	6.9	5.5	5.4	4.8	4.1

Source: Sunyani Municipal Health Directorate, 2012.

4.5.2. Migration and Municipal Population Growth and Concentration.

As stated, within the framework of globalisation and urban biased policies, movement between and within regions as well as cross boundary movements are expected to persist, especially as a result of the broad spatial inequalities in infrastructural facilities and space economies. With Migration being one of the major factors influencing urbanisation trends, we analyse the spatial dynamics of the migration trends among the individual municipalities as shown in in table 4.4. Within the framework of the difficulty in tracking the internal movement of population, the 2010 PHC uses place of birth of respondents as important surrogate indicator for understanding the internal movements of the people between centres within the region and without at a given point in time. For our purpose an extraction has been done to bring to forth the patterns of migration within and without the Brong-Ahafo Region.

Generally, as shown in table 4.4, the Brong-Ahafo Region is a net receiver of migrants, in that 32.5% of its populations are immigrants from other parts of the country and neighbouring countries alike. However, there are much more intra-regional movements across board. In the Sunyani municipality (the most cosmopolitan) for instance, as many as 53.7% of its population are immigrants and 30.5% of these are actually outside the boundaries of the BAR, with the Ashanti region alone contributing about 9.5%. The remaining six (6) municipalities have more indigenes than migrants, with the Berekum municipality recording the highest at 76.3% indigenes, followed by Dormaa and Wenchi municipalities at 69.0% and 67.2% respectively. Intriguingly, a whopping 14.0% of the population of Wenchi municipality are immigrants from the Upper West Region alone, also a 7.4% of Techiman municipality's population are also from the Upper West Region. In the Kintampo municipality for instance, a 10.2%, 5.3% and 2.4% of

the population are from the Northern Upper, Upper West and the Upper East Region respectively, a trend that can be adduced to the singularity of the Wet Season (four months spell of farming all year round) in the northern sections of Ghana.

From all indications, migration is a major contributor to the urbanisation trends of the Brong-Ahafo Region making the region a net receiver of population. Most of these immigrants do however settle in the urban centres, further soaring the urban population. Overall, Ghana's population movement is tilted southwards, it was therefore expected that the northern part of Ghana will be the highest contributor to the soaring immigrant population of the Brong-Ahafo Region as manifested in table 4.4. Apparently, proximity of the region to the north makes it a viable intervening opportunity for the southern regions and a probable destination node for the northern regions.

Table 4.4: **Matrix of Place of Birth by Population/Migration Dynamic**

Municipality	Same Locality	Diff locality, Same region	W/R	C/R	BA/R	V/R	E/R	A/R	N/R	UE/R	UW/R	Outside Ghana	Total
All Municipalities	**67.5**	**11.7**	**1.0**	**0.7**	**0.7**	**1.4**	**0.9**	**3.9**	**3.9**	**2.7**	**4.6**	**1.0**	**100.0**
Asunafo North	59.7	12.3	1.5	1.3	0.8	1.4	2.1	**9.8**	3.4	4.4	2.5	0.9	100.0
Dormaa	69.0	18.2	0.8	0.5	0.4	0.4	0.6	2.1	1.4	2.6	**2.8**	1.2	100.0
Wenchi	67.2	9.3	0.7	0.4	0.4	0.4	0.5	2.5	2.2	1.3	**14.0**	1.1	100.0
Berekum	76.3	13.3	1.3	0.9	0.4	0.5	0.7	**2.4**	1.2	1.2	1.2	0.5	100.0
Sunyani Municipal	46.3	23.2	2.2	1.9	2.2	1.7	2.5	**9.5**	2.9	3.0	3.4	1.2	100.0
Kintampo North	60.8	14.7	0.4	0.3	0.7	0.7	0.6	2.3	**10.2**	2.4	5.3	1.6	100.0
Techiman	61.5	14.4	1.1	0.7	0.6	0.6	0.9	4.0	4.4	3.0	**7.4**	1.3	100.0

Source: Extract from 2010 PHC, GSS.

Table 4.5: **Proportion of Population Due to Migration/Natural Increase**

	Migration	Natural Increase
Region	**32.5**	**67.5**
Sunyani	53.7	46.3
Wenchi	32.8	67.2
Dormaa	31.0	69.0
Berekum	23.7	76.3
Asunafo North	40.3	59.7
Techiman	39.2	60.8
Kintampo North	39.0	61.0

Source: Computed from 2010 PHC.

A comparison of the two parameters; RNI and Migration, as shown in table 4.5 indicates that even though natural population growth is now the dominant determinant of population growth in the region which is the usual trend in SSA, migration role cannot be underestimated. As much as a third of the region's populations are immigrants from other parts of the country and the sub-region making it a net receiver of population. This is highly influenced by its location as an intervening opportunity between the north and south of the country. Sunyani municipality, consolidated its cosmopolitan status by recording about almost a half (46.3%) of its total population all being immigrants. It is a bit baffling to note that, Berekum, the second most urbanized municipality, recorded the least numbers (23.7) of immigrants, as this trend is not particularly supported by the literature. Perhaps it is as much viable to absorb much of its own population which would hitherto have moved to settle in Sunyani. This was iterated as; "*Berekum has almost everything that Sunyani has, why move to settle there when you can enjoy life in full here"* (Berekum MDP, 2014)

4.6 Conclusion

The spatial and temporal trends of population has had a major influence on the urbanisation dynamics of the Brong-Ahafo Region. It is acknowledged that population growth in the region and at the municipal levels, do not differ much from the general trends in the country, where population growths are generally high. Though still predominantly rural, it is opened to flows from several part of Ghana, making it a net receiver of population. Its strategic location makes its a vibrant intervening opportunity between the southern and the northern Regions of Ghana, a position which is crystalized by the number of second order towns its contains.

Ostensibly, the urban population upsurges as has been enumerated tilt towards the municipal capitals. However, natural increases still remain the most prominent contributor to the population growth trajectory, notwithstanding the high immigrant populations. Population control measures which reduce the RNI will in the long run help to reduce their incessant growths, since migration can barely be curtailed in a unitary state like Ghana. It is however refreshing to state that proportionally, the population of the region is fairly distributed with no overwhelming skew even though Techiman's growth has been very resounding.

CHAPTER FIVE

THE FUCTIONALITY AND SPATIAL INTERECATION OF SETTLEMENTS

5.1 Introduction

This chapter deals with the last two objectives as they are very much related. Central settlements provide a wider range of functions to serve its own populations and its peripheral areas. As urbanised municipalities, they are expected to exhibit the characteristics of urban life which are reflected in the kind and incidence of central function offered. An analysis of the functional indices in the municipalities are therefore vital to assess the spatial disparity of service facilities and their distribution across space. These centres as well interact with each other in several ways and the magnitude of these interactions is a function of a settlement's functional importance and sphere of influence. Flow analysis is an important means of measuring this interaction since the intensity of flows between settlements also helps to define an urban centre. In this section, the study analyses the functional dynamics as well as the spatial interactions between municipal nodes through their economic zone as well as average vehicular flows.

5.2 The Functional Structure and the Centrality Index

All settlements offer a myriad of functions to serve its inhabitants and the magnitude of these defines it functionality level. Some of these are reflected in the sectoral employment indices which all add up to define the centrality level of the settlements. The functional structure and sectoral analyses are done in the following paragraphs.

