URBAN SPRAWL AND ACCESS TO PUBLIC TRANSPORT SERVICES IN KINONDONI MUNICIPALITY, DAR ES SALAAM CITY, TANZANIA.

Lucy Joseph

A Dissertation Submitted to the School of Graduate Studies in Addis Ababa University in Partial Fulfillment of the Requirements for the Award of Master of Arts Degree in Urban Development and Urban Challenges in East Africa, at the Centre for Regional and Local Development Studies.

June 2012

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SCHOOL OF GRADUATE STUDIES

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Declaration

I Lucy Joseph, I declare that this thesis on Urban Sprawl and Access to Public Transport Services was written by me and it has never been presented to any other institution for any academic award.

.....

Lucy Joseph

Addis Ababa University

June 2012

Dedication

To my beloved Dad- the late Joseph Chabariko who could not live to see this work. I will always remember you my Dad. Also to my beloved mom, Gaudencia Elias, and to all my brothers and sisters

Abstract

Urban sprawl in this thesis has been referred as an expansion of the city which occurs laterally rather than vertically. The spatial expansion of Dar es Salaam city outside of the Central Business District (CBD) has greater impacts on access to public transport services. In view of this, the main objective of the study is to examine the impacts of urban sprawl on access to public transport services in Kinondoni Municipality. Urban sprawl in this study has been studied based on the following specific objectives: Factors influencing its occurrence, the impacts of urban sprawl on access to public transport services, and the intervention measures for urban sprawl. Throughout the study, the main approach underlie the study is political ecology approach. In achieving these objectives, Kinondoni municipality in Dar es Salaam city was selected as a case study area. Both qualitative and quantitative approaches were employed. Techniques for data collection from both approaches such as household survey questionnaires, semi-structured interviews, observation, photographing and focus group discussion were used. Data collected in this study were analyzed both qualitatively and quantitatively. The use of quotes, graphs and plates dominate the presentation of the findings in this thesis.

The general findings show that, urban sprawl in Kinondoni Municipality is influenced by many factors such as rapid urban population growth, demand for land and housing, inadequate spatial planning, and regulatory framework. The major effects of urban sprawl on access to public transport services were increase in travel distance, traffic congestion, poor roads network and modes of transport, and an increase in the cost of public transport services. Intervention measures suggested by this study are decentralization of services, compact city strategy, addition and improvement in road network and modes of public transport.

Key words: *Urban sprawl, Public transport services and Accessibility.*

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Abbreviations and Acronyms

DARCOBOA	Dar es Salaam Commuter Bus Owners Association
DCC	Dar es Salaam City Council
DMT	Dar es Salaam Motor Transport Company
CBD	Central Business District
EEA	European Environmental Agency
ITDP	Institute for Transport and Development Policy
MLHHS	Ministry of Land, Housing and Human Settlements
NMT	Non-Motorized Transport
PPPs	Public Private Partnerships
SUMATRA	Surface and Marine Transport Regulatory Authority
TANROADs	Tanzania National Roads Agency
TZS	Tanzanian shilling
UDA	*Usafiri* Dar es Salaam
UNDP	United Nations Development Programme
UNHABITAT	United National Human Settlements Programme
USD	United States Dollar
URT	United Republic of Tanzania
WB	World Bank
WBCSD	World Business Council for Sustainable Development
WWII	World War Two

CHAPTER ONE: INTRODUCTION

1.1 Urbanization Process and Consequences

Urbanization is an irreversible process. Global trends of urbanization show that in 1900, about 13% of the world's population lived in cities; in 1950, 29% lived in urban areas; while in 2005 (49%) nearly half of all humans resided in urban areas and it is projected that by 2030, 60% of the world's population will live in cities (UN-HABITAT, 2009a; Sommers, 2010; Ricci, 2012). Despite the fast growing urbanization, two third ($^2/_3$) of the urban population still lacks access to basic services such as, water, shelter, food, transport infrastructures, and improved sanitation.

Sub-Saharan Africa, currently one of the least urbanized regions in the world but is urbanizing faster than any other continent (UN-HABITAT, 2008; Petrella, 2010; Sommers, 2010). Carael and Glynn cited in Sommers (2010:4) point out that "*...urban populations of Sub-Saharan Africa have increased by 600 percent in the last 35 years: a growth rate which has no precedent in human history.*" Yet, this urbanization has been accompanied with unprecedented slum growth, whereby, 72% of the urban growth resides in slum areas (Sommers, 2010). By 2030 about 51% of Africans will reside in urban areas (Sommers, 2010). Incapacity of many urban governments to provide services for the increased population, particularly public transport services for the urban poor in the outskirt of the city will be one of the main challenges (UN-HABITAT, 2008; Petrella, 2010).

In Tanzania, like other developing countries; urbanization is largely contributed by rapid urban population growth (Lupala, 2011). Tanzania has been experiencing a rapid rate of urbanization of up to 8% per annum. The urban population in Tanzania has increased from 5% (685,092 people) in 1967 to 22.6% (7.6 million people) in 2002 (URT, 2003; Kyessi *et al,* 2009; WB, 2012). According to United Nations population projections, the percentage of urban population is expected to grow from 24% in 2005 to 38% in 2030 (WB, 2012). The United Nations population experts have warned that urbanization in Tanzania will reach a ratio of 46% by the year 2015 (Mwakaje, 2010). Continued urban population growth will further multiply demands for urban utilities such as roads, public transport and housing (WB, 2012).

1.2 Background to the Research Problem

1.2.1 Urban Sprawl and Public Transport Services

In recent years urban sprawl has become a global problem (UN-HABITAT, 2010a). Almost all cities throughout the world are experiencing expansion in their geographical space (UNFPA, 2007). The process of urban sprawl is posing a major challenge for urban planners and urban management worldwide. Urban sprawl as a threat to sustainable development, at present throughout the world it causes longer commuting distances, traffic congestion, increased infrastructures costs and less viable public transport services. With rapid increasing urban population and associated challenges such as land and housing issues; peri-urban growth is likely to continue all over the world.

Today, in Europe there is a real risk of increasing urban sprawl. Development of the peri-urban is increasing rapid across Europe. In America, one in two Americans lives in the suburbs (Frunkin, 2002). By 2000, urban sprawl was increasing at twice the rate of urban population in the United States. Currently, Canada has three of the world's 10 urban areas with the most extensive sprawl. In China for example, it is projected that by 2025, 40% of the urban growth will be in periphery areas, with this spatial extending 150Km or more from the inner-city (UN-HABITAT, 2009b).
In developing countries, urban sprawl has led to longer and more motorized trips, and bus services are the dominant mode of motorized transport in the third world cities. This is because of low incomes of the majority of inhabitants; public buses provide the only mode of transport that they can afford (Armstrong-Wright, 1993; Kombe, 2009).

Due to high rate of urbanization associated with rapid population growth in African cities, urban sprawl seems to be permanent process. Unplanned and uncontrolled urban sprawl with inadequate utilities poses a big challenge to low income communities in sprawling areas. Long journey to work, and distance from the inner-city, where most of basic services are located; is another challenge of urban sprawl to be addressed. Despite the rapid expansion of African cities due to rapid urban population growth, the impacts of urban sprawl seem to be given little attention. Yet, a large part of this urban growth can be expected to take place in low-income sub-urban centers (Armstrong-Wright, 1993). The increase in urban population has in turn resulted into massive increase in the demand for public transport services especially when you take into

consideration that the majority of the increased urban population is poor. In South Africa for example, longer journey to work trips especially for the low income is still a characteristic which is attributed by urban sprawl (Chakwizira *et al.*, 2011).

In Dar es Salaam, urban sprawl means that the city authorities are forced to provide public services such as roads to a large area. In addition, urban sprawl forces peripheral communities to use motorized transport to travel long distances to other parts of the city to get different types of services (Kuinsi, 2011). Informal settlements in periphery areas of the city of Dar es Salaam absorb large proportions of the urban dwellers, leading to rapid urban sprawl into the unplanned periphery areas (Lupala, 2002). Thus the city's planning agencies have been unable to keep pace with the rapid expansion of the city, largely fuelled by migrant growth. Most of the city's population lives in unplanned settlements—many in abject poverty—which are characterized by substandard infrastructure and lack of basic municipal and other services. These communities face transportation constraints, insecure housing, and problems in accessing clean water. Yet, urban sprawl has continued to take place in Dar es Salaam regardless of inadequate efforts to provide transport services such as roads and public transport modes. Climatic factors such as heavy rainfall, work in conjunction with this situation to impose additional hardships and increase problems in roads network. Improvements to infrastructure can help to reduce traffic congestion but often exclude the urban poor and those without private cars, while encouraging longer distance commuting.

In very high density central cities, poor commuters often do not use public transport systems because they walk, or bike to work. In peri-urban areas, in contrast, the poor suffer from lack of access to public services because of limited to, or no service from public companies and long and expensive (relative to their income) commuting (http://www.intlhc.org). The rapid expansion of the city which has far exceeded the capacity of the authorities to provide basic infrastructure, such as roads and modes of transport is one of the leading factors for poor public transport services. In Dar es Salaam, public transportation is a most dominant mode for the majority, especially for the urban poor; who live in overcrowded, informal settlement in periphery areas of the city (Kanyama *et al* 2004). Over 75% of residents use buses to travel to work or reach their source of livelihoods (Kombe, 2009).

1.3 Statement of the Research Problem

Like other African cities, Dar es Salaam continues to experience rapid urbanization with unplanned and uncontrolled spatial growth (Hill and Lindner, 2010a; 2010b). In recent years, urban sprawl tends to accommodate more urban dwellers, particularly urban poor and in-migrants. These groups tend to live in the periphery of the cities in overcrowded, unhealthy and marginal environment because they are largely driven by some of the factors like cheap land for housing, cheap rental conditions and low living cost (Sahail *et al*, 2001; UN-HABITAT, 2010a). However, urban sprawl is increasing financial costs for the public sector to provide infrastructure services, and construction of new roads in the newly built-up areas, and also increases the maintenance of *daladalas*[1] which provide commuter bus services in the old inner city areas as well as the periphery. As observed by Lupala (2002) and Ahferom (2009) the urban sprawl of Dar es Salaam City is characterized by a high spatial growth of the City which recorded the highest geographical growth between, 1963- 2001 when it increased by more than 18 time, from 3081 hectares(HA) in 1963, to 57,211 hectares in 2001. Similarly, Kombe (1994) cited in Diaz Olvera *et al* (2003) shows that the distance from the city center to the edge has increased from 15 kilometers in 1978 to 30 kilometers by the mid 1990s.

In Kinondoni municipality, many households in the periphery areas such as Mbezi Msumi and Mpigi Magoe are located beyond 40 kilometers from city center. Therefore, as the city continues to sprawl in terms of population, the demand for public transport services also increases which in turn, creates the need for increased numbers and operations of commuter buses in sprawling areas. This is because most of these people live and work in the city center, and makes more trips within the urban areas, often over longer distances. The current public transport system in the city has great difficulty in covering the increase in both surface area and urban population growth. Today, the gap between public transportation demands and the means to satisfy them are very great. However, the study on urban sprawl and access to public transport service has not yet been adequately documented in Dar es Salaam City; this study aims to investigate on urban sprawl and access to public transport services using Kinondoni Municipality as a case study.

[1] *Daladala:* Locally refers to common name given to commuter buses in the city of Dar es Salaam.

1.4 Research Objectives

1.4.1 General Objective

The main objective of the study is to assess the impacts of urban sprawl on access to public transport services in Kinondoni Municipality.

1.4.2 Specific Objectives

1. To identify factors influencing urban sprawl in Kinondoni Municipality.
2. To examine the major effects of urban sprawl on the access to public transport services in Kinondoni Municipality.
3. To evaluate intervention measures of urban sprawl in the study area.

1.4.3 Research Questions

1. What are the factors influencing urban sprawl in Kinondoni municipality?
2. What are the major effects of urban sprawl on the access to public transport services in the study area?
3. What are the intervention measures of urban sprawl in the study area?

1.5 Significance of the Study

This study intends to contribute knowledge on urban sprawl and access to public transport services. The study is useful for academicians, policy makers, planners and other stakeholders for it will enlighten on the factors influencing urban sprawl, shows its impact on access to public transport services, and intervention measures to the problems. All these will act as a guideline for policy makers, planners, urban government, community as well as all other actors, in designing policies, and developing strategies for improving public transport services in sprawl areas.

1.6 Scope of the Study

The study was conducted in Kinondoni municipality as a case study. Based on several reasons such as limited time for the fieldwork, transport problems and other field requirement; it was impossible for the study to cover all wards in the periphery of Kinondoni municipality. Thus, only two representative wards were selected through randomly sampling technique. A total

sample size of 100 households' respondents was used in the study. Furthermore, the impact of urban sprawl on access to public transport services is broad. Therefore, I narrowed it into three research questions which acted as a roadmap for this study.

1.7 Limitations of the Study

Challenges from the field

1. Limited time because it had numerous interferences from social aspects. For instance, it was not easy for me to spend the whole time in the fieldwork without attending family matters due to the fact that I was away from my family for one year. This situation caused some delay in the planned time for the fieldwork.
2. Another big challenge was transport problem which was costly in terms of time as well as money. On several occasion I used public transport to reach the study area, but due to severe traffic jam it took more than 2 hours on the way. In order to solve this problem I had to wake up between 4:00AM- 5:00AM to catch up with informants.
3. Changes in planned time for interviews by some key informants, due to other official commitments. For example, attending meeting outside the city.

Despite all these, I was able to manage all challenges by being more committed and flexible in any challenge.

1.8 Organization of the Study

This thesis has been organized based on chapters, sections and sub-sections so as to allow the flow of knowledge in a logical way. The thesis comprises 8 chapters, ranging from 1st chapter to the last chapter (Chapter-8). Chapter one consists of introduction, background to the study, statement of the research problem, research objectives, significance of the study, scope and organization of the thesis. The second chapter presents literature review, theories, approaches and conceptual framework. The third chapter discusses methodological approaches, while chapter four- seven, present the findings of the study. Lastly, is chapter eight (8) which presents summary, conclusion, recommendations and areas for further research.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter reviews the literature about urban sprawl and access to public transport services. The main areas reviewed from different literature are concepts and definitions of urban sprawl, factors influencing urban sprawl, and its impact on public transport services, public transport in Dar es Salaam city, intervention measures and lastly the approaches related to urban sprawl, and the conceptual framework.

2.1 Definitions and Concepts

Urban sprawl has become a common phenomenon since World War Two (II) - (Belser, 1960; Harvey and Clark, 1965; Gans, 1967; Jackson, 1985; Mills and Hamilton, 1994, cited in Lei & Bin, 2008). In Western countries, especially in the United States; urban sprawl is defined as a low density, automobile dependent development beyond the edge of service and employment areas. Its effects are impacting the quality of life in every region in the world. Brueckner (2000) defines urban sprawl, as an excessive spatial expansion of cities. According to USEPA (2002b) cited in Bray, *et.al* (2005) urban sprawl occurs when the rate in which land is converted to non-agricultural exceeds the rate of population growth.

From the existing academic and popular literature, researchers identified sprawl as the process in which the spread of development across the landscape far outpaces population growth (Ewing, *et al.,* 2003). The landscape that sprawl creates has the following features: A population that is widely dispersed in low density development; separated homes, shops, and workplaces; lack of transportation choices, and the difficulty of walking (www.smartgrowthamerica.org).
Furthermore, the literature explain that; there is a little distinction between 'sprawl', 'urban sprawl' and 'suburban sprawl' (Bray, *et.al*, 2005). In view of this, sprawl' is mainly characterized by separation of land use, leapfrog development, automobile dependent development and development at the periphery of an urban area at the expense of its core. However, most of the definitions share some common characteristics like unplanned urban growth, an increase in commuting time and distances, an increase of low density development in

suburban areas with a concurrent decrease in high density population in the inner cities (Bray, *et.al,* 2005).

Despite of all the given definitions and concepts, there is still a debate on urban sprawl. Due to its complexity, there is still no accurate and generally accepted definition and measures for urban sprawl (Sutton, 2003; Galster *et al,* 2001; Wolman *et al,* 2005 cited in Lei and Bin, 2008). There is always disagreement on the confluence of urban sprawl, whether negative or positive to the society (Ewing, 1997 cited in Lei and Bin, 2008).

From the above discussion, this study identified operational definition so as to fit with the purpose of the study. Therefore, urban Sprawl is conceptualized as spatial expansion of the city which occurs laterally rather than vertically. The concept is further referred as, excessive conversion of the periphery land into urban use such as land for housing. Based on research conducted in Kinondoni Municipality, urban sprawl is characterized by increase in distance from Central Business District (CBD), housing constructed in large lots, high dependence on automobile, poor infrastructures: Poor roads and vehicles, an increase in commuting time, resulting in that individuals spend 2-3 hours to reach they work place in CBD; and access to utilities is still poor (Field, 2011).