5.2.1 The Industrial Sectors

The industrial sector of the economy of the region has performed poorly over the years and does not command much impulse as would have been expected. This is further exacerbated by the dearth in credible data availability on the sector. However, there were glaring industrial activities ranging from household industries, handicrafts, modern craft Small/medium scale manufacturing. Sawmilling for instance is an important industry in this sector and it is more pronounced in the Asunafo North municipality more so in Mim (a very important sawmilling town in Ghana), whose prominence especially in time past was *"driven virtually solely by this industry". Even though other activities have emerged, it is still a major contributor to the municipal revenue base and used to employ many people from the municipality and beyond"* (ASN MDP, 2014). There are a few other sawmills in Sunyani, Techiman and Berekum municipalities as well.

It is worth to focus on Wenchi, a town which hitherto was a very prominent industrial hub in the region and Ghana as a whole (WMA, 2013). This town has dwindled significantly because;

Much of our factories including the British American Tobacco Company (BATC), Mango processing company and the Tomatoes factory are all considered defunct now. Stone quarry remain the only visible industry in the municipality, the rest are small scale production which include bakery, soap making, and gari processing (Wenchi MDP, 2014). Evidence of this is the conversion of the BATC into now the Methodist University, Wenchi campus. This trend again solidifies the general decline in the Wenchi municipality's population.

The Berekum industrial sector comprises of agro-processing, processing of sachet water, metal and wood-based industries. In Sunyani however, there are a number of medium and small scale ones comprising of sachet water production, sawmilling, and production in pharmaceuticals. Other small scale industries include printing works, traditional household industries and diverse forms of agro processing. Techiman though still subtle, has a number of emerging industries in oil extraction, lumbering and wood milling and processing of perishable foods such as tomatoes and fruits, the most prominent being the Ghana Nuts Company Limited.

5.2.2 Municipal Employment Percentage Index.

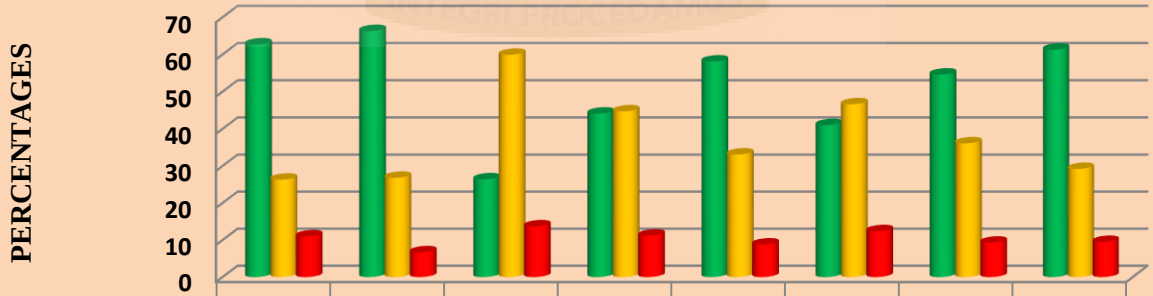
As has been stated, employment index is also an important ingredient in defining an urban area. As a general feature of urban communities, majority of the employed population should be in the non-agricultural sectors of the economy. Herbert and Thomas (1990) consider seventy percent as more ideal (70%). However, a LGCSP (2013) report on hierarchy and functions of urban settlements in Ghana revealed that the Brong-Ahafo region is second only to the Northern Region when it comes to performance in agricultural sectors. Hence self-sufficiency; a suggestion that, the region is generally agrarian, which is not surprising owing to its 55.5% rustic population. Expectedly the less urbanised a community is, the more active is it likely to be in the agricultural sectors of the economy and otherwise. Figure 5.1 analyses the employment index for the various municipalities to ascertain this claim.

Dormaa, Asunafo North and the Wenchi Municipalities which are considered the least urbanised as shown in table 4.2 urbanisation rates, also had the highest employment figures in the agricultural sector recording (66.3%), (62.7%) and (58.1%) respectively. Sunyani municipal, the most urbanised, remains the best performer in the service sector with more than half (59.9) of its

employment population in this sector. It is also recorded a 13.7% rate in the manufacturing index (the highest in the region). Techiman municipality's performance in the non-agricultural is more pronounced than Berekum, even though Berekum is more urbanised, a deviation from the usual expectation. As would be seen later in this thesis, this trend only seeks to crystallise a point that Techiman is a very prominent commercial settlement in the region and Ghana as large. Its service sector has witnessed expansion over the past few years particularly in the areas of trading, telecommunication and food and beverages retail. *The establishment of the Ghana Nuts Company for instance (the only major industrial establishment in Techiman) has provided regular employment to over 250 people*. (MDP, 2014).

Despite the prominence of the agricultural employments, most of the MDPs still regarded their municipalities as functionally urbanised. It is worth mentioning that over 90.5% of all employments in the region are in the informal sectors of their economies. But generally as a reflection of the national trends, the municipalities performed poorly in the manufacturing industry.

***Figure 5.1*: Municipal Sectorial Employments Indices**



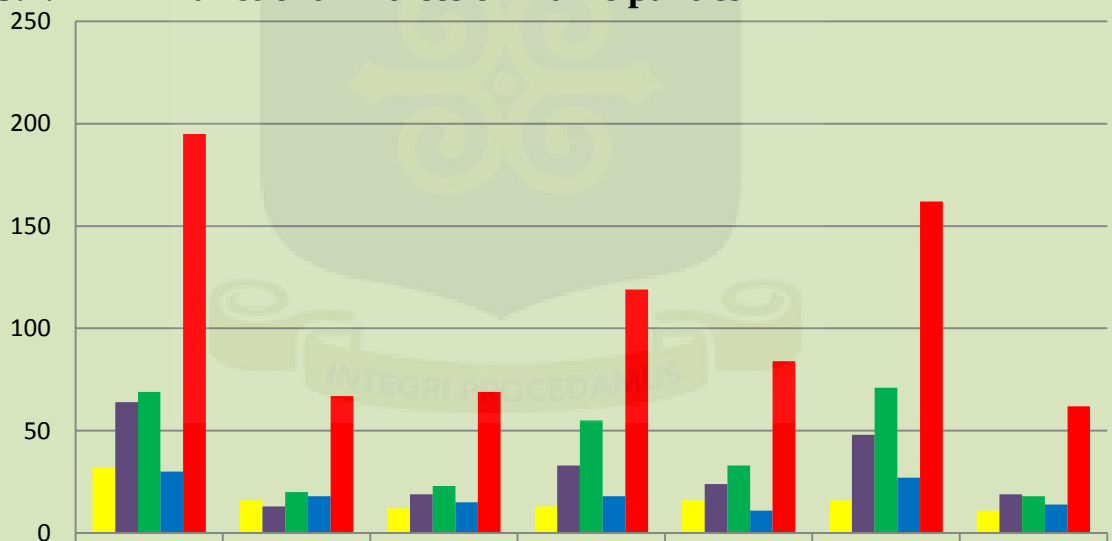
	ANMA	Dormaa	Sunyani	Berekum	Wenchi	Techiman	Kintampo North	Regional
Agricultural	62.7	66.3	26.4	44.1	58.1	41	54.6	61.3
Service	26.3	26.8	59.9	44.7	33.1	46.6	36.1	29.2
Manufacturing	11	6.7	13.7	11.2	8.8	12.4	9.3	9.5

Source: Extract from PHC 2010.

5.2.3 Centrality Scores of Service Centres

Generally, there is a propensity for population to concentrate in and around locations with a high proliferation of different types of services facilities (Scott, 2001), since proximity in essence, play an important part in people's locational decision making. Social facilities serve as a proviso for defining the centrality score of a settlement, therefore we assess the individual performances of municipalities in the areas of service delivery and facilities availability. The centrality indices show the general performances of settlements with respect to a number of identified central functions on the bases of scores. Figure 5.2 brings to bare the centrality scores (Functional index) of the municipalities in terms of four (4) prominent services indicators; administration, communication, commerce and social services.

Figure 5.2: **Functional Indices of Municipalities**



	Sunyani	Wenchi	Dormaa	Berekum	ANM	Techiman	KNM
ADMI	32	16	12	13	16	16	11
C'CATION	64	13	19	33	24	48	19
COMMERCE	69	20	23	55	33	71	18
SOC. SERV	30	18	15	18	11	27	14
TOTAL	195	67	69	119	84	162	62

Source: Field Survey, 2014.

Functionally, the Sunyani Municipality is the most central location in the Region amassing a 195 total functionality score units. Owing to its prowess as the centre of regional decision making, where most regional decisions emanate and trickle down to the other municipalities and districts, its prominence is expected. It houses all the regional headquarters of security services (including a military barracks), the only high court, Regional Hospital and the regional Polytechnic, which all contributes in diverse ways to consolidate its centrality. The next most functional location is the Techiman municipality at 162 functionality scores. The two municipalities therefore constitute about 47% of the total service deliveries. Berekum is also another high functional municipality with 119 score points. Together with Techiman and Sunyani, the foremost three municipalities constitute 62.8% of the total service deliveries, as indicative in the centrality scores. The remaining four (4) municipalities (ANM, Dormaa, Wenchi, KNM) each scored below 100 (between 84-62).

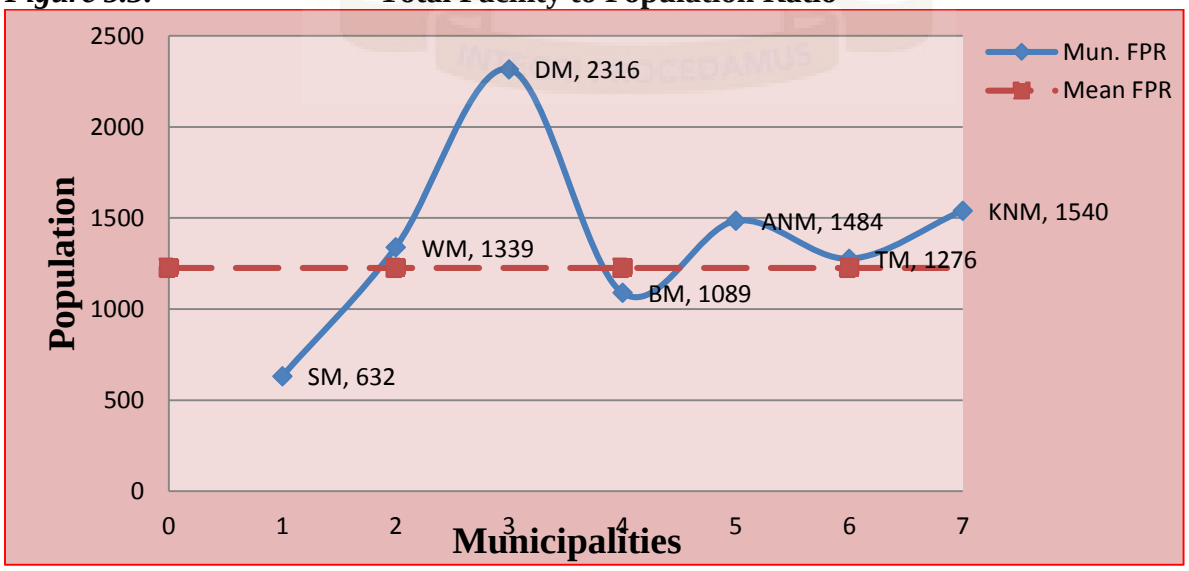
Overall, most of the centres are much viable as commercial towns, and it was in this area that they performed the most. Intriguingly, Techiman out-scored Sunyani in this area, at 74 and 69 units respectively. This confirms the Techiman MDP's claim that, *"Techiman is the most prominent commercial hub in the Brong-Ahafo Region"*. The Techiman Municipality, the home of the famous Techiman Market, regarded as the largest food crops market in Ghana (TMA, 2006), has created a niche for the municipality. Its stretch of influence goes beyond the borders of Ghana. It has evolved from a periodic market into a daily market with peak days running between Wednesdays and Fridays, hence an important hub of economic activity in the region. Indeed, the Techiman Township has as many commercial banks and rural banks as there are in the Sunyani Municipality and even many more microfinance companies. It has therefore created its own niche of growth impulse,

which attracts many other commercial services which hitherto would not have been located in Techiman. Berekum came close as well with 55 units in the area of commerce, but the remaining five (5) municipalities scored between 33 and 18. In ranking settlements by functional performance as proposed by Waugh (2001), Sunyani is at the apex of the Region's hierarchy of centrality index hence the most functional municipality, followed by Techiman, Berekum, Asunafo North, Dormaa, Wenchi and then Kintampo North.

5.2.4 Facility to Population Ratio

From Figure 5.2, it is tempting to assume that Kintampo is the least functional since it recorded the lowest functionality index. However, since functionality only makes sense in the context of accessibility of services by people, juxtaposing functional index against population will help to identify the Ratio of Facility to Population for a clearer comparison. In an attempt to further assess the spatial disparities in facilities vis-à-vis population distribution, Figure 5.3 explores the competitiveness of each municipality within the urban system of the region under the general rule of limited incidence of facilities.