2.2 Causes of Urban Sprawl

Due to its complexity, there are no accurate and homogeneous factors which influence urban sprawl. Considering diversity in socio- economic factors which underlie a particular area, different reasons explain urban sprawl in different parts of the world. For instance, in North America, urban sprawl occurs as people move into suburban areas in search of a higher quality of living (Whitehand & Larkham, 1992). The North American urban sprawl is associated with economic development, and modern life style of rich people to use private cars (UN-HABITAT, 2010a). As Lei & Bin (2008) pointed out that, the causes of urban sprawl in China are different from western countries. However, some literature has tried to identify some common factors leading to urban sprawl in different parts of the world.

2.2.1 Urban Population Growth

Urban population growth can be considered as a core factor that influence urban sprawl. UN-HABITAT (2008) and Kaur (2008) explain that, the population of the world has been increasing, and so poses high demand for urban land. All the metropolitan cities have grown in spatial size to host the increasing population. In this regard, as the urban population grows, more and more urban land is needed. Population growth in urban centers has been attributed mainly by rural urban migration as well as natural increase. Armstrong-Wright (1993:1) reported that, 'in China the annual growth rate was 11% per annum, while in Africa, this growth rate was seen in Tanzania and Mozambique'. Yet, a large part of this urban growth can be expected to take place in low-income suburbs and on the periphery areas.

In cities of developing countries population continues to increase from time to time. The rapid population increase in cities pose major challenges to the city government in providing adequate services to the increased population such as water, public transport services, electricity, roads networks, housing and others. UNHABITAT (2008; 2010a) reports that, urban sprawl in many developing countries has been attributed by the inability of urban authorities to predict population growth and, as a result, failure to provide land for the urbanizing poor. Largely, in central part of the city, the poor are denied a land right which is one of the main factors that drive people to the periphery of the city (UN-HABITAT, 2010a). In case of Serbia, it is estimated that, more than half of the migrating rural population has so far settled in periphery towns zones (Makson, 2008). Likewise, in Dar es Salaam, informal settlements in periphery absorb large proportions of the urban dwellers, leading to rapid urban sprawl into the unplanned periphery.

According to UN-HABITAT (2008; 2009a) the process of urban sprawl in sub-Saharan Africa cities is informal, and driven by poor/low income households to secure affordable land in a reasonable location. These sprawling urban peripheries are almost; not serviced, unregulated, and form the bulk of unregulated settlements. Olujimi (2009) contends that, the unprecedented increase in the population continues to put pressure on the existing housing demand in cities. Thus, the inability of the housing supply to cope effectively with the housing demand from the increased population has succeeded in pricing out the majority of low income –earners from the

housing market. This situation has led the impacted groups to continue establishing squatter settlements at the peripheral areas of cities.

2.2.2 Affordability and Desire for Large Houses

Kaur (2008) identified housing factor to be among the factors contributing to urban sprawl. Housing affordability in areas close to the city centre is a big issue. According to Kaur, people have a desire towards big houses due to several reasons like: To have more space per person; having more space for children to play within the house; freedom to do what they want at their convenience of times, for example, listening to loud music. Thus, the only option available for the middle and low income groups is to buy a piece of land on the periphery of the city so as to fulfill their desires (Kaur, 2008).

2.2.3 Competition for Urban Land

The current situation shows that, urban land markets are increasing from time to time. Access to land in city centre is a big challenge particularly to the low income groups. Different classes: High, middle and low income groups, compete with each other for land. This has led periphery areas to be the only option available for all groups looking for land that can be obtained cheaply.

2.2.4 Rising Incomes

It is noted that rising incomes of middle and low income groups have promoted expansion into the outer suburbs (Brueckaer, 2003; Kaur, 2008). As the income increases, people prefer to have their own houses for tenure security. Therefore, these groups prefer to buy a piece of land informally from friends and others, so as to accommodate themselves in informal settlements in the periphery areas.

2.2.5 Implementation of Urban Development Projects

Urban renewal and slum upgrading projects in many parts of the global south continue to dispossess poor urban dwellers of inner-city landholdings. This goes hand in hand with reallocation of the poor people in the outskirt of the city (Yitbarek, 2008 cited in Tatek, 2011). Further, Swanson (2007) noted that, relocation of inhabitants in the outskirt is dominant because

of revanchist urban development policies, expansion of business district, and middle class condominium housing are all too common.

2.3 Urban Sprawl and Public Transport Services

A big challenge that troubles people most about urban sprawl in different literature is the transportation problems (Holcombe *et al,* 1999). Many of these problems emerge because the urban government has not effectively controlled access to its roads.

2.3.1 Traffic Congestion

Empirical studies in United States revealed that urban sprawl contributes to the increase of traffic congestions. This is due to the dominance of the private automobiles for transportation, often over a long distance (Su, 2006). The traffic congestion in America generates huge costs to urban residents. Economic development and the marginalization of land by consequent urban development generates the need for new transport infrastructures to link them together; which in turn produces traffic congestion and additional costs to the society (SACTRA, 1995).

2.3.2 Increase Cost of Public Infrastructures

Urban sprawl has a negative impact on infrastructure and the sustainability of cities. In most cases, sprawl translates into an increase in the cost of transport, and of public infrastructure due to the fact that, homes, offices and utilities are set farther apart. For instance, residents of low-density areas spend a higher proportion of their income on transportation than residents living close to the city centre - high density areas (Carruthers, 2003; Kaur, 2008; UNHABITAT, 2010a). It has been observed that, people in sprawls or outskirts spend a lot of time commuting longer distances to get to their jobs, schools, shopping facilities (Kaur, 2008; UN-HABITAT, 2010a). Sprawl also creates fiscal problems for cities, as it takes place outside of urban administrative boundaries (UN-HABITAT, 2010a).

Sprawl undermines the cost-effective provision of public services (Carruthers, 2003). It is argued that, for many services, the cost per unit of development rises as densities decrease (Kelly, 1993; Knaap & Nelson, 1992; Nelson *et al,* 1995; Porter, 1997). That is, low-density, spatially expansive development patterns lead to greater costs because of the large investments required to

extend roadways and other types of infrastructure that transmit water, sewage, electricity, and other services long distances to reach relatively fewer numbers of people (Carruthers, 2002a, cited in Carruthers, 2003).

2.3.3 Greater Dependence on Private Vehicles, Cars

Urban sprawl as it has evolved in North America cannot be separated from the use of private vehicles for transportation. Spread-out suburbs ensure that population densities are too low to support an efficient and comprehensive public transit system. Kaur (2008) stated that the residents of sprawling areas rely heavily on private cars, as access to public transport is poor. Other modes of transport like walking and bicycling are no longer viable options. This situation is worst in developing countries where the rate of car ownership is still low, thus, the majority of residents in the periphery area largely depend on public transport for their daily mobility. Therefore, urban sprawl poses a big challenge in accessing public transport services.

2.3.4 Environmental Degradation

In many places, urban sprawl encourages new developments that cause significant loss of prime farmland, and when cities are improperly planned urban sprawl, also adds to environmental degradation (UN-HABITAT, 2010a). Excessive use of motor vehicles and long distances travelled by public and private transport; release large amount of air pollution which is also harmful to human health.

2.4 Public Transport in Dar es Salaam City

Public transport system in the city of Dar es Salaam has an historical context. During colonial period, German and British governments planned and built road networks (UN-HABITAT 2009c). After Second World War (WW II) Tanzania became under British colonial rule. In 1949, Development of public transport in Tanzania started in Dar es Salaam city (Mlambo, 2009). A privately owned British company known as the Dar es Salaam Motor Transport Company (DMT) started to provide bus services in the city (Kanyama *et al*, 2004; UN-HABITAT, 2009c; Mlambo 2009). The public (bus) transport in Dar es Salaam was more efficient and effective in meeting people's demands and satisfactions (Kanyama *et al*, 2004; UN-HABITAT, 2009c). This was due to the small area and low population in the city. Dar es Salaam Motor Transport

company services were confined within the officially recognized urbanized area of about 2-3 kilometers radius (Kanyama *et al,* 2004; UN-HABITAT, 2009c). Public transport services that DMT provided corresponded largely with people's demands due to the smaller size of the city and its population size.

After Tanzanian independence in 1961, Dar es Salaam Motor Transport Company (DMT) was nationalized (Mlambo, 2009). In 1974, DMT was renamed as '*Usafiri* Dar-es-Salaam' (UDA), meaning literally 'Public Transport in Dar-es-Salaam' (Kanyama *et al* 2004: 38; Prosper, 2005). UDA operated fairly satisfactorily immediately after it acquired the assets of DMT. Fare levels were regulated according to what the government thought that, the majority of the people could afford to pay (Kanyama *et al* 2004). In this regard, the fare levels were too low to cover operating costs, and the government could not cover the financial gap. Furthermore, poor road conditions, urban population growth, rapid spatial expansion of the city, lack of qualified technicians, engineers and transport planners were some of the challenges faced by UDA (Kanyama *et al* 2004; Prosper, 2005). In the late 1970s, private transport operators emerged illegally; due to the gross failure of UDA to offer adequate transport services and public travel demand (Kanyama *et al* 2004; Mlambo 2009). In 1983, the government recognized officially privately public transport operators in order to solve the city's transport problem (Kanyama *et al,* 2004; Mlambo, 2009). Since then, public (bus) transport in Dar es Salaam is operated by private sector in a form of Public-Private Partnerships (PPP). However, public transport services continued to be inadequate as the city continues to sprawl due to rapid population growth. In this regard, urban planning with effective resource utilization and improvement of infrastructure such as roads as well as public transport are key concerns.

2.5 Intervention Measures to Reduce Urban Sprawl

2.5.1 Decentralization

Some literature suggests that, decentralization is essential toward reducing the impact of urban sprawl (Kaur, 2008). Efforts should be done to shift commercial and offices spaces to these locations. Further, significant attempts or investment should be directed on other essential supporting facilities such as water and electricity services, transport, housing, and schools.

2.5.2 Infrastructure Development Policies

Kaur (2008) states that in developing countries, urban sprawl is accompanied with the increase of urban poor, particularly migrants, which continue to add more pressure on infrastructures. In this respect, policies should be directed toward improving public transport services, like roads, more buses, so as to allow easy movement from one place to another.

2.5.3 The 'Compact City' Model

This model makes the use of land in more efficiency manner. It reduces development on the periphery of the city by redeveloping the unused sites, re-use of infrastructures, and re use of previously developed land. Jecks *et al* (1996) cited in Lei & Bin (2008) suggested that, compact city policy should be adopted in China, because mixed land use, high density and public transportation are important for the sustainable urban form. The different studies revealed that, in Western countries, the compact city theory is considered as a useful tool to control urban sprawl (Lei & Bin, 2008).

2.6 Knowledge Gaps and Key Challenges

Many studies and literature discussed above put more focus on urban sprawl and its impact on environment and public health. Urban sprawl attracted many writers and researchers due to several impacts it has toward sustainable environmental development. However, in all literature, the transportation problem has been mentioned to be the biggest challenge in the context of urban sprawl; despite the fact that, the direct and detailed studies on urban sprawl and transportation problem, particularly in the context of developing countries has not been given much emphasis on it.

Moreover, some literature indicates that, in Europe population growth is no longer determining the outward expansion of built-up areas (EEA, 2006) rather it is much about economic development, and people's life style to detach from shared apartment. This shows some variations existing between different places. For instance, in this study it was noted that urban population growth is one of the core factors influencing urban sprawl in Dar es Salaam city. Based on social-economic differences which underlie a particular society, it is reasonable to say that, some of the factors discussed in this chapter, are not necessarily related directly with the

findings of this study. This is to say, some of the unique issues about urban sprawl have been discussed reflecting the study area and not that of developed countries. For instance, many studies show that in case of American cities, urban sprawl is largely dominated by private car dependence; while this study found that most of the households in sprawling areas are mainly depending on public transport such as *daladala.*

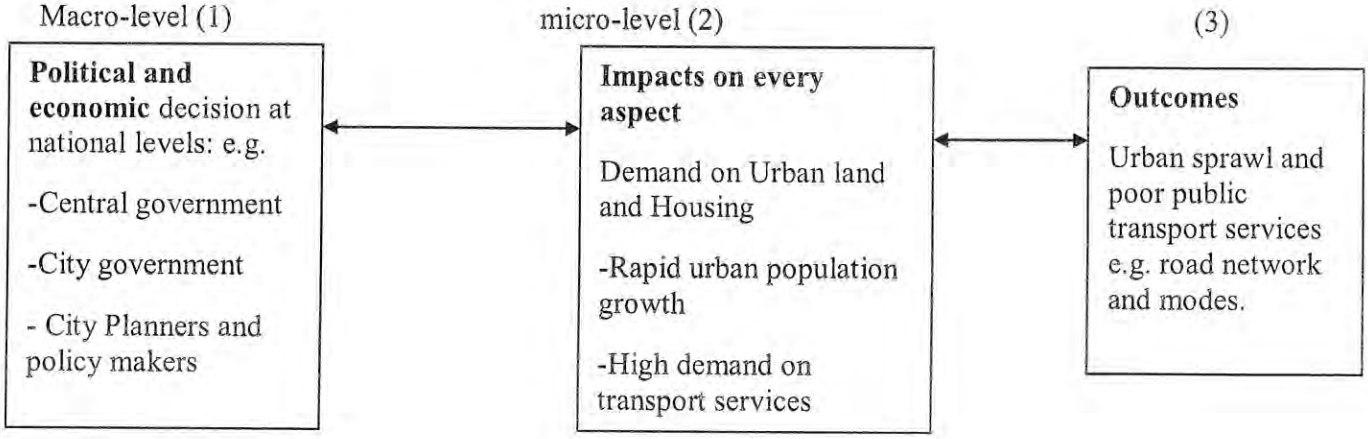
2.6 Approaches

2.6.1 Political Ecology Approach

This approach attempts to combine both political economy and ecology in studying urban sprawl and public transport services (Mayer, 1996). Political ecology approach in human geography was introduced by Blaikie & Brookfield in 1987 (Zimmer 1996). The approach incorporates the concepts of power and politics in planning, formulating policies, service provisions and creation of justice and equality in the society (Mayer, 1996). It takes into account how the government priorities, planning, policies and decisions over resources distribution are influenced by politics and power. On the other hand, political economy emphasizes on power, influences and authority. Thus the approach suggests that human-environment relationships at local, regional, and global scale can be understood only by analyzing the relationships of patterns of resources to political economy forces (Mayer, 1996).

In this regard, this approach was used to examine power and politics in policies, planning and implementation of priorities by the urban government in the context of urban sprawl and access to public transport services. In relation with political ecology approach, this study reveals that, decisions and policies formulated at national level have greater impacts at local scale, which turn into uncontrolled urban sprawl and poor public transport services for the residents in sprawl areas. Rapid increase in urban population through rural-urban migration, inadequate spatial planning of Dar es Salaam city, displacement of urban poor from land ownership are among of the factors for urban sprawl which are influenced by power and politics in policies, planning and decisions over resource distributions.