Figure 5.3: **Total Facility to Population Ratio**



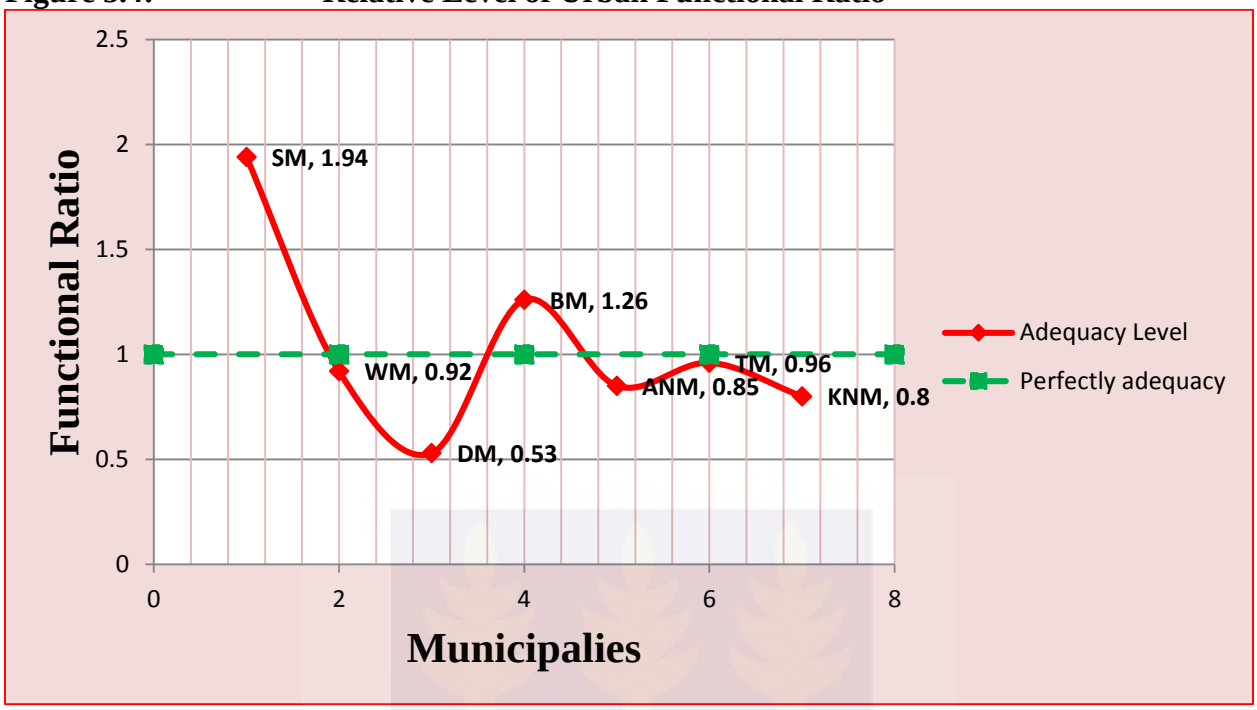
Source: Calculation based on 2010 PHC and Field Survey 2014.

We therefore compute for the Mean Facility to Population Ratio (Mean FPR) of all the municipalities under consideration, as juxtaposed against individual Municipal Facility to Population Ratio (Mun. FPR). The Mean FPR for all the seven is 1:1226. Dormaa's ratio of (1:2316) makes it the least endowed municipality, recording more than two fold the mean FPR, an indication that the municipality on several score relies on neighbouring municipalities to access much of its service requirements. KNM follows with a ratio of (1:1540) and closely matched by ANM (1:1484). Even though Techiman is the most populous municipality, it recorded a ratio of (1:1276) just a little over the mean facility ratio, which suggests that on the average, the municipality is virtually able to serve its population. Notwithstanding, Sunyani still remain the best performer, further solidifying it overwhelming competitiveness, which may imply that it is able to serve its population with the needed facilities and even other municipalities, since its ratio is almost twice as less as the Mean Facility Ratio of (1:1148). Sunyani is therefore a vibrant alternative destination node for residents of Dormaa which as has been indicated, is hugely under resourced.

5.2.5 Functional Adequacy of Settlements

Probing further and closely related to the facility to population ratio, we assess the adequacy levels of all the individual municipalities to ascertain whether the levels of functions rendered by a settlement is adequate to serve its population or not. This is expressed using the Relative Level of Urban Functional Ratio. A ratio of more than one (1) in a town refers to the adequacy of function, while ratio less than one (1) refer to the inadequacy of function in the town, with one (1) representing a perfect adequacy. These calculations are illustrated in figure 5.4.

Figure 5.4: Relative Level of Urban Functional Ratio



Source: Calculation based on Field Survey, 2014.

Sunyani municipality still recorded the highest adequacy level, 0.94 more than the perfect adequacy level, a reflect of its functional independency. Closely matched by Berekum to corroborate the assertion that "*Berekum has almost everything that Sunyani has, why move to settle there when you can enjoy life in full here"* (Berekum MDP, 2014). These two municipalities were the only ones that were functionally adequate. Techiman though a very functional municipality, marginally fell below the adequacy level and this is due to its huge population. Dormaa municipality recorded the lowest adequacy level at 0.53 and its large population was a major factor, even though it also had a very low functional performance. However, followed from the interview sessions, all the various MDPs asserted the inadequacy of the relative function of their individual municipalities. They counted a myriad of infrastructure deficits all across board accounting for their functional inadequacy.

These assertions are cogent and to be expected, owing to the fact that the functional capacities of each municipalities, however adequate or not, are still depended upon by many other districts, who on several levels are even less functional than the least of the seven municipalities under consideration (GUMP 2010). For development planners therefore, these results seek to suggest that in their decisions to allocate service infrastructure, it beholds on them to strategically target the functionally dependent centres (less endowed municipalities), to counter the otherwise singular flow of population into very few relatively endowed towns. By this, multiple nuclei of development attractions will be created so as to balance growth and diffuse concentration.

5.3 Spatial Interactions and Linkages between Inter-Municipal Nodes

Spatial interaction is one other important definition in the urban discourse and it involves the study of the inter-linkages and functional relationship between settlements. This relationship could either be one of a dominance or symbiotic, depending on the service endowments of settlements. Within the space of urban settlement systems, individual settlements interact with each other by the kind of service rendered and the magnitude of this interaction is a function of the functional importance. High order settlements interact with each other the more through flows which also define their spheres of influences. This section assesses the spatial interactions and linkages between the inter-municipal nodes using economic zones of influences and vehicular flows. It also assesses the challenges of the urban space in the various municipalities.

5.3.1 Social-Economic Zone of Influence and Spatial Interaction

The boundaries of the various municipalities as politically defined are for administrative purposes, hence expected to have fine boundaries points. However, the socio-economic zone of a

settlement wobbles and may go beyond such a nailed definition even into other regions depending on the proximity with other out laying settlements. The socio-economic zone constitutes the sphere of influence of each centralised settlement and this Christeller referred to as the "range" of a settlement. It denotes the maximum distance a person is willing to travel in order to access a good, in this instance, a service facility. It enables us to have a graphical view of the extent to which a centre is able to provide for itself and to the needs of its peripheral areas. In this section we delimit the socioeconomic zone of individual municipalities to examine both their political and socioeconomic zones of controls in the region.

In a bid to analyse the functional relationship of settlements within the urban space, table 5.1 and figure 5.5 attempt to delimit the immediate spheres of influence (socio-economic zone) for each of the identified municipalities, which most often than not is wider than the political zone of influence. Sunyani direct economic zone of influence is 1939.7km^2 wider than the political zone of influence, a vindication of its cosmic prominence. However, as a regional capital and centre of regional decision making, Sunyani is a continuous region because its influence does not drop. As the foremost central place, it has a wider range and surpluses in services to serve other underlying clusters which it has direct interactions with. Techiman also has a wider economic zone of 2322.8km^2, three-folds its political area of 669.7km^2. Techiman is the most prominent commercial centre in the region and this may account for its wider economic zone, with the impact of the Techiman market for instance going beyond the sphere of Ghana.