Figure 2.1 The effects of political economy decision at macro-level to local scale, and their outcomes



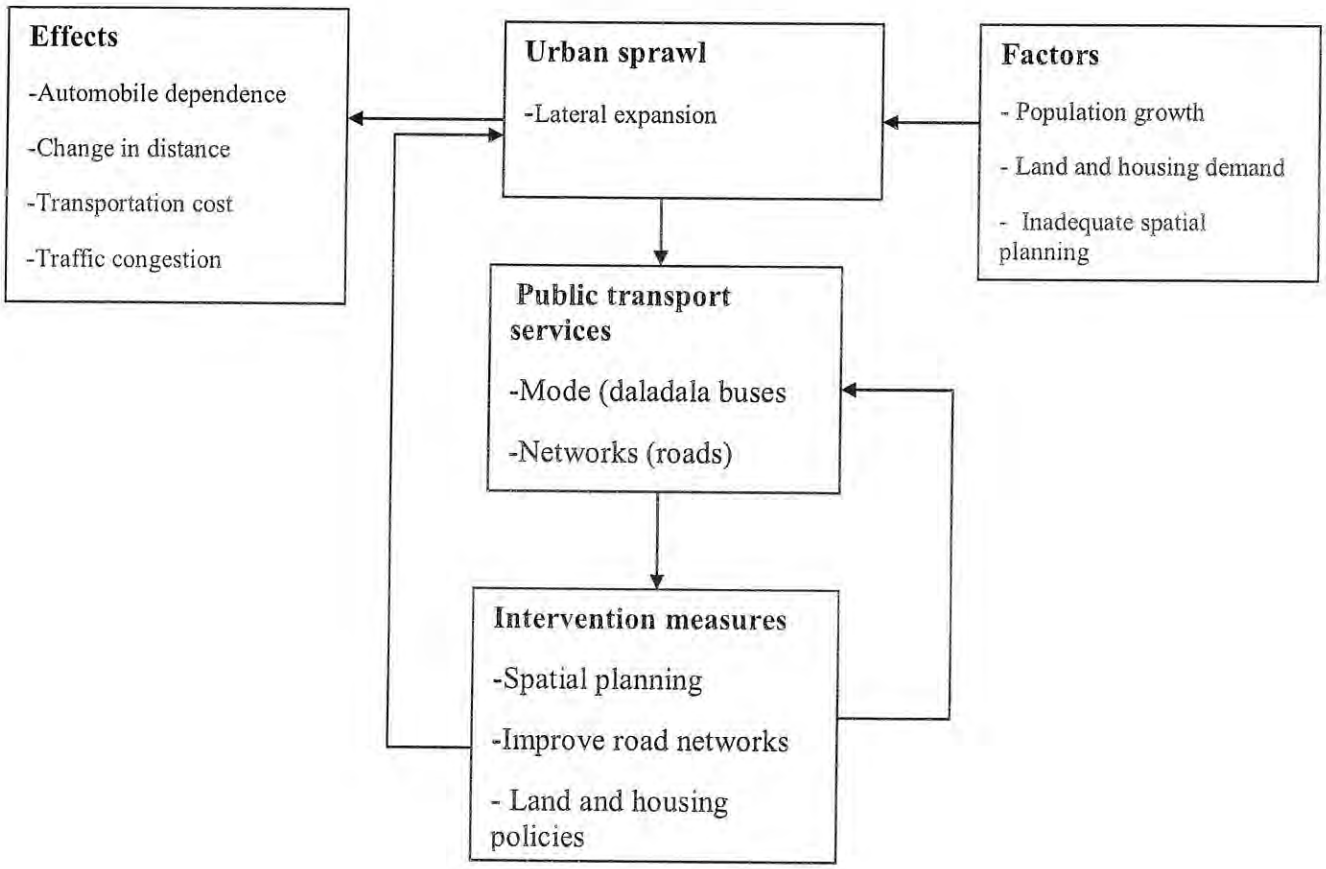
Key ⟷ Interrelationships

Source: Mayer (1996)

2.7 Analytical Framework

A conceptual framework has been used to represent the key variables used in the study in more simplified manner. It displays the general understanding of the study specifically on key concepts and objectives. The framework has been incorporated with some variables from the findings. Therefore, urban sprawl and public transport framework consists of five elements which have different relationships within the framework. The elements are urban sprawl, factors, effects, public transport services, and intervention measures.

Figure 2.2 Analytical framework of the study



Source: Researcher's construction

Description of the Variables in the Framework

2.7.1 Urban Sprawl

Urban sprawl is referred to spatial expansion of the city which occurs laterally rather than vertically. In studying urban sprawl; two wards were selected for representation of Kinondoni municipality namely Mbezi, and Kunduchi wards. These wards are located beyond 25Km from the Central Business District (CBD) known Kariakoo/ Posta.

2.7.2 Factors Influencing Urban Sprawl

These are all agents for urban sprawl which includes all factors which activate the occurrence of the urban sprawl. Therefore, in relation to the findings, urban sprawl in case of Kinondoni has been attributed to the following main factors; rapid population growth, demand on land and housing, inadequate spatial planning and implementation of development project.

2.7.3 Effect of Urban Sprawl

This aspect of urban sprawl comprises both positive and negative effects. In this framework, urban sprawl has the following effects: high dependence on automobile, high transport cost, demands of addition roads and other transport utilities, increase in driving distance and traffic congestion.

2.7.4 Public Transport Services

Include all elements which enhance people's mobility such as buses, networks (roads) and other utilities. Public transport is an important aspect in the context of urban sprawl in facilitating economic and social interactions. Good public transport services help periphery communities to improve their livelihoods and to reduce poverty. Poor public transport services affect the livelihoods of the majority who depend on this mode of transport. It limits interactions with their working place, friends, and access to other utilities. Based on the conceptual framework above; urban sprawl has both direct and indirect effect to public transport services. In this case urban sprawl demands an effective and efficient public transport services.

2.7.5 Intervention Measures

Intervention measures are both for urban sprawl as well as for public transport services. Intervention measures which reflect on policies, plans, strategies as well as enforcing existing laws and plans. For instance proposed intervention measure in the study area were: decentralization of services from central business, improvement of feeder roads, reducing functions of trunk roads, and introducing alternative modes of transport like: boats in Tegeta sub-ward.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter presents an important part in research process. Kitchin & Tate (2000) defined methodology as a systematic process of collecting, analyzing and interpreting data in order to find answers to the research questions. The chapter has been divided into two major sections. Section one describes: The administrative structures, geographical area of the study and the reasons for selecting it as a case study area. Section two describes: The research approaches, sampling procedures, the methods for data collection and techniques, as well as discussions on some important concepts like validity and reliability, insider and outsider, reflexivity and positionality.

3. 1 General Overview of the Dar es Salaam City

3.1.1 Location and Climate

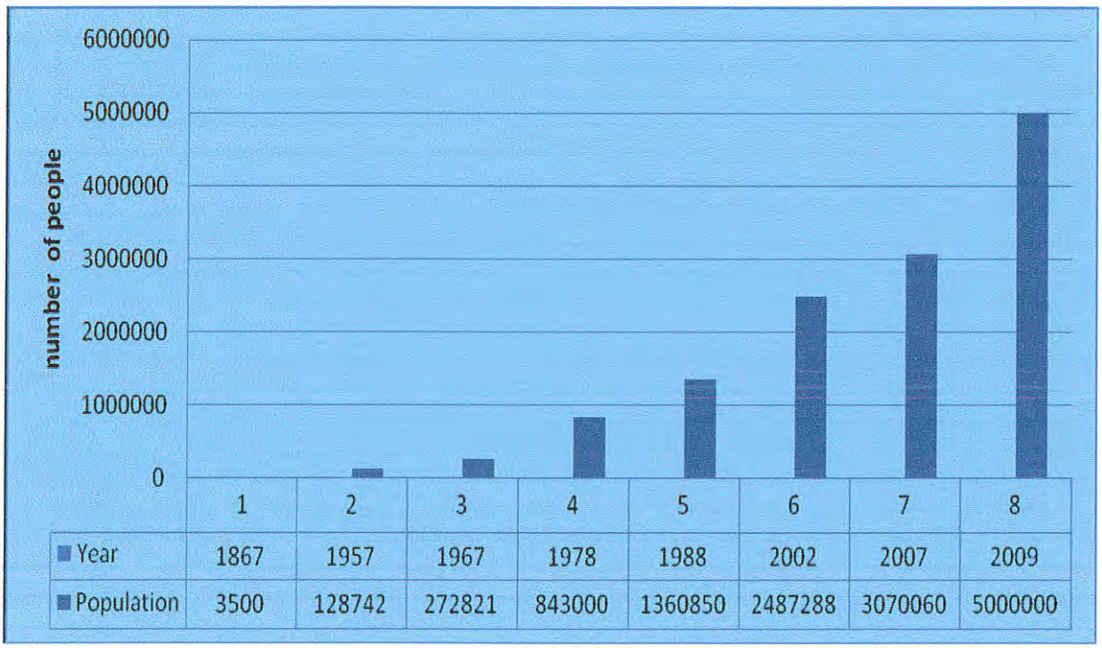
Dar es Salaam lies on the East coast of Africa on the shores of the Indian Ocean (WBCSD, 2007). It has an area of approximately 1,800sq Km. Dar es Salaam is the largest city in Tanzania and the third fastest growing urban center in Africa (Ricci, 2012). The city is the commercial center and a hub that connects the country and the rest of the world. Further, Dar es Salaam is a multicultural place, where the majority of its people are Africans who have migrated from different areas. The climate of the city is characterized by humid throughout the year, with an average temperature of 29^0C (WBCSD, 2007).

3.1.2 Population

The population of Dar es Salaam in 1978 was 782,000 while it is currently estimated to be 5 million, Figure 3.1 (Casmir, 2009; DCC, 2010). The city's population is expected to reach 8 million by 2020 if the present growth trends continue. WB (2002) reported that the population of Dar es Salaam has been growing at the rapid rate of 8% per annum, due to high in-migration and a birth rate of 4.5% per annum. It was estimated that since 1967 about 67% of the population

growth in the city was largely contributed by rural-urban migration (URT, 2004). The age distribution in the city shows that, 34% of population is children (up to 14years), 64% is between 15-64 years, and 2% are above 64 years of age (WBCSD, 2007).

Figure 3.1 Dar es Salaam city population growth from 1967-2009



	1	2	3	4	5	6	7	8
Year	1867	1957	1967	1978	1988	2002	2007	2009
Population	3500	128742	272821	843000	1360850	2487288	3070060	5000000

Source: Casmiri (2009); Dar es Salaam City Council (2010); (UPCC, 2011:34)

3.1.3 Urban Structure and Spatial Expansion

One of the main features of the Dar es Salaam city is the expansion along the arterial roads (Figure, 3.2). Between the arterial roads, there are large areas that have developed into unplanned settlements. Over the last decade, informal settlements have become increasingly denser as people continued to migrate to Dar es Salaam (URT, 2004; WBCSD, 2007). The current situation shows that, people have also started to stay on land that was previously less attractive including peripheral areas and largely areas prone to flooding (WBCSD, 2007). Over time, the spatial expansion of the city has been increasing (Table 3.1 & Figure 3.3) that the residents in the periphery spend long hours to reach work places in the city centre (Lupala, 2002; 2011).

Figure 3.2 FORMAL AND INFORMAL SETTLEMENTS IN DAR ES SALAAM[2]

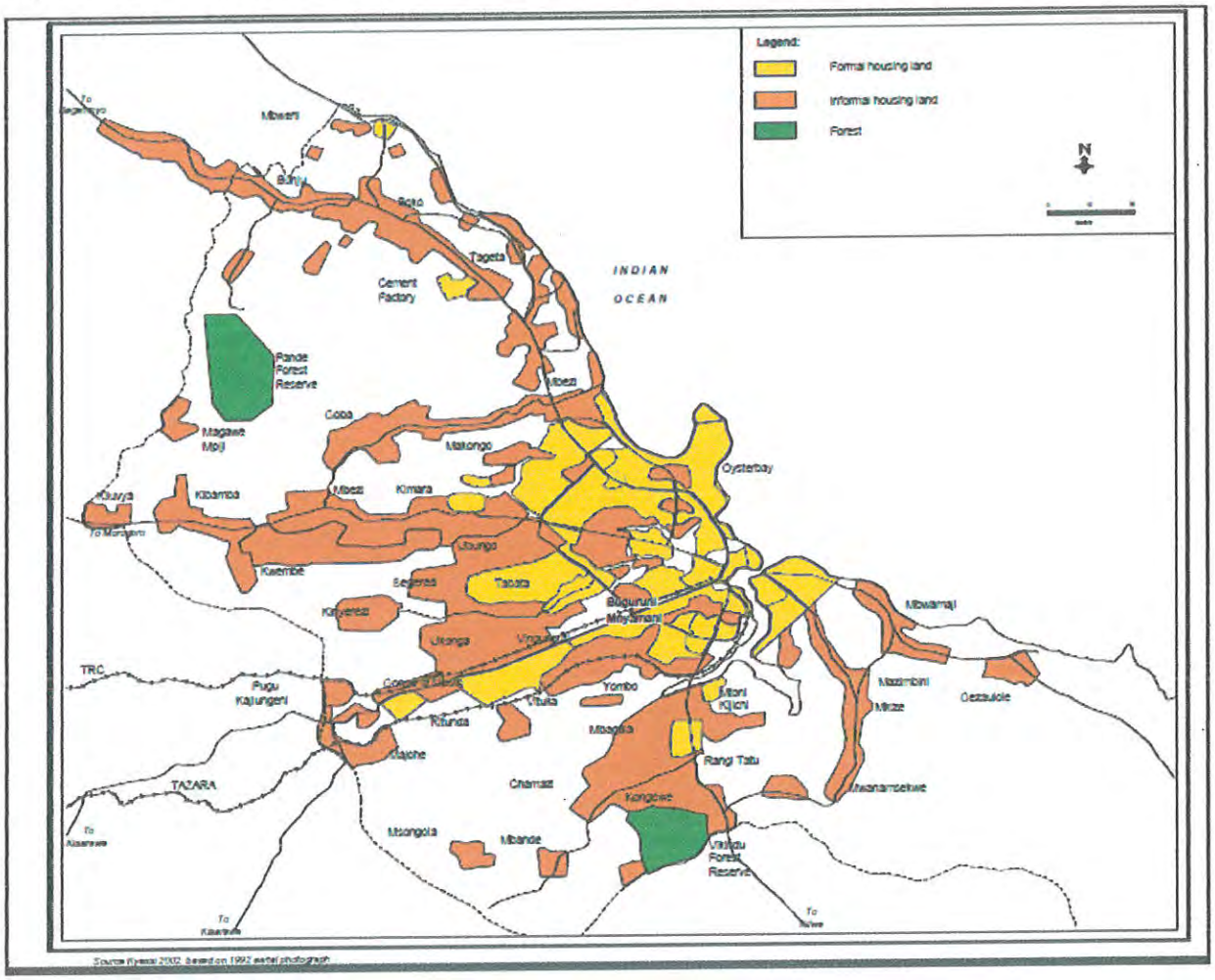


Table 3.1 Spatial growth trends for Dar es Salaam (1961-2001)

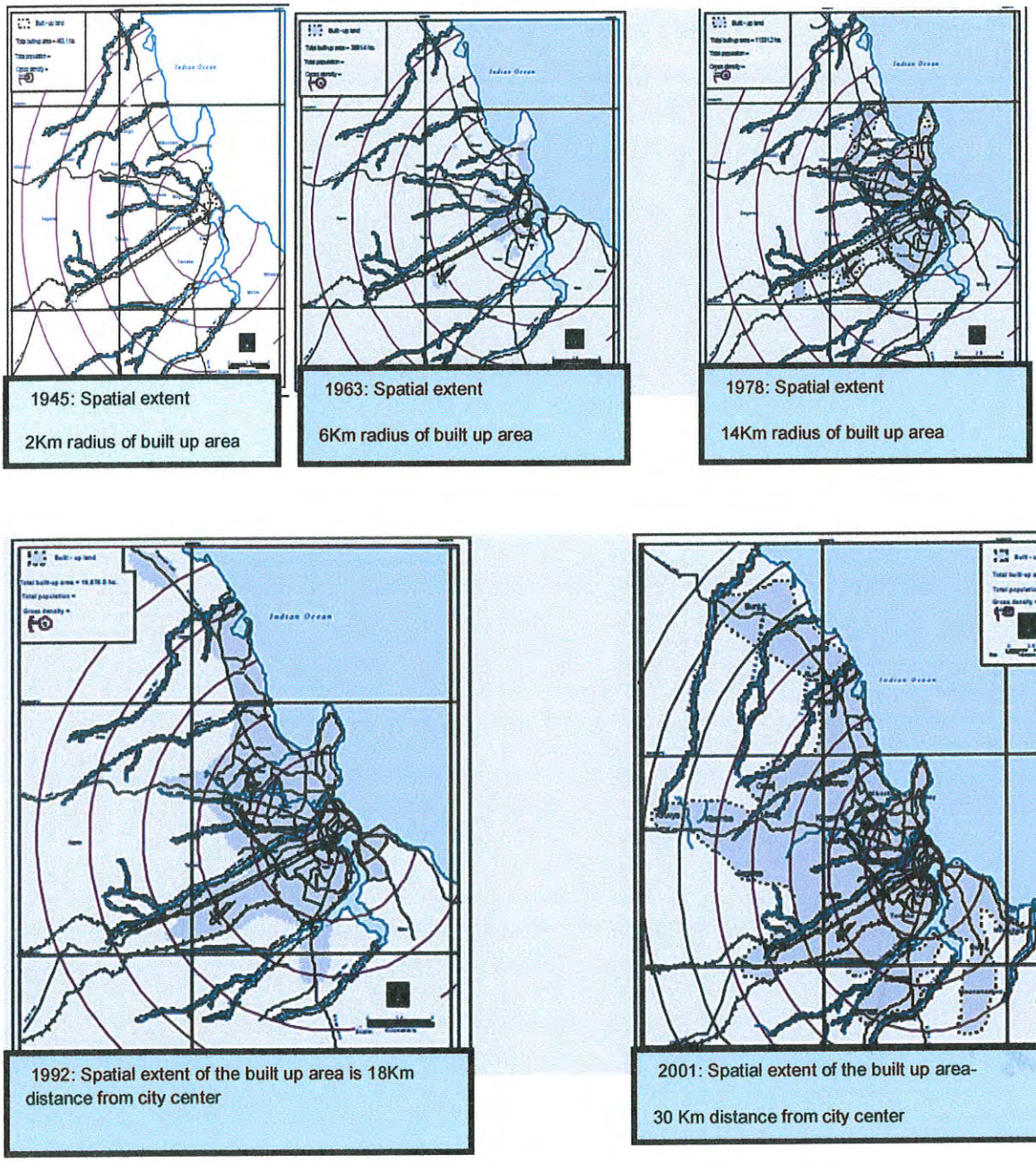
Year	Spatial Extent	Urbanized Area(hectare)
1963	6kmR[3]	3081
1978	14KmR	11,331
1992	18KmR	19879
2001	30KmR	57,211

Source: Lupala (2001)

[2]Source: http://www.mile.org.za/Come_Learn/Capacity%20Enhancement/Multimedia%20Library/

[3] KmR- refers Kilometers Radius

Figure 3.3 SPATIAL GROWTH TRENDS FOR DAR ES SALAAM FROM (1945-2001)



Source: Lupala (2002) and Msilu (2009)

3.1.4 Land Use

Dar es Salaam has mixed land uses: Commercial, residential, the Central Business District (CBD), industrial, urban agriculture and open spaces (URT, 2004; WBCSD, 2007). The city center which is a planned area is located along the Indian Ocean coast. A large part of the city center consists of commercial, institutional and very limited residential use (WBCSD, 2007). However, the western part of CBD consists of mixed commercial and residential use. Generally, the most dominant land use apart from CBD is residential, including Kinondoni municipality. Squatter/informal settlements occupy over 75% of residential land use (Kironde, 2009). These settlements correspond largely with the low- and middle –income residential areas. The current trends show that there are difficulties in accessing residential plots in the city center. On the other hand, the city center remains the focal point for major commercial activities and a center of attraction for the majority of people living within and outside the city.

The physical feature in this land use pattern is that, there is a marked separation of residential area from places of work. Such a pattern of land is accelerating urban sprawl in Dar es Salaam, and therefore, has significant implications on transportation. For instance, from personal observation and experience from the field shows that it is normal to see people scrambling to enter in already overcrowded public buses, and high traffic congestion during peak hours, as they commute from residential area located in one end to the work places in the other end.

3.1.5 Roads Network

Dar es Salaam has five main trunk roads: Morogoro, Bagamoyo, Nyerere / Pugu, Kilwa and Mandela/Sam Nujoma road. These roads connect the city's suburbs to the city centre - Central Business District (CBD), where most offices and business destinations are located, and have a total length of 126.2Km (Mrema, 2011). The city's road network totals about 1,950 kilometers (Km) in length, of which 1120 Km (less than 60%) is paved, and is inadequate to satisfy its population density, spatial expansion and transportation needs. The city hosts about 52% of Tanzania's vehicles, and has a traffic density growth rate of over 6.3% per year (JICA, 1995; Kanyama *et al.*, 2004).

Table 3.2 Roads Networks in Dar es Salaam

Responsible	Length(Km)	Type of roads network(KM)		
		tarmac	gravel	earth
TANROADs[4]	494.3	211.4	282.9	
Kinondoni	**692.7**	**114.7**	**315.25**	**262.752**
Ilala	429	132	80	217
Temeke	478.4	67	411.11	
Total	2,094.4	525.1	1,569.3	

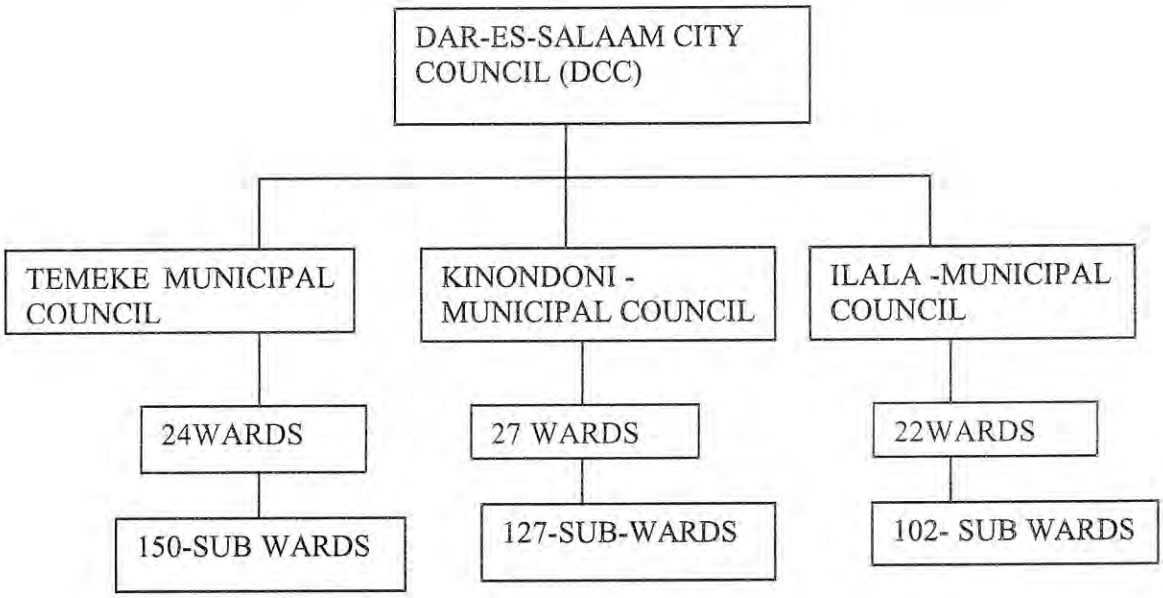
Source: Mrema (2011).

3.1.6 Poverty

About half of the households of Dar es Salaam's informal settlements live on an average income of 1USD[5] per day (WB, 2002, UPCC, 2011). The majority of them are migrants from parts of Tanzania in search of better life. Life expectancy in Dar es Salaam's informal settlements is low, ranging from 44 to 46 years, and infant mortality is high at about 97 deaths per 1000 live births (WB 2002; UPCC, 2011). Up to about 75 % of the households of informal housing settlements in the city are unemployed or under-employed (WB, 2002, UPCC, 2011), with the main source of income being through informal sectors and micro-enterprise. Employment in Dar es Salaam as a whole declined from 64 % to 42 % between 1992- 2000, while self-employment rose from 29 percent to 43%. On the other side, poverty for those in self-employment rose from 29 % to 38 % over the same period. Due to increasing levels of poverty, population growth and lack of sustainable housing policy, urban growth is absorbed into informal settlements (WB, 2002).

[4] TANROADs: Refer Tanzania National Roads Agency.
[5] 1USD=1,550TZS exchange rate on August/2011.

Figure 3.4 Administrative Structure of Dar es Salaam City



Source: URT (2004); Kironde (2010)

Figure 3.4 describes administrative structure of the city of Dar es Salaam, from top to down. At the top there is Dar es Salaam City Council (DCC), which performs overall functions of the three municipalities found in the city. The general plans and policies of the city are made by DCC. From the DCC the power is decentralized to each municipality (URT, 2004).

In municipality level, all plans concerning specific issues within municipality are done by the municipal council (URT, 2004). Each municipality consists of several wards which have administrative structures from ward level to sub-ward level. Each ward has different roles to perform within the area (for example, to coordinate community development projects and the municipal council). Ward executive officer work hand in hand with sub-ward executive officer to coordinate development activities pertaining to their area (such as, issues related with transport like encouraging community to participate in roads construction (Figure 3.3 Administrative Structure of Kinondoni municipality).

3.2 Kinondoni Municipality

3.2.1 Location

Kinondoni is the biggest municipality of the city of Dar es Salaam (refer, figure, 3.2 above). This municipality has 27 wards (URT, 2004; Msilu, 2009). It has a total area of 531Km^2, and is bordered by Indian Ocean to the North East; ILala municipality to the south, Kisarawe to the south west, Kibaha district to the west, and Bagamoyo district to the North (URT, 2004; Simon, 2008).

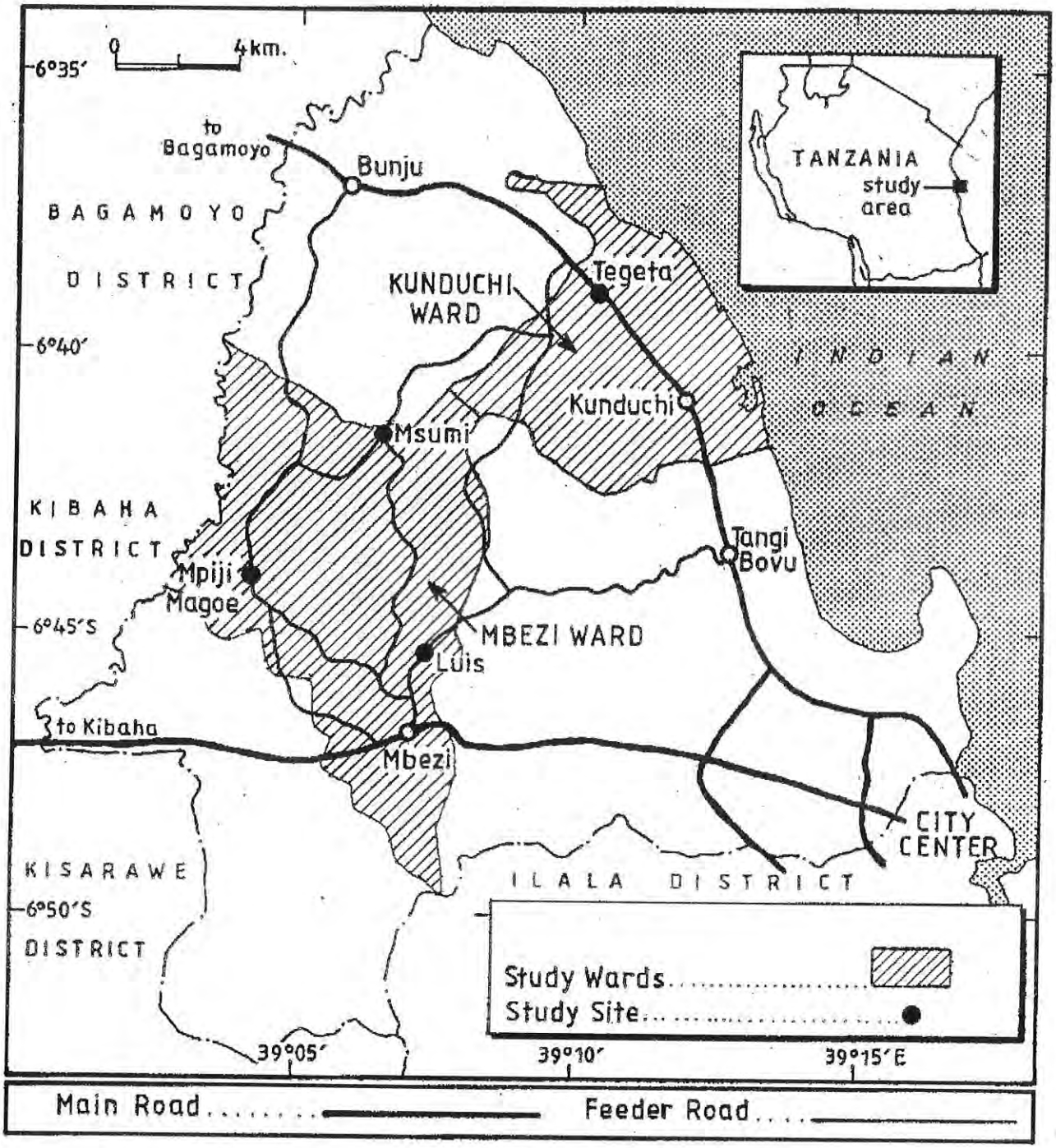
3.2.2 Roads Network

Kinondoni municipality has the following main trunk roads: Morogoro, Bagamoyo, Kawawa, Mandela and Sam nujoma road (URT, 2004; Simon, 2008).

3.2.3 Population

Kinondoni municipality is facing rapid increase of population largely attributed by rural- urban migration. In 2000, Kinondoni was the most populous municipality in the city (UN-HABITAT, 2010c; Ricci, 2012). According to 2002 census - Kinondoni municipality is the most urbanized district where 77.8 % is urban areas, 14.8% mixed while 7.4 % is the rural (Castro, 2004). Castro explains that the 2002 census data report on the spatial population distribution in the city shows that, unplanned settlement is concentrated mainly in Kinondoni Municipality. The rapid population growth in Kinondoni municipality leads to serious urban sprawl and excessive pressure on existing urban utilities such as infrastructures and public transport services. The land use is rapidly changing from agriculture to built-up areas. Kinondoni municipality has a population of 1,088,867 with a growth rate of 5.4 % according to 2002 census (URT, 2004). (Table 3.3 Population growth trends in Kinondoni Municipality).

Figure 3.6 THE STUDY AREA-KINONDONI MUNICIPALITY



Source: Cartographic center, University of Dar es Salaam (2011)

3.2.5 Mbezi Ward

Mbezi ward is one of the informal settlements found in the periphery areas of Kinondoni municipality. The Ward is located 30Km west of the city centre and lies just north of the Morogoro Road, which is one of the major roads running out of the city. Like other informal settlements in periphery areas of the city, Mbezi Ward continues to experience rapid expansion over time due to rural urban migration. According to 2002 census, Mbezi had the total population of 32703 and currently is estimated to have 45000 people. The ward comprises 6 sub-wards, namely: Mpigi Magoe, Mbezi Msumi, Mbezi Louis, Msakuzi and Makabe. This ward is largely occupied by low -and middle income- groups.

Figure 3.7 Satellite image Mbezi Ward (Peri-urban area)

Poor road conditions

Morogoro trunk road; connecting Mbezi ward to the inner-city

-Low density: Informal settlements

-largely, low and middle-income settlements

-Activities: Urban Agriculture, small business, constructions civil servant

- 35Km from inner city

-High populated area

-Population: 14,000

- Total Households: 3200

-Informal settlements

-Low density area

-Informal settlements

-40Km from inner city

3.2.6 Kunduchi Ward

This ward is located 25Km from city center. This ward comprises both formal and informal settlements. It has 4 sub-wards, and Tegeta sub-ward is mainly occupied by low - and middle – settlements.