Intriguingly, Wenchi's political zone of influence (829.3km^2) was wider than the socio-economic zone (960.7km^2) and this can be explained by its close proximity to Techiman, which will be

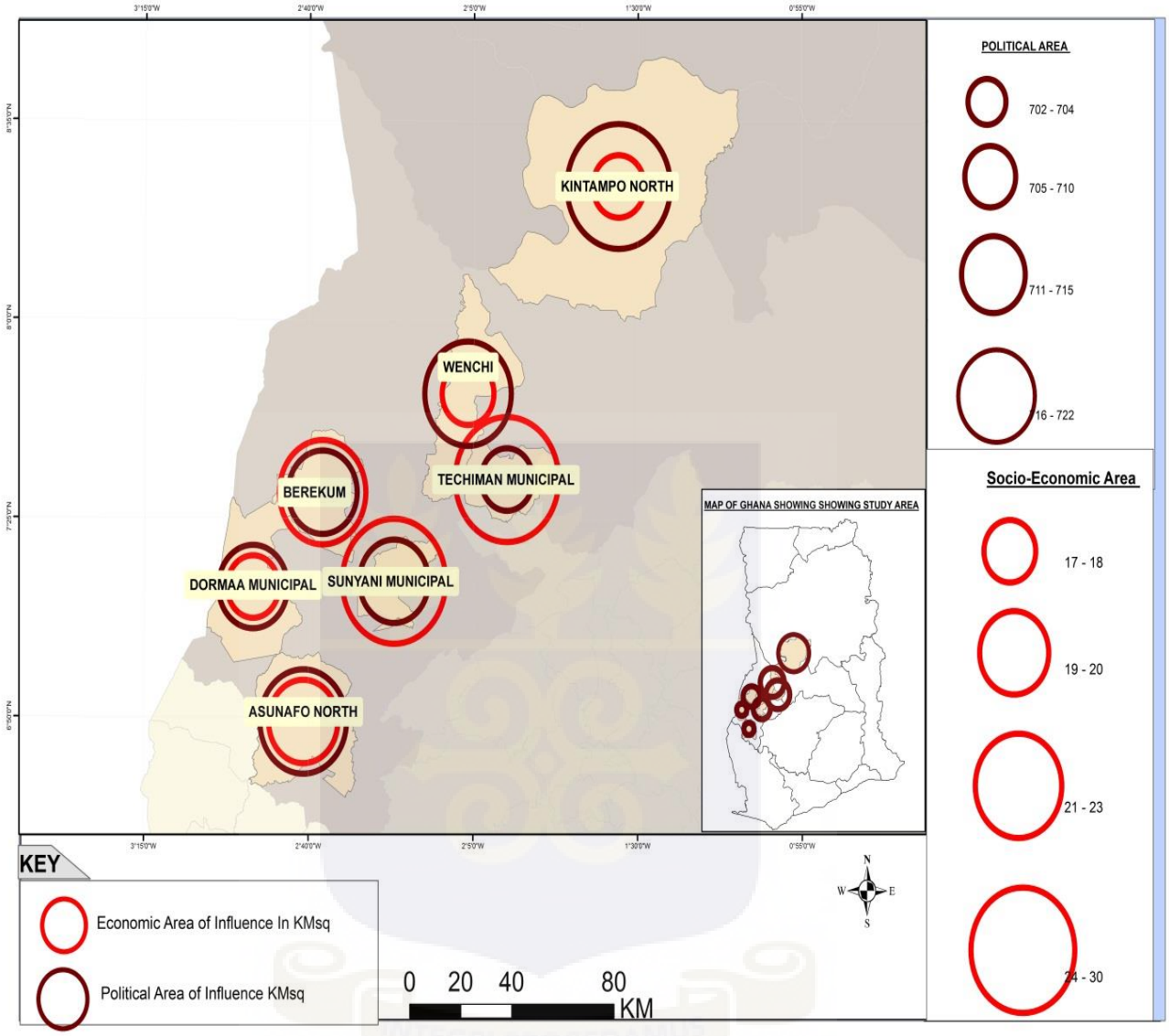
considered a more viable destination node for commercial activities than Wenchi. A similar situation is experienced in the Dormaa municipality which is sandwiched between Berekum, Asunafo North and Sunyani just around the corner. Kintampo municipality has the least socio-economic zone of influence (889km^2), way below the political area of 5108km^2. And juxtaposing this against its functionality index, where it recorded the least, it is no surprise Kintampo Municipality is some kind of a subtle alternative destination node among the seven foremost settlements in the region. In ranking settlements by their sphere of influence also, the hierarchical order observed above (Sunyani, Techiman, Berekum, ANM, Dormaa, Wenchi and KNM) repeated itself. This is an observation that the functional capacities of settlements are reflective in their economic zones of influence or range.

Table 5.1: **Socio-Economic Sphere of Influence**

MUNICIPALITIES	Degree Of Influence In Km^2	Political AREA KM^2	Radius Of Influence "R" Value In Km
Sunyani	2769	829.3	29.84
Wenchi	960.7	1296.6	17.5
Dormaa	989.4	917	17.75
Berekum	1706.3	955	23.3
Asunafo North	1204.4	1,093	19.6
Techiman	2322.8	669.7	27.18
Kintampo North	889	5,108	16.8
TOTAL	10868.6	**39,557**	58.8

Source: Calculation based on 2010 PHC and Field Survey 2014.

Figure 5.5: Graphical Delimitation of Zones of Influence



Source: Field Survey, 2014.

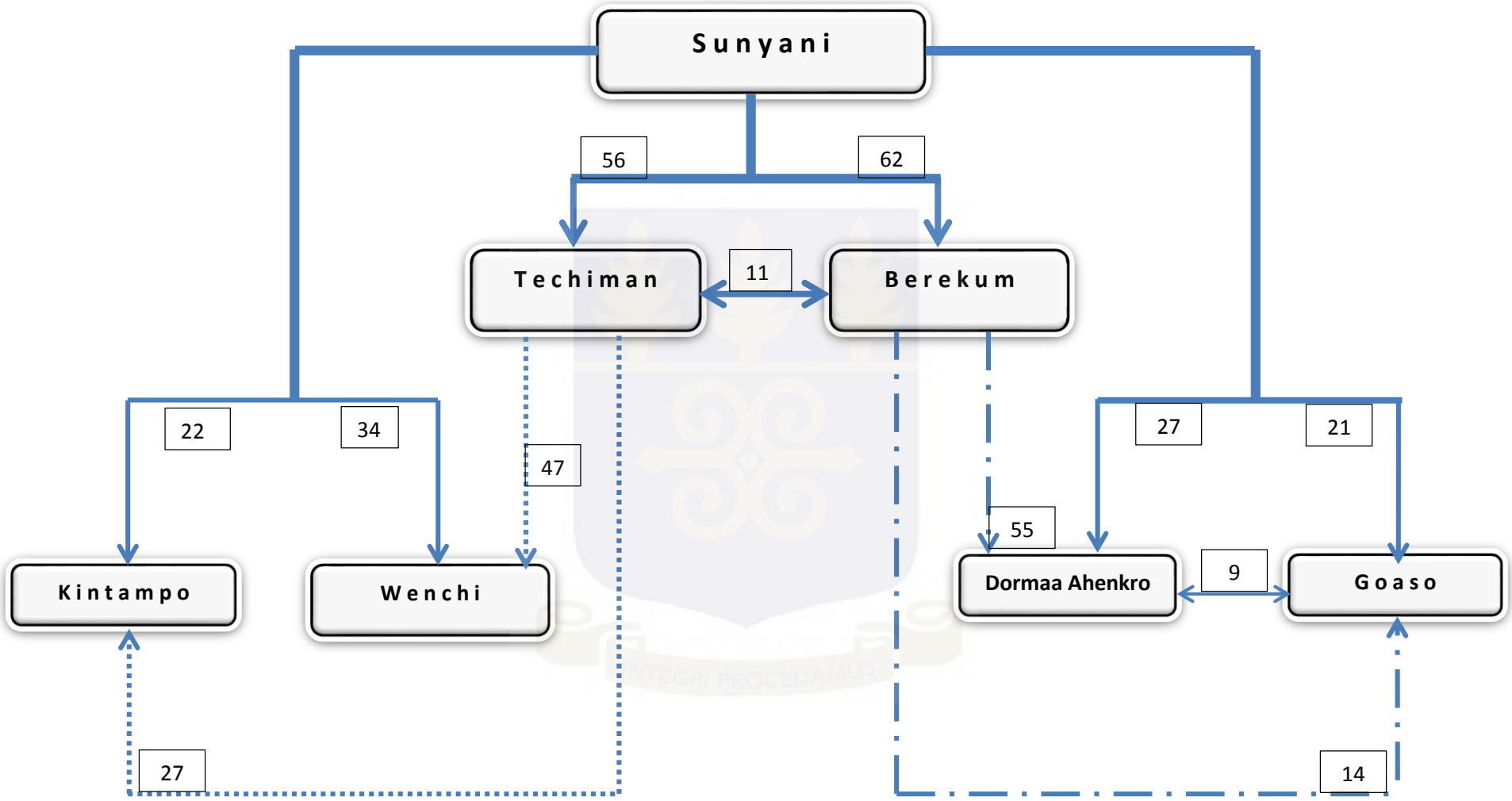
5.3.2 Vehicular Flows and Spatial Interaction