Figure 3.8 Satellite image showing Kunduchi Ward (Peri-urban area)[6]

Bagamoyo trunk road: Connecting Tegeta sub-ward to the city center, 25Km

Tegeta Sub-ward

-Population: 17,000

-Total Households: 4,200

-Currently, high populated area

[6] Source: https://maps.google.com/maps?hl=en&q=satellite+map+of+kinondoni

3.3 Selection of Kinondoni Municipality

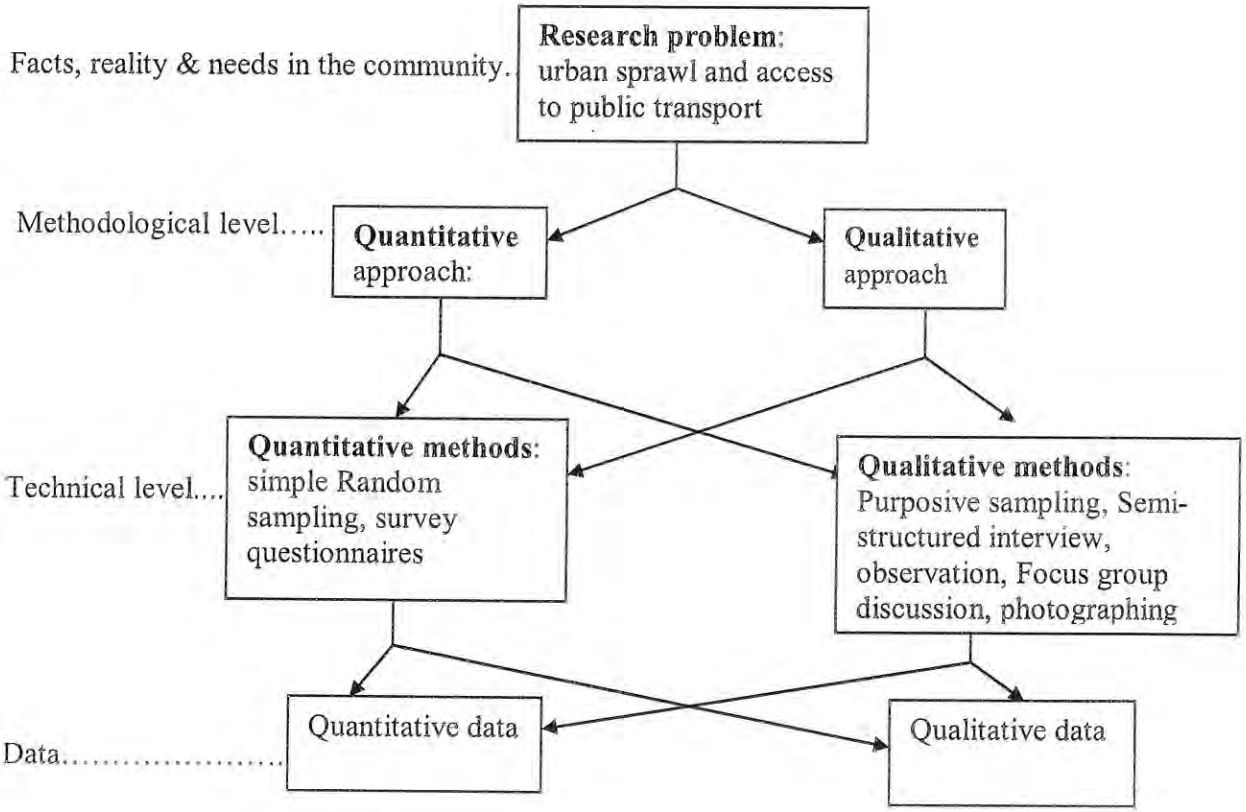
This study covered only Kinondoni municipality as one of the three municipalities in Dar es Salaam city. Kinondoni was selected based on the following reasons

1. It experiences rapid geographical expansion (urban sprawl) as a result of rapid population growth.
2. Several informal settlements have been developed towards periphery areas.
3. Most of the communities found in the periphery areas like those in Mbezi and Tegeta wards are facing the problems of public transport services. Moreover, communities in the study area face several challenges related to public transport. The challenges are like poor roads network, inaccessibility of *Daladala* buses, traffic congestion, high cost of transport, and lack of choice on the modes of transport available.

Therefore, based on the mentioned factors, Kinondoni municipality was considered to be relevant place for studying the impacts of urban sprawl on access to public transport services.

3.4 Research Methodology

Figure 3.9 Framework for processes of the research



Source: Niglas (1999a, 2004b).

3.4.1 Methodological Approach

A review of literature identifies different approaches for data collection, but the main ones are the qualitative and quantitative approaches (Kitchin & Tate, 2000). Based on Figure 3.7, this study is based on both qualitative and quantitative approaches for data collection, analysis and presentation of the findings. The reasons for combining two approaches are firstly, I believe that, each approach has its strengths and weaknesses and thus, it is better to mix the two approaches so as to supplement each other. Secondly and last, it is based on the nature of the research questions. The combination of the two approaches helped in addressing different research

questions in this study in an unique way. For instance, understanding all household's information related with urban sprawl and access to public transport services was done by survey questionnaires.

3.4.2 Qualitative Approach

The qualitative approach for data collection covers a 'set of techniques that are used to explore subjective meanings, values and emotions, through interviewing, participant observation' focuses group discussion and visual imagery (Clifford *et al,* 2010:3). A qualitative approach was used to collect detailed information regarding human behavior, perceptions, attitudes, feelings and emotions. In addition, qualitative techniques were used to draw attention on issues related to quality, depth, richness and understanding.

3.4.3 Quantitative Approach

A quantitative approach uses physical (science) concepts and reasoning, mathematical modeling and statistical techniques to understand geographical phenomena (Clifford *et al,* 2010). A quantitative approach is more structured and the data consists of numbers or empirical facts that can more easily be quantified than with a qualitative approach. In this study, quantitative approach helped to collect data related to: Number of buses, distance, cost of transport fare and other statistical data needed in the study.

3.5 Sampling, Sample Size and Techniques

We can't study every case of whatever we are interested in (Neuman, 2006). This statement implies that, selection of the small population from the large group is very crucial for doing detailed study. According to Neuman, sampling is a major challenge for any kind of research. The primary purpose of sampling by most quantitative researchers is to get a representative sample or a small collection of units from a much larger collection or population; such that the researcher can study the smaller group and produce generalizations about the larger group (Neuman, 2006). Sample Size is defined as a total number of people involved in a study. In this

study a total sample size of 120 respondents was used. Out of 120 respondents, 100 respondents were sampled to respond to the survey questionnaires which include households' informants. The remaining 20 respondents were sampled to respond to the focus group discussion (10) and semi-structured interviews (10). The reason for this sample size (120) was to get detailed data on both quantitative and qualitative issues.

Table 3.4 Summary of Sample Size Distribution by Methods

Total Sample size (120)	Techniques for data collection.
100 Households respondents	Survey questionnaires
10 Community respondents	Focus group discussion
10 Key informants: SUMATRA, DARCOBOA TANROADs, Urban Planners & Ward leaders	Semi-structured interview.

Source: Fieldwork (2011)

3.5.1 Simple Random Sampling

A simple random sample, is one in which every member of the population has an equal or independent chance of being involved in the study. Randomness as a sample selection process can be accomplished with either lottery or a table of random numbers.

Simple random sampling technique was used to get households respondents to be involved in the study. The households in the study area were selected randomly until a sample size of 100 households was obtained. Within the household, only a head of the household was administered with questionnaires such as a father or mother. In case the head of the household was not there, any member who was 18 years old and above was interviewed to represent the head of the household. Why 18 years old and above? - It is because a person is considered to be an adult and thus, can provide clear understanding and responses of different issues related to the subject matter.

3.5.2 Purposive Sampling

Purposive sampling is a valuable kind of sampling for special situations. It uses the judgment of an expert in selecting cases, or it selects cases with a specific purpose in mind (Neumarn, 2006). Purposive sampling is useful in identifying particular types of cases for in-depth investigation for the purpose of achieving deeper understanding of a certain issue (Neumarn, 2006).

In this study purposive sampling was used in selecting 10 key informants for semi-structured interviews. Furthermore, I applied the technique to reach 10 informants for the focus group discussion. All respondents involved in both techniques (semi-structured interview and focus group discussion were identified based on pre-determined factors, where specific group that ought to yield particular data was obtained. The key informants obtained by this technique were: 2 officials from TANROADs and SUMATRA; 2 informants from DARCOBOA; (2) officials, one from department of urban planning at Kinondoni municipal and the other official from the same department at the ministry of land housing and human settlements development (central government). Lastly, 4ward leaders: two from Mbezi ward and two from Kunduchi.

I used again purposive sampling technique to select two study wards: Mbezi and Kunduchi wards in Kinondoni municipality. The two wards were selected purposively due to their location and distance from the city center. Mbezi ward is located 30Km from city center and Kunduchi ward 25Km. The two wards are considered to be located in the periphery areas of the city along the main roads.

3.6 Methods for Data Collection

3.6.1 Primary Data

It includes information collected by a researcher during fieldwork. It involves techniques like questionnaires, interviews, observation, as well as focus group discussion. These techniques for data collection were chosen to generate both qualitative and quantitative data, which are specifically and valid for the study.

3.6.2 Secondary Data

It comprises 'information that has already been collected for another purpose but available for others to use' (White, 2010:61). Secondary data from government reports, internet, newspapers, books and academic studies were used to supplement primary data and justify some information; whereby published and unpublished documents were used. The process of getting secondary data was done through reviewing literature on key areas such as definitions and concepts of urban sprawl, background to the study, objectives, theories, approaches, and methods used. Through secondary sources both quantitative and qualitative data were collected. For instance, statistical data about urban population growth, spatial expansion in terms of distance from CBD, and description on the urban transport condition were obtained from these sources.

3.7 Techniques for Primary Data Collection

3.7.1 Observation

This technique allows a researcher to observe real situations or events in their natural setting. In my study I used observation technique to collect data on urban sprawl and access to public transport services in periphery areas. I observed availability and accessibility of *daladala* buses for the residents in Mbezi and Tegeta wards. Both qualitative and quantitative data were collected under this technique. For instance, I was able to see the quality and types of buses that operate as public transport in the study area; the quality of services, transport fare charged for the users, and time taken to access bus transport at the bus stop

I recorded all information collected in my field notebook for interpretation. Formal procedures to undertake this process were considered. For instance, permission letters to conduct fieldwork from my university and Kinondoni municipal authority were secured before the process of data collection. Therefore, I conducted my observation in the morning and evening; since most of people in the morning are trying to find transport service to go to work, marketing and other activities, and in the evening, they return home. The selected time was appropriate for observing the real situation in which communities in the peripheral areas face in accessing public transport services. Under this technique I faced the following challenges: The study area was very busy in terms of people and congestion of different types of transport modes, therefore, it was hard for me to capture all information required. Likewise, the process was also interfered by other things

which were not the interest of my study. Despite all these challenges, I managed to access some data which were still relevant to the study.

3.7.2 Semi-Structured Interviews

It is considered to be the 'most commonly qualitative technique which involves face to face asking question and recording information' (Kitchin & Tate, 2000:213). The reason for choosing this technique was to collect detailed information on people's experiences, feelings or opinions about factors influencing urban sprawl and associated challenges on accessing public transport services. This technique was used to collect detailed data from key informants. For example, I conducted interviews with SUMATRA, DARCOBOA, TANROADs, and Urban planners, municipal and ward councils. Detailed data related with transportation were accessed from SUMATRA, DARCOBOA and TANROADs, while those data concerns with urban sprawl were accessed from urban planners, Kinondoni municipal and ward councils. The interviews were conducted with 10 key informants from different departments, organizations and public offices.
As interviews allow interactions, subjectivity, positionality and personality and other social characteristics into the study; therefore, power relations with my key informants were one of the challenges encountered. For instance, my informants had power whether to participate in interview or not, or to be more openly or not. However, through my social networks I was able to minimize power between us.

3.7.3 Focus Group Discussion

This technique involves a group of people 'ranging from 6 to 12, who meet in informal way' to discuss about a research topic (Longhurst, 2010:105). A researcher can introduce a topic to the group and let them discuss from different angles (Longhurst, 2010). In this regard, this technique has been used to allow participants to interact with each other through discussion; instead of interviews which rely only on the interaction between interviewer and interviewee. In this study, two focus group discussions were conducted. Each focus group discussion comprised of 5 members from Mbezi and Kunduchi-wards. Respondents involved in focus group discussion were individuals from the community in the study area including, public transport users, conductors, drivers, ward's chairperson and *daladala* owners'. In total (10) respondents involved in the two focus group discussions composed of five (5) female and (5) males. The reason for

equal number of male and female was to get detailed information and their experiences in both sides on how transportation problems affect these two groups. Issues discussed included: accessibility of public transport services in the context of urban sprawl and intervention measures for the problems.

3.7.4 Survey Questionnaires

Structured questionnaire interviews comprised both open and closed ended questionnaires to obtain both qualitative and quantitative data was employed. The technique was used to collect data with less cost. Questionnaires were administered to household's informants in two wards namely Mbezi ward- 50 household's informants, and Kunduchi ward-50 household's informants. A total of 100 questionnaires were administered to the heads of household including (56) males and (44) females. It was just by chance through random sampling men were more compared to women. Further, this indicates that heads of households are largely dominated by men. The process of administering and filling questionnaire was done by me and a research assistant. This process was done purposeful in order to avoid mistakes and delays which would occur in filling and returning questionnaires, and further, to clarify some concepts, questions and other issues that would result in missing some important information.

3.7.5 Photographing

This qualitative technique allows a researcher to take pictures of the settings he/she is studying (Deacon, 2000). This technique was used to take pictures of the study communities and the real situations they experience on accessing public transport services. Further, the events and other physical features of the study area were also taken. Formal procedures were taken to use this technique including asking their permission. Qualitative data collected under this technique were based on: housing quality and modes of public transport used by communities in the study area.

3.8 Data Organization, Analysis and Presentation

Data organization in research refers to orderliness in research data (Kombo & Tromp, 2006). It involves putting the data into systematic form. For instance the raw data collected through questionnaire surveys, semi-structured interviews, personal observation and focus group discussion were organized before analysis.

The organization includes identifying and correcting errors in the data, coding the data and storing it in SPSS. After then, the process of examining the coded data critically and making inferences was done. This process refers as Data analysis (Kombo & Tromp, 2006). The last process after data analysis is data presentation. Presentation of data refers to ways of arranging data to make it clearly understood.

This study comprises both qualitative and quantitative data. Thus, different techniques for data presentation from both approaches (qualitative & quantitative) were used. Through SPSS and Microsoft Excel, quantitative data were analyzed and presented quantitatively in different forms such as: statistical tables, pie charts, bar charts, and graphs. While, on the other hand, qualitative data were transcribed and presented in different forms such as, explanations, quotes and photos.

3.9.1 Ethical Issues

Ethics is about 'the conduct of researchers and their responsibilities and obligations to those involved in the research' (Dowling, 2000: 26-27). It is about what researchers should do and not to do. It reflects about the researchers' responsibility regarding participants on issues like, privacy, harm, and informed consent (Dowling, 2000). In protecting privacy and confidentiality, I stored my data instruments (field notes, tapes and transcripts) in a safe place where access to other people was impossible. Anonymity of informants was protected by the use of fake names. Participants knew exactly the purpose of the study and what was needed from them. I requested permission to use recorder, time for interviewing and freedom to decide whether to be involved into the study or not. Physical or social harm was avoided by the use of appropriate language and critical reflexivity in each process.

3.9.2 Critical Reflexivity

Lain and Hay (1998) cited in Dowling (2000:65) argued that, rigid codes cannot deal sometimes with 'the variability and unpredictability of geographical research. What is appropriate in one context will be inappropriate in another. Therefore, we need to go beyond ethical guidelines to critical reflexivity. Kin-England (1994) cited in Dowling (2000) defines reflectivity as a process of constant, self-conscious, scrutiny of the self as researcher and of the research process. In other words, it concerns with analyzing my own situation as a researcher as if it were something I was studying. In my study I considered critical reflexivity as a compulsory aspect in each research process. Reflexive on issues like power and subjectivity in qualitative methods; which allows human behaviors, feelings, attitudes, emotions and interactions of both researcher and participants into the study.

3.9.3 Positionality and Personality

Understanding our positionality and personality is very crucial because it affect fieldwork. McDowell (1992: 308) cited in Moser (2008) argues, we 'must recognize and take account of our own position, as well as that of our participants, and write into our research practice'. Positionality is a strategy that has been used to contextualize research observations and interpretations (Cloke *et al* 2000 cited in Moser 2008). This may involve a researcher identifying key political aspects of the self. This means we need to reflect on various aspects which make us different as researchers. For example, how we are positioned in the society by sexual identity, age, social, economic status, gender, ethnicity, education and so on. All these may have different effects on our research. In view of this, I was very sensitive and reflexive in my positionality in the study, particular in terms of my knowledge, skills, interpretations, body language and so on, which tend to appear in any kind of research instruments which involve interaction with participants such as interview and focus group discussion.

3.9.4 Validity and Reliability

Validity concerns the 'soundness, legitimacy and relevance of a research theory and its investigation' (Kitchin & Tate, 2000: 34). Gray (2004) explains that, for a research instrument to be valid, it must measure what it was intended to measure. Reliability is an indication of consistency between two measures of the same thing (Black, 1999 cited in Gray, 2004). It reflects on repeatability' or 'consistency of a finding. 'Any issue related to validity, is reliability' (Kitchin and Tate, 2000: 34). Further, validity and reliability need to be considered particularly; on the use of secondary sources that give theoretical constructs that support the study, as well as soundness research strategies for empirical investigation (Kitchin & Tate, 2000). In this study, validity and reliability was assured through careful selection of appropriate instruments for data collection to answer questions in the study.

3.9.5 'Insider' or 'Outsider'

An insider is 'someone who is similar to his/her informants' Dowling (2000) and so outsider is the opposite of insider. In this study I was insider because I belong on the same social group with my participants, I share the same culture, language (Swahili) and other experiences. This helped me to make valid interpretation of different information collected and establish social interaction with informants. However, I was not completely insider because of some characters like socio-economic, gender, ethnic, and other characteristics which might have affected the nature of interactions.

CHAPTER FOUR: SOCIO-ECONOMIC PROFILE OF THE HOUSEHOLDS RESPONDENTS

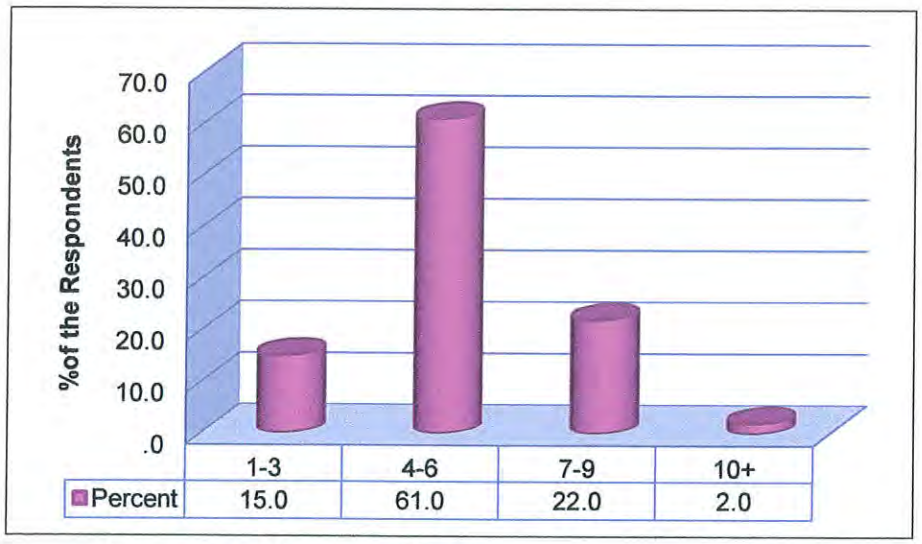
4.0 Introduction

This chapter presents the findings on urban sprawl and access to public transport services in Kinondoni municipality. Therefore an understanding of the socio-economic characteristics of the sampled population is important in making reasonable implication on urban sprawl. Thus, the chapter presents socio-economic characteristics of the respondents based on the following six aspects: Household size, age, education, sex, marital status and occupation.

4.1 Household Size

The household size varied from one family to another. From household's questionnaires respondents, household size ranging between 4 and 10+ were 85% while 15% of the respondents had household size interval of 1-3 (Figure 4.1).

Figure 4.1 Percentage Household Size of the Sampled Population



Source: Field Survey (2011)

The household size has implications on urban sprawl. It determines the location of the house for the fulfillment of household's desires such as space for the children to play, more space per

person within the house, freedom within the family, and housing security. For example, one household informant remarked,

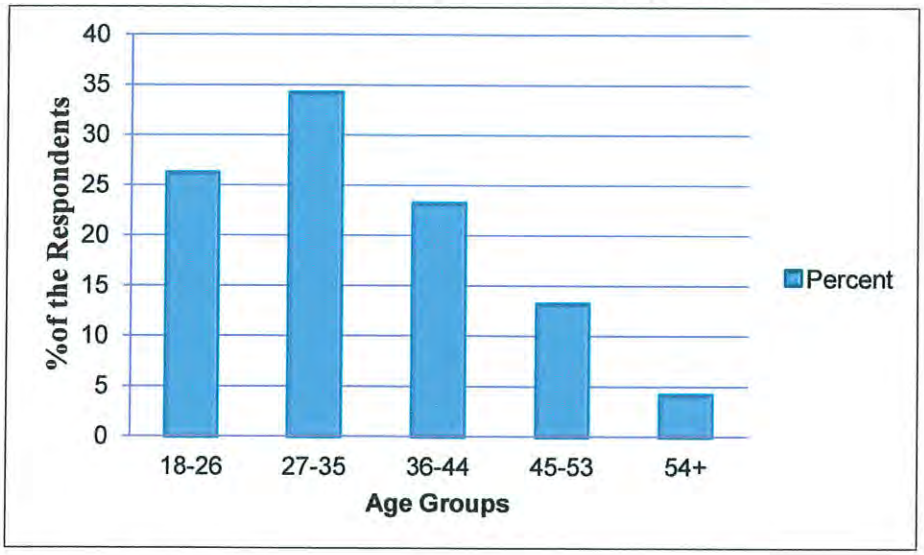
> *You know if you are single, you can rent just one room it is enough; but if you have a family like mine it is hard", look I have 4 children and my wife we are 6 in total. Now, you can see which house I can rent to accommodate my family in city centre? It is real hard. But here I am in my house and I have more freedom to do anything I want with my children*

As the figure 4.1 shows that, most of the household's respondents have families ranging from 4-6 persons. Other households (22%) consist of 7-9 household size. In this context, it can be concluded that, the larger the family size the more the housing costs. Living in the periphery areas by large size household provides an alternative solution for minimizing housing costs in the city. The study conducted by Ricci (2012) involving peri-urban households in Dar es Salaam found that family reason was among of the factors driving some households in peri-urban areas in Dar es Salaam city.

4.2 Age Distribution

The ages of the Households respondents were not uniform rather it varied from one person to another.

Figure 4.2 Age Groups of the Respondents



Source: Field Survey (2011)

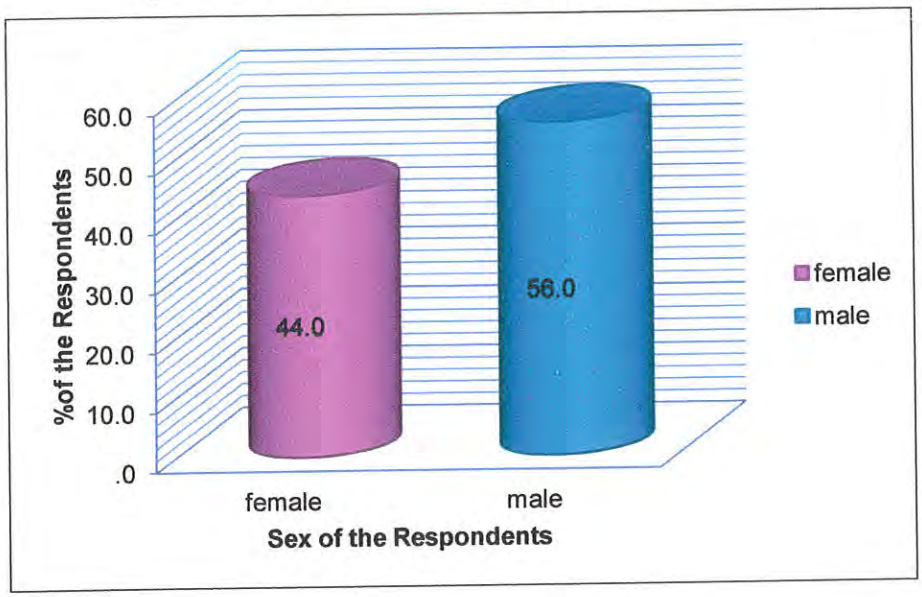
From Figure 4.2 the households involved in this study were the age group between: 18-35 (60%) while those in age group above 36+ were 40%. The age characteristics of the study population imply that, most of the respondents have their own independent families; and were active age groups in terms of working and mobility. Moreover, apart from having their own families, they also prefer to have their own housing where they can stay secured and comfortable with their children. For example, many households' respondents explained that, they prefer to establish their settlements in the outskirts of the city; because the cost of land for housing is not much higher than in the city center. A household respondent aged 35 years old said, *"When you reach this age, you need at least to have your own house instead of relying on renting a house"*. This quotation shows that, ageing factor can determine where to stay in the city.

4.3 Sex Distribution

The number of males and females respondents is almost equal (Figure 4.3). The reason was to see how transport problems affect these groups in the context of urban sprawl. Participation of both groups into the study was considered crucial; due to the fact that each group is affected differently by transportation problems.

It is noted that, women were more affected with urban transportation problems compared to men. This is contrary to the past or in rural areas where most of the women spend their time doing domestic activities. In the study area, it was found that women participated in livelihood activities, like petty trading which made them the most mobile group which demanded special transport services.

Figure 4.3 Sex of the Households Respondents in Percentage (%)



Source: Field Survey (2011)

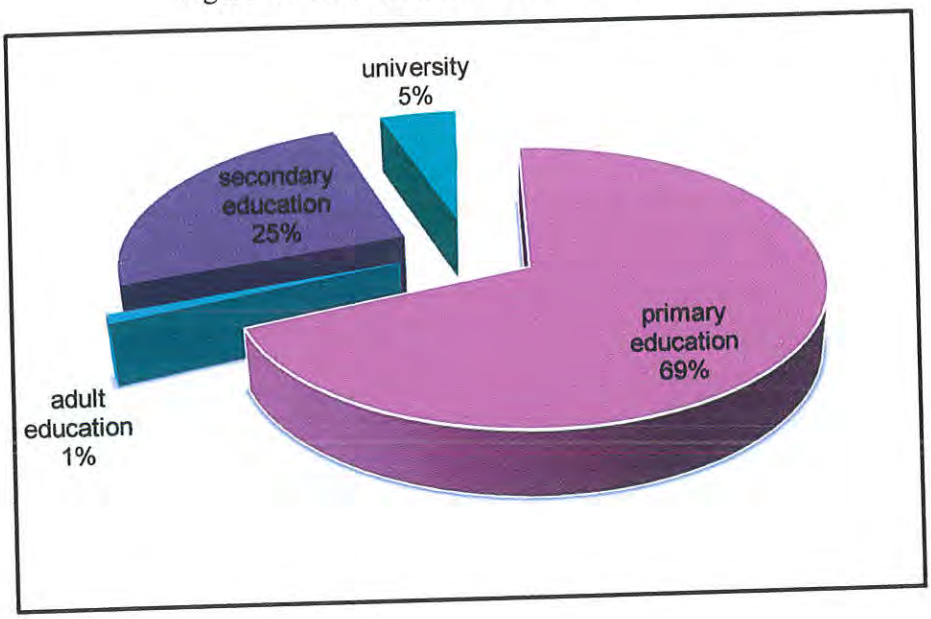
4.4 Education Level

Education is one of the aspects of human development. People as principle wealth of the city, educated population provide positive indicator toward human development. For instance, an individual with formal education has a greater chance for getting formal employment, while an uneducated person is likely to be engaged in informal markets. However, this is not always the case particularly in current situation of urban areas, both professionals, and uneducated groups compete for employment in informal sectors. The population of the study area comprised of the following features: 69% attained primary education, 25% secondary education, 5% university level, and 1% adult education. This showed that most of the residents in Dar es Salaam possess basic primary education.

Education characteristics of an urban resident had direct impacts on the type of economic activities a person is engaged in. For instance, most of the respondents were engaged in work that did not require high education background such as petty trading, construction and brick making; and most of them had reached primary education. While those who work in formal employment such as ministry of land and government offices had university and secondary

education. This helps to explain that, still formal education is very important in government offices and other formal employment. Yet, urban environments in developing cities offer unique challenges to everyone.

Figure 4.4 Education levels of the Household Respondents



Source: Field Survey (2011)

4.5 Respondents Occupation

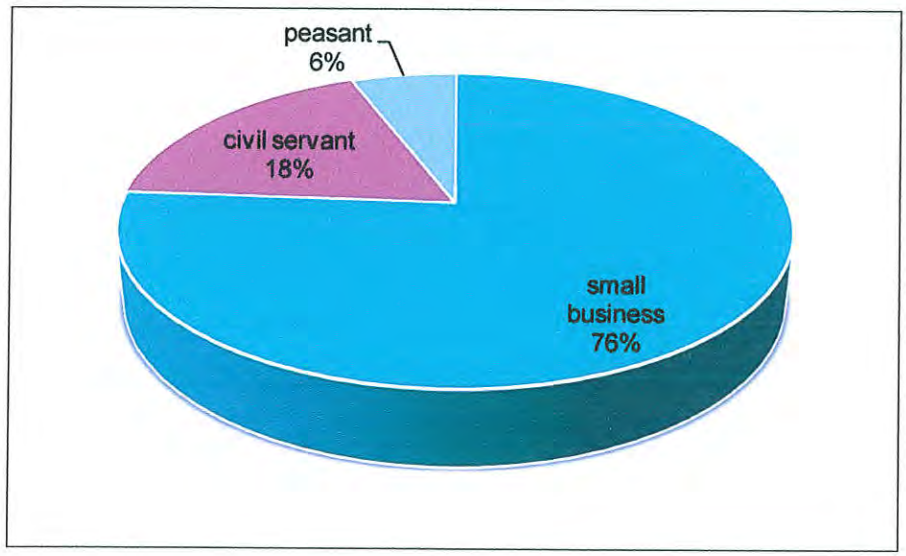
Occupation is an important aspect which helps to determine the household economic status and location choice. Household's occupation has impact on spatial growth of the city and demand for public transport services. The profile of the respondents in the study area indicated that majority were engaged in informal activities like, tailoring, construction, and bricks making. For example, 76% of the households' respondents were involved in informal small scale business; 18% were civil servants, and peasants who were engaged in urban agriculture were 6%. This is also true when WB (2002) reported that 75% of the residents of Dar es Salaam's informal housing settlements are unemployed or under-employed; with the main sources of income being through informal works and micro-enterprise. The different types of occupations shown indicate that most of activities require a high level of mobility. For instance, many petty traders make

movements to and out of the Central Business District (CBD). A woman who is engaged in selling fried fish explained,

> *Public transport is very crucial for me, because it is cheaper than any other modes here, however it gives me a headache to access it. Taking motorcycle is very expensive, though many times I use it, when I see is hard to get daladala, and I want to be on time at the place where I buy fish; motorcycle helps to avoid traffic jam and is the most available mode. But using motorcycle reduces my profit.*

The quotation above explains that the type of work a person does, has impact on type of modes of travel to be selected. Those involved in small business tend to prefer public transport because is the only affordable mode.

Figure 4.5 Occupations of the Study Population

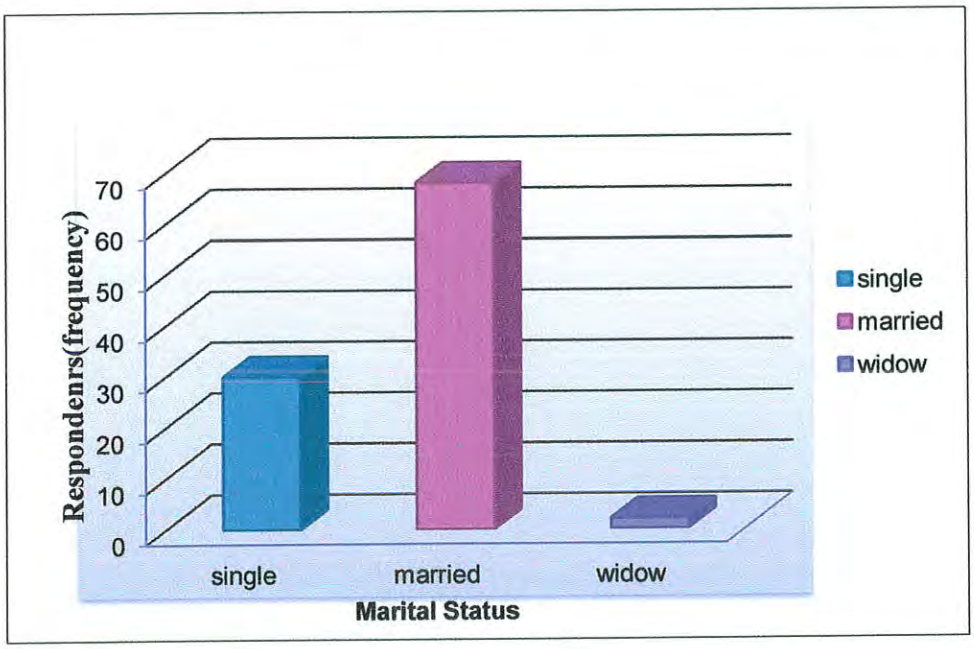


Source: Field Survey (2011)

4.6 Marital Status

Marital status of the households' respondents has implication on household size, and demand for land and housing. For example many households comprised of children or other dependants. In this study 68% of the respondents were married, 30% were single and widowers were only 2% (Figure 4.6)

Figure 4.6 Marital Status of the Households Respondents



Source: Field Survey (2011)

4.7 Summary

This chapter has tried to presents socio-economic profile of the study area based on the six aspects such as household size, occupation, sex, age, marital status and education. It can be concluded that more than half percent (69%) of the households have primary education. In addition to that, the study area is highly occupied by low income groups as most of the households (76%) are involved in informal small scale business. The income of the majority depends on daily activities meaning that most of them do not have fixed income like in formal employment. Most of the households' respondents in the study area depend on public transport for their daily trips in the city.

CHAPTER FIVE: FACTORS INFLUENCING URBAN SPRAWL

5.0 Introduction

From the research conducted in four sub-wards namely Mbezi Luis, Mpigi Magoe, Mbezi Msumi and Tegeta in Kinondoni Municipality; several factors contributing to urban sprawl were identified. Urban sprawl is influenced by many factors, and thus, it may be difficult to say which factor has the greatest influence. Furthermore, factors influencing urban sprawl may vary between regions, countries and cities. Therefore, driving factors behind urban sprawl may depend on the social, political and economic conditions in the respective city.