The BAR urban space is a very vibrant one and various nodes interact with each other in several ways through flows (Labour, capital, investment, vehicular). Vehicular flow is used as a surrogate measure to assess the spatial linkages and interdependencies between spatially separated nodes. This is because the spatial interaction as well as the intensity of flow between

settlements is a function of the varied spatial needs of individual centres. In this section we use an average daily average vehicular flow (commercial vehicles) to examine the interconnectivities between municipal nodes where the intensity of the flow represents a stronger interaction or otherwise (dependency and interdependency relationship) between those centres. This is represented in the flow diagram in figure 5.6.

There was an average of 386 daily vehicular flows recorded between the various municipal nodes, a reflection of the vibrancy in the spatial interconnectivity among central places. As a regional capital and the centre of all central places however, Sunyani, irrespective of distance, had a direct interaction with all the other municipal nodes, recording 222 average flows from the other six nodes. Indeed an average vehicular flow of 56 and 62 respectively were recorded between Techiman-Sunyani as well as Berekum-Sunyani representing the strongest interaction in the region. Kintampo and Goaso recorded the least flows to Sunyani at 22 and 21 respectively, which although at a lower intensity, it is still strong enough. Even though they are the next foremost towns, the interaction between Techiman-Berekum is relatively very minimal because of similar locational needs. The 11 direct flows between them is also due to the location of Sunyani, which serves as an intervening opportunity in several respects. Wenchi and Kintampo have their highest interactions recorded to Techiman, possibly due to their close proximity with Techiman, a viable destination node. Wenchi has more interactions with Techiman than any other centre, further crystalising the dominance of Techiman over Wenchi. On another side, Wenchi and Kintampo have no direct flow with Berekum Dormaa Ahenkro or Goaso. Similarly, Goaso and Dormaa Ahenkro have no direct flows with Techiman.

Figure 5.6. **Flow Diagram on the Daily Vehicular Flow and Interactions between Municipal Nodes**



Source: Field Survey, 2014

5.4 Challenges of the Municipal Urban Space

Through observation and interviews, the various development planners were asked to assess their most pressing challenges in managing the urban space of their various municipalities. This is the focus of this section and the qualitative results as brought forth are analysed below.

5.4.1 Poor Spatial Planning

Spatial planning has always been a challenge to the sustainable growth of the urban space of most developing countries where urbanisation does not keep pace with both physical and development planning. It was refreshing to encounter the various development planners in all the municipalities. In was observed that institutional presence was very apt, in that each of the seven municipalities has planning departments whose responsibilities include both physical and development planning. Notwithstanding "poor coordination between various developmental agents" had led to confused urban spatial organization where facilities are located unsystematically to create a chaotic urban pattern. There were no clear cut long plan policy directions for systematic developmental agenda of the municipalities aside a general aspiration to achieve a broad vision plan to "enhanced living conditions and enjoy adequate socio-economic services of satisfactory quality in a well maintained, highly decentralised and democratic environment". The result of this poor coordination between physical planning and economic programmes has led to urban sprawl and under-serviced urban neighbourhoods.

5.4.2 Urban Sprawl and Congestion Issues

Competitions for the urban limited space under the blight of poor planning usually results in the sprawl and congestion of the urban space. However, it was observed that with the exception of

Sunyani and Berekum where the upsurge of sprawl into peripheral towns were evident, the other towns experienced expansion of their urban space instead and this is because, each of the other municipal capitals were still further away from nearby towns, hence enough space to expand. Notwithstanding, there are gradual sprawl of urban residential development to the city fringes. This is further blighted by the dearth in basic infrastructure and services and this is the outcome of the lack of spatial planning and the non-enforcement of development regulations in the urban areas. However, it was observed that with the exception of few upsurges in Sunyani and Techiman especially, congestion was relatively still at a limited extent and could be control if measures are put in place in a coordinated way to rearrange the physical space.

5.4.3 Infrastructural challenges

In the area of infrastructural (social and physical) presence, many of the municipal capitals were relatively well resourced. On the evidence of observation and in comparison to other regions in road infrastructure for instance, the BAR was very resounding. The Sunyani Township for instance has as many as six (6) standardised dual carriage roads and more so, very well connected with other municipal capitals. However, infrastructure was still recorded to be one of the biggest challenges of the municipalities and most of these challenges were in the area of toilet facilities, pipe borne water and general obsolesce of basic social and physical infrastructure.

5.5 Conclusion

The Brong-Ahafo Region's urban space is a very viable one that renders a number of functions to serve its population. These services are in the areas of administration, communication, commerce, social service and manufacturing. However, the employment indices indicate that the

region is still an agrarian dependent with few towns showing prominence in the non-agricultural based economy. It is worth mentioning that apart from social services (Education and Health) which had some few incidences occurring in other peripheral towns in the various municipalities as well, virtually all of the remaining services are located in the municipal capitals. This phenomenon is in sync with the general assumption that; service distributions are generally skewed, with more central centres outwitting their other peripheral centres.

The Region's urban space is also a very vibrant one, with wide socioeconomic spheres of influences and municipalities interact with each other in myriad of ways. With a high sense of complementarity and transferability between municipalities nodes, spatial interaction between centres is very apt. Looking at the levels of spatial linkages as has been enumerated, it confirms a tenet of the CPT and its allied diffusion theory that flows occurs among settlements of similar order, irrespective of the distance. This flow brings to bear the analogy that any policy to locate a facility at one centre, should also take cognizance of the possible flows from nearby centres.

From the aforementioned challenges, it could be concluded that most of the developments planning strategies in managing the urban space were generally along the theory of adhocracy, rather than a well-coordinated work out plan. Planners responded to individual needs of the communities as they come up rather than forward looking solutions, since there was hardly any long or medium term development planning strategy encountered.

CHAPTER SIX

SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

6.1 Introduction

This last chapter deals with the general conclusions of the research as has been carried out so far. It starts with the major findings summarised in a point by point paragraph, as well as recommended statements to ameliorate the study problems as has been brought forth. The last section deals with the general conclusion of the research.

6.2 SUMMARY OF FINDINGS

The study sought to deliver a comparative analysis on an inter-municipal disparity in population distribution and their functionalities, in a bid to assess the degrees of centrality and spatial interactions of growth points. The general summary of our findings are itemised along the stated objectives as discussed below:

1. ***Assess the spatiotemporal dynamics of changes in population and its impacts on urbanization trends within the municipalities.***

It should be acknowledged that population growth in the region and at the municipal levels, do not differ much from the general trends in the country, where growths have generally been high, especially between the 1970s-2000. Significantly, these high growths especially in the municipal capitals have shown very little sign of reducing. Ostensibly, the urban population upsurges are tilted towards the municipal capitals, where with the exception of the Asunafo North, every other municipality recorded more than half of its total urban population, residing in the foremost settlements alone. The phenomenon of ANM tells us that the mere existence of a multiple nuclei

of population attraction (competing town) alone, is enough to avert some of the blights of population concentration. The blights of population growth and its allied problems are therefore expected to worsen in the other six municipalities if not checked. However, the region still remains a very spacious location in that at least at the municipal level, population distributions are fairly matched with no overwhelming skew towards a particular municipality.

The Brong-Ahafo Region, though still more rural (55%), it is a very opened urban space in Ghana, which makes it a net receiver of population. Its strategic position makes its a vibrant intervening opportunity between the Southern and the Northern Regions of Ghana, a position which is crystalised by the number of second order towns its contains. Hence, its population has been growing though at a declining rates in recent times. However, Natural Increases still remain the most prominent contributor to its population growth trajectory, notwithstanding the high immigrant populations.

2. ***Examine the functional structures and the distribution of service activities as indicators of urban growth and population concentration across the municipalities.***

Functionally the region is still predominantly agricultural based as this sector employs majority of the labour force in most municipalities. Therefore, it could be said that the region's urbanisation trends are generally induced by demographic factors: migration and natural growth, rather than by its socio-economic functions. Notwithstanding, its making good incursions into the service sectors. It is worth mentioning that apart from social services (Education and Health) which had some few incidences occurring in other peripheral towns in the various municipalities,

virtually all of the remaining services are located in the municipal capital and almost in a dearth at other peripheral towns in the municipalities. This is in sync with the general assumption that service distributions are generally tilted, with more centralised location outwitting their other peripheral centres. A well functional centre plays a critical role in the location and absorbance of people and service facilities, and an equally important role in diffusing development to other underlying locations, a feat which seem attained by Sunyani, however loose. It was also noted that many of the municipality recorded low levels of functional adequacy, meaning they are under-resourced

3. ***Analyse the spatial interactions and linkages between inter-municipal nodes in the view of their economic zones and vehicular flows for an integrated spatial development***.

Spatially, the Brong-Ahafo urban space is highly interconnected and towns interact with each other in diverse ways. Using the economic zone of influence to demarcate the physical range of a settlement, the Sunyani municipality for that matter remains the most prominent destination node for most movement in the Region. Therefore, is has a wider socio-economic zone, with its influence stretching across all other district, who rely on its viability for much of their service deliveries. This was crystalised by the number of daily average vehicular flows from other nodes to Sunyani, which overwhelms any other destination alternative in the Region. However, it could be said that the kind of interactions between Sunyani and other nodes, are much more symmetrical than a domineering relationship.

6.3 RECOMMENDATION

After a thorough assessment of the data and the information brought forth, the Brong-Ahafo Region's urban space holds immense prospect for its inhabitants and the nation at large. However, it needs a careful management and policy initiatives to accelerate and improve its growth, for a sustainable regional development. Contained in the next few paragraphs therefore, is a catalogue of recommendations which are deemed very fundamental for the eventual betterment of the region's urban space and the nation at large.

1. ***Integrated Settlement Hierarchy***

   It is observed that but for Asunafo North, the rest of the municipalities do not have viable competing towns to absorb the spill over populations from their foremost settlements. The resultant effects have therefore been an exodus into the municipal capital. It is therefore recommended that as a matter of policy initiative, alternative growth nuclei (small-size towns) should be developed in a form of an integrated hierarchy of urban system, to act as countermagnets to the fast growing municipal capitals. This offers potential migrants a destination alternative to advert the singularity of movement into municipal capitals or the regional capital.

2. ***Physical Planning***

   With the exception of few upsurges, slump development is not yet a critical issue, this therefore offers an opportunity for physical rearrangement of the urban space by Municipal Authorities, through the formulation of policies in a comprehensive management plan, to offset a possible looming congestion due to improper physical planning.

3. ***Boundary Definition***

It was observed that there are overlaps of boundary lines, at varying levels, as various government departments had their boundary lines running into other places which should otherwise have been under different jurisdictions. Municipal Authorities still do not have clear view of the stretch of their jurisdiction. Appropriate delimitation of municipal boundary points, with due recognition to the centrality and functional capacities of various settlements should be done using GIS applications. This will on timely bases present graphical insights into inter-municipal linkages.

4. Since the radius of the economic zone of influence is usually wider that the political radius, In order to reap a comprehensive regional development, the economic zone of influence of large urban centers, especially beyond its municipal limits should be carefully identified and integrated into the spatial planning of the region, especially in the allocation of resources.
5. There should be a broad based regional planning policy, which would evolve a distribution strategy for different central functions, where different growth points are developed to offer services they have comparative advantages over, rather than an avalanche of services in few towns, whose urban space may not be viable to provide the level of services rendered.

6. ***Infrastructural Development, Statutory payment, common fund***

All the municipal capitals are playing their due role as expected to serves as the epicenter of the municipal growth impulses, however inadequacy of service facilities has been their

biggest bane to sustain their growth. Infrastructural deficit is a national challenge and the region is no exception, and for improved delivery and management of urban space, social and economic infrastructure is a necessity to manage the incessant population growth. This will enhance the competitiveness of region's urban space as it opens up to competition from other region in Ghana and into the market of neighbouring Cote D'Ivoire. It is therefore imperative for a swift disbursement of municipal's statutory payments and common funds, to enable development agents (municipal assemblies) to provide services as needed.

7. ***Agro-industry.***

Despite the high prospects of the region's agricultural sector, where it has much of its employment share, agro-industrialisation which would have help lessen the drudgery nature of the sector, is at a lower ebb. It is therefore imperative to establish rural agro-service centres, to strengthen rural-urban linkages as a means to promote the agriculture sectors and the development of rural agro-based industries.

8. ***Congestion and Slum development***

Municipal Authorities should formulate policies and draw out comprehensive growth management plans, that will direct how growth should occur. There should be a "Smart Growth" Plan to influence the quality of growth while at the same time minimizing the negative effects that come with them. A Smart Growth Plan will adopt strategies that will enhance living conditions in towns as well as anticipate and new developments.

9. ***Research on Urban Development***

Research into Regional development, Urban Planning and allied disciplines should be encouraged. Government should strengthen the capacity of research institutions and other

related bodies concerned with urban and regional development. This will give government a comprehensive view on new and improved measures on urban management strategies that will influence effective government's policy decision which has direct bearing on urban development problems and needs at hand.

10. Implementation of Research Recommendation

Recommendations from research works should be implemented rather than allowed to languish in shelves. I therefore propose for the full implementation of the Ghana National Urban Policy Action Plan 2012. It defines key activities in twelve (12) thematic areas which when pursued to the latter, will help curb a number of the problems facing the Ghanaian urban space.