In examining these factors, respondents were asked to identify different reasons for their establishment of settlements in periphery areas. From the data collected through survey questionnaires, focus group discussions and interviews; the dominant factors identified were based on the following key issues: Rapid urban population growth, demand for land and housing, inadequate spatial planning of the city, political and government policies. Other factors were weather conditions, free from pollution and housing congestion, marriage factor and employment opportunities. This chapter discusses these factors.

5.1 Rapid Urban Population Growth

The rapid increase in population in Dar es Salaam city is one of the most significant factors influencing urban sprawl. As population size increases in the city it exerts more pressure on urban land for residential and commercial needs. UNFPA (2007) reported that in the Mid-Atlantic region, urban sprawl is largely contributed by population growth. Similarly, Osman *et al* (2008) stated that urban population growth is the most significant factor for urban sprawl in the Mid-Atlantic region.

Currently, in the city of Dar es Salaam, population is estimated to be 5 million, compared to the past years specifically during the colonial period where the city had a small population of 128742 in 1957; 272821 in 1967 Figure 3.1 shows Dar es Salaam population growth from different periods (Casmiri, 2009; DCC, 2010). The small population during colonial period was due to a strong policy towards controlling rural-urban migration (Kanyama *et al,* 2004). This

situation helped the city to accommodate its residents within a small spatial area and easy to provide them with urban utilities and amenities like housing and public transport which is contrary to the current situation after rapid rural to urban migration. The rapid growing population in Dar es Salaam has increased the demand for basic services and infrastructures such as land and housing, water, roads and public transport (UN-HABITAT, 2009c). This condition has led into new urban challenges for the city council to cope with those challenges particularly on urban sprawl.

The current population growth in the city is the results of in-migrants' from different parts of the country. In relation with political ecology approach which focuses on power and priorities by macro institutions over resource distribution and its effect at micro level; rural –urban migration is the result of urban bias over rural areas. The government decisions over resources distribution produce inequality between urban and rural hence increase of urban population through in-migrants. The rural to urban migration in the city increases as time goes by. This is due to increased poverty and government neglection of rural development.

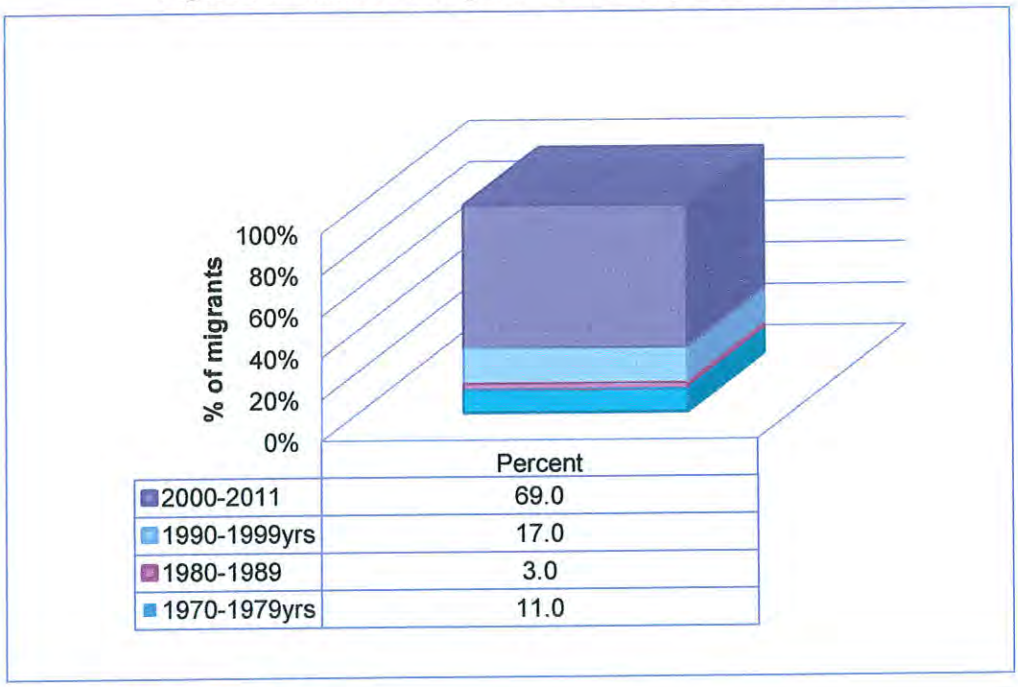
During the focus group discussions respondents explained that, many people from outside the city particularly in rural areas came to Dar es Salaam to look for jobs and a better life. This is due to the fact that, the city offers greater opportunities than rural areas where the major available option is agriculture. Limited choice discourages many young and other active aged groups to continue staying in rural areas, especially when the agricultural sector does not fulfill their expectations. For instance, a respondent in a focus group discussion (30 years old – engaged in small business) remarked; *"I came to Dar es Salaam in 2000, after seeing that most of my friends are succeeding in the city. Here you can run small business and easily to make profit if you are serious because of the market availability compared to rural areas"*

On the other side, the ongoing climate change in different parts of the country accelerates population growth in the city, where approximately, 82% of total Tanzanian population depends on agriculture (URT, 2005). The decline in agricultural sector continues to activate rural to urban migration. Yet, the natural increase of population continues to add more population in the city. In this regard, periphery areas are regarded as the only available option for accommodating the

increased population in the city particularly migrants. In the study area, it was noted that the majority of the households' respondents in survey questionnaires were migrants. The study conducted in Dhaka city by Rahman *et al* (2008) found that, most of in-migrants who had moved in the city due to lack of employment in agricultural sector located themselves in urban fringes leading to urban sprawl. Similarly, the study conducted in Rangi Tatu (periphery areas of Dar es Salaam) by Lumbumba (2010) found that, most of the interviewed respondents were migrants from the rural hinterland and the south regions of Lindi and Mtwara.

According to household respondents and sub-ward chairperson, the number of immigrants increases from day to day rather than decreasing. "*Every day people are migrating to this sub-ward compared to the past years. Nowadays it is very hard to know each other, even my neighbors.*" (An experienced old woman 70 years remarked). Furthermore, the study found that most of the respondents in the study area were the in-migrants of the recent years. For example, about 69% of the respondents migrated to the peripheral area between; 2000 – 2011, while 31% migrated to the study area in 1970s - 1990s (Figure 5.1).

Figure 5.1 Number of migrants to the study area in different periods



Source: Field survey (2011)

Figure 5.1 explains that, the current urban sprawl in the city is highly influenced by rapid urban population growth through migrants seeking residences in peripheral areas. These data indicate that a large part of the future spatial expansion of the city will take place in unplanned settlements in the periphery areas. Further, respondents added that, the increase in population in peripheral areas is linked with the hardship of lives in rented housing near the CBD like Manzese, Ubungo, and Sinza. Also, Lumbumba (2010) revealed that low housing rents and low costs of living were the reasons for residential choice in Rangi Tatu (periphery area of the city of Dar es Salaam.

5.2 Land and Housing Demand

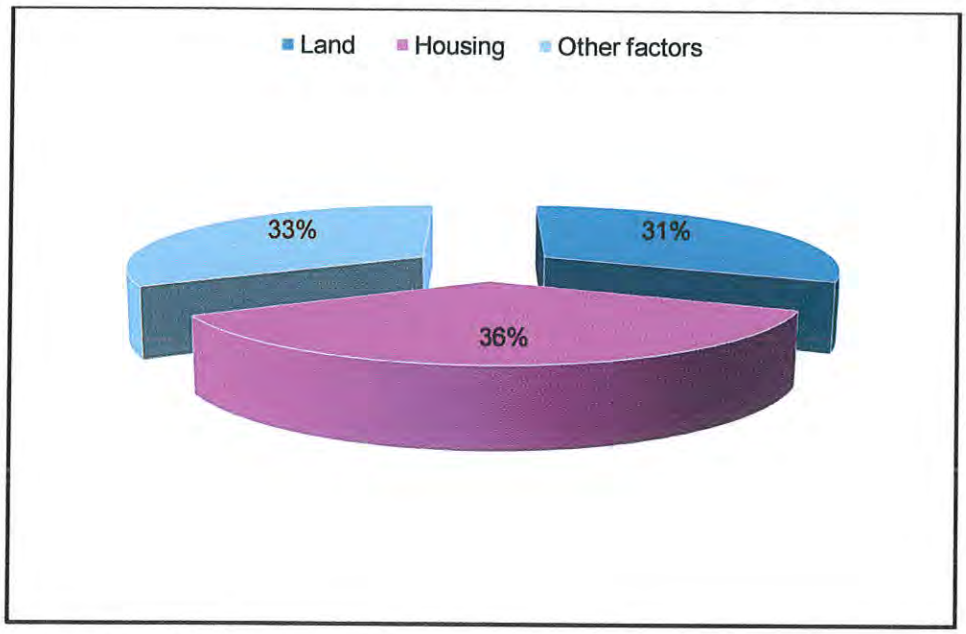
One of the major challenges in urban environment is access to land for urban uses particularly for housing and commercial activities (UN-HABITAT, 2010c). Over, 75% of the urban population in Dar es Salaam city resides in squatter/informal settlements, which are vulnerable to various natural disasters like floods. For instance, in December 2011, many people in slums and informal areas around CBD such as Kigogo, Jangwani to mention a few, were badly affected with floods. Yet, access to planned land for housing is extremely difficult. This situation has led different groups' particularly low income groups to continue acquiring land they can afford in periphery areas leading into urban sprawl.

Kombe (2010) states until very recently, land located not far from the inner-city was accessible to individuals including urban poor but now it is available at high costs and largely in remote areas which are far away from basic services. Similarly, UN-HABITAT (2009) reported that urban sprawl in developing countries is informal and largely driven by low income households to secure affordable land in reasonable location. The report added that, little attention to slums, land rights and services by urban authorities are among the main factors for urban sprawl.

In Dar es Salaam city, the inner city and CBDs still continue to be mostly dominated with commercial activities; posing a very big challenge in accessing low-priced land for residential house. From the study area, it was found that availability of low-priced land for building residential house, and other urban activities attracted most of the households to the peripheral areas. For example, 67% of the households' respondents mentioned land and housing demand as

a primary factor for their location in the peripheral area. 31% mentioned other factors such as marriage, household size and urban agriculture (Figure 5.2).

Figure 5.2 Factors for Residential Location



Field survey (2011)

Lumbumba (2010) revealed that availability of land at favorable prices was among the factors driving people in Rangi tatu sub-ward of Dar es Salaam. Likewise UN-HABITAT (2009b) stated that, poor households in sprawl areas can avoid the costs associated with formal and regulated systems of urban land and service delivery.

One respondent 65 years old in Msumi sub-ward explained,

> *I had my small house around Jangwani, but in 2000, I sold it for 70,000,000TZS (≈44871.8USD) to one business man who wanted to open a big shop. When I came here I managed to have access to land from my friend for only 1,000,000TZS (≈641.0USD). As you can see I have constructed a good house compared to the former one I had in inner-city. Here I have enough space for my children to play as well as for keeping livestock.*

The quotation above provides a clear picture about the costs of land between city center and periphery areas. As you can see the mentioned amount is too high for the low income households who depend on informal and temporary income activities to compete for land in the city center. The majority find the periphery areas as an alternative way to cope with housing challenges in the city. Respondents described the price of land as being low in peripheral areas because it is located far from the city center. One respondent 70 years old migrated in Mbezi ward in 1970s explained *"Here you can get a building plot for 1.5 or 2 millions Tanzanian shillings but not so large like it was in the past"*. He described this trend is because the place is becoming more urban due to rapid population growth leading into high demand for land and housing.

Moreover, it was found that, more than 80% of the respondents were the house-owners and very few were renters. For instance, others decided to live in unfinished house and very poor housing conditions so as to avoid renting costs at the inner city.

Figure 5.3 Housing conditions in the study area

Source: Field work (2011)

Note: Housing quality in the study area: The first house to the left is of poor quality but providing a comfortable condition to the owner like enough space to enjoy fresh air, and listen music. *"It is better to be in your house rather than being in a rented house"*. (One household respondent aged 65years) To the right is unfinished house but being in use to avoid renting cost.

The given quotation tells that, the desire to own a house and family security were the forces behind residential location in the periphery areas, despite of other challenges like distance from the inner-city and problem of public transport.

It was noted that, access to land in the periphery areas is largely informal leading to uncontrolled and unplanned urban sprawl. This means that, the city has weak institutions to ensure planned land is made available and accessible for the all types of income groups. Similarly, political ecology approach argues that, failure at macro level where power, politics and decisions exist have greater impacts at local scale such as existence of inequality in accessing resources available. High cost of land market and resulting outcome of uncontrolled and unplanned urban sprawl in Dar es Salaam can be associated direct with the effect of political –economy decisions over land resource.

Figure 5.4 Housing constructed in informal peripheral area-Mbezi Msumi sub-ward

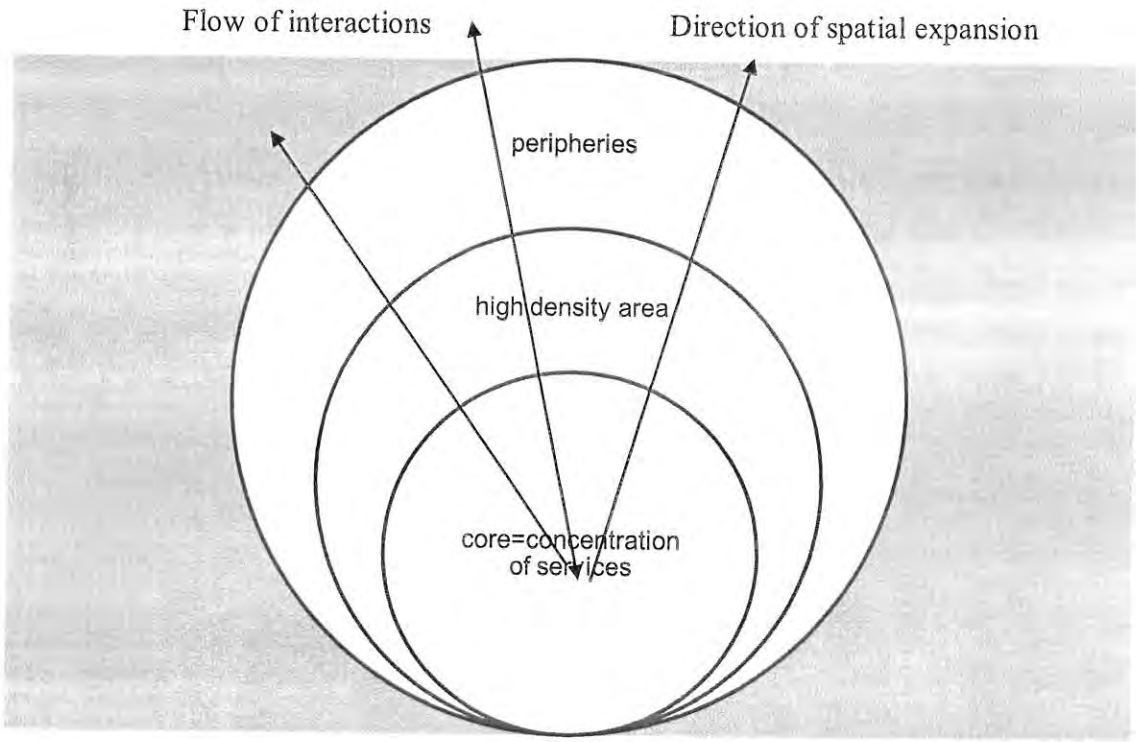
Field work (2011)

Note: Figure 5.4 Housing constructed in a large lot in informal area: Msumi sub-ward. This also indicates that, the growth of informal settlement in sprawl areas of Dar es Salaam does not necessarily reflecting the inability of the population to build houses. In this perspective, it is easy to follow Turner's idea that, 'people can house-themselves as long as the government play enabling role'. The enabling/or supportive roles should be like; 'ensuring an adequate supply of planned land for new settlements, and access to services like roads network' (Turner, 1976, Turner, 1980:253 cited in Potter and Lloyd-Evans, 1998).

5.3 Inadequate Spatial Planning of the City

Inadequate spatial planning of the city of Dar es Salaam is among of the leading factors of urban sprawl. During group discussion with informants; this factor was identified and explained in different ways. One of the problems with spatial planning of the city was that, it provided residential areas outside the city center. The large part of the city center consisted of commercial activities, and institutional use. Concentrations of commercial buildings around CBD continue to displace poor people outside the city center. This situation creates long distance between residential areas and working areas due to the fact that, inner-city areas accommodate large numbers of employment opportunities compared to other places outside the city center.