6.4 CONCLUSION

From the analysis as has been discussed so far with table and maps through the above analysis, it is evident that demographic dynamics, infrastructure and economic forces have played varying roles in the growth process of the Brong-Ahafo Region's urban space. The spatial disparities in population distributions have had corresponding disparities in development across all sectors of the urban space of the region. Therefore, the spatial distribution of both population and facilities could be said to be complementary and play a major role in the urbanisation trends of the Brong-Ahafo Region. However, there is apparently a fairly balanced distribution of the population, closely forming a rank-size distribution sort of urban settlements where none overwhelmed the rest as reflected in the national apex of Accra and Kumasi.

As a reflection of the national trends, the industrial sector, which has the capacity to impact on the spatial redistribution of population, is one of the least performing sectors in the region as a whole. Nevertheless, in the area of functional capacities in economic development and social infrastructure, Sunyani, the regional capital was identified to be very prominent, but closely matched by Techiman municipality in several respects. Centres with higher number of facilities as well as higher functional importance, had induced a pulling effect and become a centre with greater chance of further growth, by attracting more people from surrounding area. Evidently, its sphere of influence also increases progressively which further consolidates its prominence. There are strong spatial interactions and interconnectivity between the growth points. However, it could be said that the relationship between the municipal capitals offers much of a mutual benefit or an interdependency relationship. Though the regional capital, Sunyani does not overwhelm the remaining towns. It could be concluded therefore that Sunyani is only at best, a first among equals.

In order to accomplish the dual objectives of making the urban space more functional as well as sustainable in a balanced regional growth, the recommendation as aforementioned should be adopted, implemented and monitored. The managerial challenges of the urban environment are so enormous that they cannot be tinkered with superficially by development agents. They need a timely and a comprehensive physical as well as socio-economic regional planning approach, because, each passing moment brings its own difficulties and opportunities.

Perhaps, Borja (2001) puts it more right when he posited that "the urban space is a perfect illustration of complexity…a space of variable geometry; we do not know where it starts and where it ends, and even less, how it will be in 10 to 20 years. The territory is an outcome of action, an outcome of a strategy."

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Appendix I. TOWNS (5,000 and above) IN THE VARIOUS MUNICPALITIES

MUNICIPALITY	1970	1984	2000	2010
Sunyani	Sunyani Nsuatre Chiraa	Sunyani Nsuatre Chiraa Odumasi Abesim Fiapre	Sunyani Nsuatre Chiraa Odumasi Abesim Fiapre NewDormaa	Sunyani Abesim New Dormaa Fiapre
Berekum	Berekum Jinijini	Berekum Jinijini	Berekum Jinijini Senase	4 Berekum Jinijini Kato
Wenchi	1Wenchi	Wenchi Badu	Wenchi Badu Seikwa Debibi	Wenchi
Dormaa	Dormaa Ahenkro Wamfie	Dormaa Ahenkro Wamfie	Dormaa Ahenkro Wamfie Wamanafo Nkrankwanta	Dormma Ahenkro Nkrankwanta
Techiman	Techiman	Techiman Tuobodom	Techiman Kenten Tuobodom Tanoso Aworowa Offuman	Techiman Kenten Tanoso Aworowa Offuman
ANMA	Mim Goaso	Mim Goaso	Mim Goaso Kukuom Sankore	Mim Goaso
KNMA	Kintampo	Kintampo	Kintampo Babatokuma Jema	Kintampo Babatokuma Jemaa

Source: Field survey, 2014.

Appendix III.

INTERVIEW GUIDE AND VIEWS FOR MUNICIPAL ASSEMBLY DEVELOPMENT PLANNING UNIT - **Name of Municipality** ……..

This sheet is purposed to collate numerical data for the research topic the "comparative roles of service centres within the urban system of the Brong-Ahafo Region". Your contributions are well appreciated.

NAME OF RESPONDENT…….

POSISTION OF RESPONDENT……

POPULATION AND URBANIZATION

1. What accounts for the temporal dynamic of change in the municipal population and more so the capital?
2. How do you compare the growth of this municipality in relation to the other six?
3. How have the population changes impacted on the urbanization rates?
4. How have demographic forces impacted on the urban growth?
5. What measure can be taken to control the population growths?
6. Other Peripheral Towns in the municipality and their populations.

TOWNS	**POPULATION**
1.	
2.	
3.	

FUNCTIONAL STRUCTURE

1. What is the most functional economic activity in the municipality?
2. With the kind of municipal sectorial employment, will you describe the municipality, as agrarian or functionally urbanized?
3. What impact does it have of the population growths?
4. Is the municipality functionally adequate, juxtaposing service facility against population?

CITY MANAGEMENT APPROACHES

1. What is the role of the MPU in the growth management of the city?
2. What is the management approaches adopted in this respect municipality?
3. How effective have been these approaches in terms of
   i. Controlling excessive growth
   ii. Curbing congestion
   iii. Controlling formation of slums
4. What is the way forward with controlling growth in the city?
5. What are the most pressing infrastructural needs of the municipality?
6. Rate the following urbanization challenges in 1 (least) to 5 (greatest)

1. Controlling excessive Growth	
2. Curbing Congestion	
3. Controlling Slums formation	
4. Infrastructure Challenges	
5. Others (specify)……..	

DATA SHEET

SOCIAL SERVICES

This section involves a collation of educational as well as health service facilities, their levels and the number of students and patients as served by the institutions in the municipality.

EDUCATIONAL SECTOR **(Tertiary Schools, Training Colleges, Secondary School, library)**			
NAME	LEVEL	POP/NO	LOCALITY
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

HEALTH SECTOR ***(Specialist hosp, General Hosp, Health centre)***			
NAME	LEVEL	STATUS	LOCALITY
11.			
12.			
13.			

14.			
15.			
16.			
17			
18.			
19.			
20.			

COMMUNICATION

FM stations, post offices and transportation facilities are focused on here.

FM/POST OFFICE/NEWS PAPER STANDS/INTERNET FACILITY /TELCOS	
NAME	**LEVEL/NO/%**
42.	
43.	
44.	
45.	
46	
47.	

Transportation (Inter-urban linkages)

Question	Response
1. Number of transport terminals	
2. Destinations of trans-regional routes.	a. b. c. d. e. f. g. h.
3. No of intra-regional routes and destination	a. b. c. d. e. f. g. h.
4. Number of daily average vehicular flows to other municipal capitals	
5. Distance and Time to other municipal capitals	
6. Number of main road junctions	
7. Number of dual carriageways	
8. Total Distance of dual carriageways	
9. Airfields	

COMMERCE

This section also collects data on the commercial sectors of the economy. Indicators under consideration here include banks, insurance groups, hotel facilities and market (daily/periodic).

BANKS/MARKET		
NAME	LEVEL	NUMBER
21.		
22.		
23.		
24.		
25.		
26.		
27.		
28.		
29.		

ADMINISTRATIVE

POLITICAL (Coordinating Council, Municipal Assembly)		
NAME	LEVEL	NUMBER
30.		
31.		
32.		

33.		
JUDICIARY (Courts, CHRAJ)		
34.		
35.		
36.		
SECURITY (Military, Police, Fire, NADMO)		
37.		
38.		
39.		
40.		
41		
42.		