Figure 5.5 Dar es Salaam spatial expansions from city center to the periphery areas



Source: Researcher's construction

According to interviews conducted with the department of urban planning at Kinondoni municipality and the ministry of land and housing, it was noted that, the city's master plan which

is in use is of 1970s with minor modifications which does not reflect the real situation of urban challenges in the city such as increased population, housing and public transport demand. For instance, the city is continuing to receive more population from different parts of the country compared to the colonial period. At that time a small population was accommodated within a small spatial area which is contrary to the current situation of the city. Respondents added that, the urban form has to be reviewed and modified so as to reflect sustainable expansion of the city. One of the city planners remarked,

> *Urban sprawl is a big challenge to us, as you can see our spatial planning accelerates urban sprawl due to the fact that today there is no place for people to build their houses and in this trend the city will reach up nearby regions and I don't know how we can slow it down*

The urban sprawl that characterizes the city expansion is more uncontrolled than planned. Land use for residence is always ahead of the plans and therefore always services have to follow people. In this way, the city is continuing to expand without clear plans, which makes it difficult for improving public transport services in sprawling areas. For instance, inadequate spatial planning as a result of urban sprawl creates a heavy load to residents in accessing basic services. This is due to concentration of services to the central business district which forces communities in peripheral areas to travel long distances to look for services as their livelihood strategies.

Based on data collected from urban planners, it showed that, urban sprawl is a big challenge to the government and other stakeholders to provide public transport services and other infrastructures to the people located in those areas.

Inadequate spatial planning of the city has different impacts including increasing separation between residential areas and business areas. It has impacts to the livelihoods of the communities in peripheral areas. As the city center continues to be dominated with big hotels, shops and other commercial activities, the urban poor will be displaced out of the inner-city. Poor infrastructures, increase in distance from CBD and dependence on motorized transport modes characterizes peripheral areas. From the interview conducted with ward executive officer in Mbezi, it was

noted that Mbezi ward is an unplanned area and is occupied with informal settlements which make it difficult for the government to provide transport services. He explained that; the main challenge to the government as well as to the communities is on demolishing some houses to allow constructions of road, bus stop and other transport services.

5.4 Policy and Regulatory Framework

This study realized that, policy and regulatory framework play a major role of influencing urban sprawl. It includes issues like land and housing policies and institutions responsible for checking urbanization process. Cities and municipalities may promote urban sprawl when there is no proper land and housing policy to include low income groups to have access on land. Many households in the study area got their plots through informal market including purchasing plots from friends, individuals, and relatives leading into uncontrolled and unplanned urban sprawl.

Lack of a strong control over land use policy, with dispersed and fragmented governance system has great impacts on planning and managing land development. Christiansen and Loftsgarden (2011) stated that, countries with a strong control over land use policy with less dispersed and fragmented governance have sustainability on land development. One respondent (40 years old) from the department of urban planning in the Ministry of Land, Housing and Human Settlements (MLHS) explained *"For us as urban planners, urban sprawl is a big challenge, due to the fact that, the housing policy of 2000, which is in use contributes to a large extent this urban form we have"*. This quotation means that, there is no integration between land and housing policies. According to political ecology approach, weaknesses in macro institutions on decisions, planning and management of resources result into many problems at the micro level (Mayer, 1996).

5.5 Inner- City Development Project and Government Policies

Many low income people faced eviction and displacement as National Housing Corporation (NHC) implements upgrading housing project in slum area namely Magomeni. Currently, NHC has demolished all houses in Magomeni area (in city center), so as to allow construction of modern housing. This is to say, the majority who faced eviction will largely be accommodated in informal settlements of the periphery areas. In Dar es Salaam, displacement of the poor is highly accompanied with unfair compensation in redevelopment programmes. Lupala (2011) reports

one area where injustice has been noted includes; displacement of women, children and old people without fair and prompt compensation. This means majority are being forced to look affordable housing in the peripheral areas leading to urban sprawl.

5.6 Other Factors

Apart from the main factors identified, there were also other factors like,

- Conducive weather conditions in periphery areas, whereby respondents explained that the weather is fresh and free from air pollution and noise as compared to city center.

- Marriage and household size factor. Respondents explained that, being married and having children influence them to find a place where they can live a cheap life , whereby outside the city center seems to be comfortable for most households respondents

- Engaging in urban agriculture. This seems to help some households with foods, considering that in urban areas access to food is a big challenge. I personally, have seen many households engaged in livestock keeping and vegetable growing; which is difficult for someone in city center to get land for these activities.

5.7 Summary

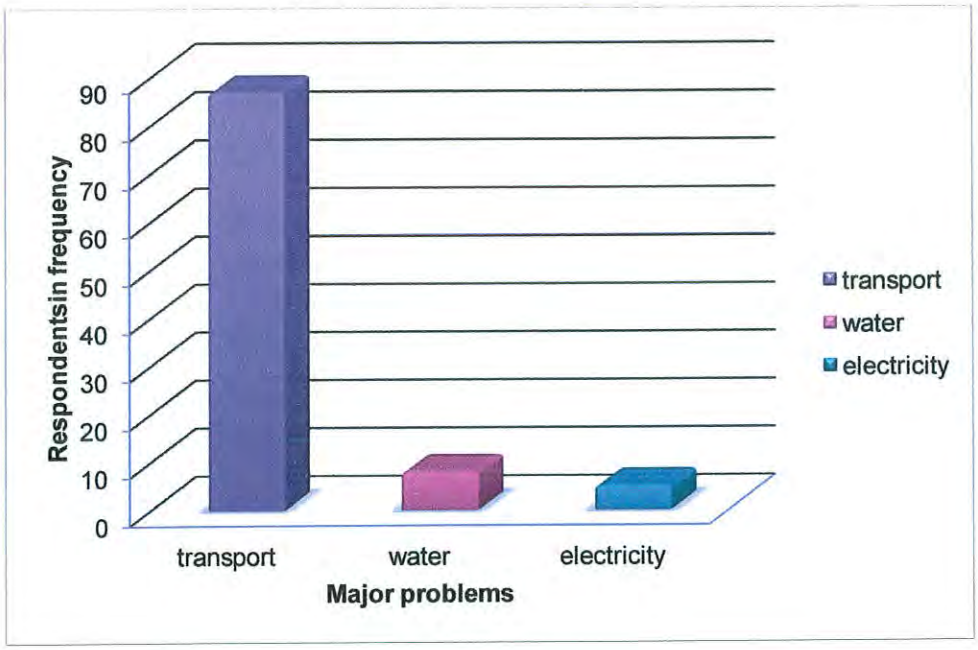
Factors influencing urban sprawl in the study area range from more general to specific factors. The general or dominant factors includes: Rapid urban population growth, land and housing factor, spatial planning of the city, urban development project and policies. While other factors include: Marital status and household size, urban agriculture and weather condition. The key challenge in these factors is the way in which urban sprawl occurs. It was noted that urban sprawl in the study area is unplanned, and uncontrolled which continue to pose more challenges to the provision of public services in sprawl areas.

CHAPTER SIX: IMPACTS OF URBAN SPRAWL ON PUBLIC TRANSPORT SERVICES

6.0 Introduction

Urban sprawl has several impacts on access to public transport services. In exploring the impact of urban sprawl, respondents in the study area were asked to reflect on three major challenges they face in their places, and try to describe the reasons for the identified problem. The main challenges identified were public transport, water and electricity. Through survey questionnaires data, public transport problem is ranked to be the most major challenge among the three. For instance (87%) of the respondents mentioned public transport problem, (8%) of the respondents cited water, and (5%) of the respondents identified electricity problem (Figure 6.1).

Figure 6.1 Major Service problems in the Study Area



Source: Field survey (2011)

6.1 Increased Distance from City Center

One of the impacts of urban sprawl on public transport services is increase in the distance from city center to the residences. The implication of increased distance toward transportation services rely on: Additional roads networks, traffic services like traffic police, bus stops and additional *daladala* buses to provide services in the new built settlements. Currently, the effect of urban sprawl is that, *daladala* operating routes are characterized by very long trips, some of the identified routes by respondents' covers up to 40 Km. For instance, the distance from Kariakoo to Mpigi Magoe is approximately 35Km; while from Kariakoo to Mbezi Msumi is approximately 40 Km.

Msumi, Mpigi Magoe, and Luis are connected to the city center via Morogoro trunk road. While Tegeta sub-ward is connected to the city center via new Bagamoyo trunk road (Figure 3.6 road networks in the study area). Data in this study revealed that Msumi and Mpigi Magoe are connected to the main road (Morogoro road) via unregistered routes. These unregistered routes start from endpoint of the registered *daladala* route (Kariakoo-Mbezi) to the interior parts of the city such as Msumi and Mpigi Magoe sub-wards. The roads going to these sub-wards are earth roads whereby most of the time access to *daladala* service is very limited.

Figure 6.2 Earth road connecting Msumi sub-ward to the trunk road (Morogoro road)

Source: Fieldwork (2011)

Note: Road conditions in unregistered route from main road (Morogoro road) to Mbezi Msumi sub-ward. Msumi is located 12Km from Morogoro road.

Respondents in the study area described this poor road conditions going to their places as due to distance from city center. They added that being far from city center makes them not to be regarded as a part of the city. From my observation access to *daladala* buses was limited, only few *daladala* buses were seen to operate informally meaning that most of them were not registered.

During field observation it was found that, public transport in Msumi sub-ward was done mainly by Lorries, truck, pick-up, mini-buses and motorcycles to transport people from the main road to their homes .Yet, Lorries, trucks and pick-up were also not available most of the time. In Mbezi

Luis the problem of transport was not much severe like in the two sub-wards (Msumi and Mpigi Magoe). This is because it is located around the registered *daladala* bus stop. Residents in this sub-ward do not need motorized transport, because they can walk short distance from the registered bus stop to their homes.

Tegeta sub-ward in Kunduchi ward is located beyond 25Km from city center along new Bagamoyo road. As it was in other sub-wards, Tegeta residents suffer from poor access to public transport contributed much by poor road networks. Bagamoyo road is shared by most of residents found along Bagamoyo road for example, Mbezi beach, Makongo and Boko. Most of the residents along Bagamoyo road are categorized as high income residents. Thus the road is always occupied with private cars which add more to traffic congestion and poor access to *daladala* buses for public users in Tegeta sub-ward.

This study further found that in the study area like Msumi and Mpigi sub-ward; there were no traffic police to ensure successful movement of people; no tarmac roads which make travel situation in the study area be difficult particularly during the rainy season. Poor road conditions have led to the use of old and poor quality modes of public transport. Respondents explained that, their lives are at risk and vulnerable to various road accidents and health problems especially for the pregnant woman.

6.2 Increase Traffic Congestion

One of the main impacts of urban sprawl was traffic congestion. Traffic congestion reduces access to *daladala* in the bus stop, increases waiting time and long traveling time to reach the destination. Fan *et al* (2004) noted that in the United States sprawl contributes to traffic congestion, longer commuter and other traffic problems. Likewise, UN-HABITAT (2010b) reported that the centralization of services; limited road network and continued urban sprawl contribute to serious traffic congestion in the city.

Traffic congestion in Dar es Salaam is a problem affecting not only residents in periphery areas but also in other parts of the city. However, the extent to which the problem is more severe varies from one part of the city to another. From my personal observation and respondents

explanations, the problems of traffic congestion affect most of the residents in sprawl areas and it is more severe compared to residential areas near to CBD.

In Mbezi and Tegeta wards, residents explained that every day they spend more than two hours on the way to Kariakoo. Due to traffic jam most of the households explained that, they wake-up around 4:00AM to catch up a *daladala*, and during evening they reach home around 10:00PM-11:00PM. They explained this situation to be unhealthy as well as it leads conflict in the families. For instance, one of my respondents explained

> *I was divorced because of this traffic Jam., my wife was at home with my child, who was sick, and she called me when I was in Kariakoo to buy medicine for our baby. I bought the medicine but I could not reach home early due to traffic jam. My wife was very much annoyed for she thought that I went "somewhere else" (to another wife).* This quotation shows that transportation problems can lead family breakdown.

Furthermore, an experienced *Daladala* driver (Tegeta-Posta) states *"These days living in city periphery is like a curse, due to traffic jam driving from Posta- Tegeta (25Km) takes the same length of time and fuel as driving from Ubungo to Morogoro (120Km) that is bad for our health and income"*

Furthermore, respondents in the study area explained that traffic congestion is too much for them particularly in rush-hours where access to *daladala* is very difficult. For instance, in the evening hours most of the *daladalas* tend to avoid long routes going to periphery areas because of traffic jam (Figure 6.3 about traffic jam). In this case, majority of people who are being affected by traffic jam are those who depend on *daladala* buses as their mode for transportation. This is because availability of daladalas to the bus stop becomes limited.

> *If you are in Kariakoo and you want to come back home (Msumi) you have to take daladala or any form of motorized transport. Walking is hard; though sometimes I walk because to get a daladala in the evening is very hard and also in order to reduce distance and congestion* (A male respondent 28 years old in Tegeta sub-ward).

Box 6.1 Urban planners challenged to eliminate costly congestion

By Felix Andrew,

A recent survey showed that Dar es Salaam dwellers, on average, lose three hours of their prime time a day in traffic jams, which have become chronic in the city.

According to Cosmas, Takule,, (The Chief Executive officer of the Dar es Salaam Rapid Transit) stated,

'Economic losses resulting from traffic jams along Dar es Salaam roads alone are estimated to be over 4bn/-daily'.

"Millions of liters of fuel as well as time is being lost on these long queues...people could have used the time lost on the jams to do various productive activities for economic growth," said Takule.

A survey conducted by the confederation of Tanzania industries(CTI) in 2010 revealed that traffic jams eat up 20% of annual profit of most businesses.

Source: The Guardian 28th February 2012.

Figure 6.3 Flow of traffic from city center to the outskirt of the city

Source: Fieldwork (2011)

Note: Figure 6.3 show the road is highly occupied by private cars than *daladala* buses. This is also in line with one of the respondents in previous discussion, who explained that, *daladala* buses tend to avoid long routes because of traffic jam. *Daladala* buses in this photo have been shown by red and light blue color.

6.3 Increase Transport Costs

Urban sprawl has impacts on the cost of public transport and on the government by improving public transport services in sprawling areas. It increases the costs of transport fare, new road construction, waiting and long hours due to traffic congestion. In the study area the direct impacts of urban sprawl on public transport can be seen through illegal transport fare. Due to this public transport users spend more amount of their income for transportation. For instance, one can spend more than 50,000TZS (≈ 32.0USD) per month for transport cost. This amount is too much for low income group to improve their livelihoods and make a reasonable development.

This is due to the fact that about half of the residents of Dar es Salaam's informal settlements live on an average income of 1USD per day and in constrained circumstances (WB, 2002). It was found that the transport fares for the unregistered routes like Mbezi Msumi and Mbezi- Mpigi, ranges from 500TZS – 1000TZS per trip. This amount is higher than the approved amount by Surface and Marine Transport Agency (SUMATRA) of 300TZS (Table 6.2).

Table 6.2 Transport fare for the following routes approved by SUMATRA, march/2011[7]

Route		Official old fare(TZS)	Official new fare(TZS)	Fact/reality[8]
Mbezi Luis	Mpigi Magoe	250/=	300/=	500-1000
	Msumi	250/=	300/=	500-1000
Mbezi Luis	Muhimbili	450/=	500/=	"
Mbezi Luis	Kariakoo	450/=	500/=	500-1000
	Ubungo	250/=	300/=	
Mbezi Luis	Kivukoni	450/=	500/=	500-1000
Tegeta	Kariakoo via Kawawa	450/=	500/	500-1000
	Kariakoo via Shekilango	550/=	650/=	"
Tegeta	Posta via A.H.Mwinyi	450	500	
Tegeta	Kivukoni	450	500	500-1000
Tegeta	Mbezi Luis	550	650	
Tegeta	Mwenge	250	350	

According to SUMATRA, the shortest route covers about 15 Km - is charged 300TZS per trip. The longest route covers 35Km like Kariakoo-Mbezi and Kariakoo-Tegeta is charged 500TZS per trip.

Respondents explained that in a shortage of access to public transport particularly in the evenings and during the nights, they can be charged two to three times of the official transport fare. A person who is travelling from Kariakoo to Mbezi can be charged more than 1000TZS. This amount is being charged based on behavior of *daladala's* drivers and conductors to shorten the

[7] Source: http://www.sumatra.or.tz/media/DARCOBOAGeneralFinal.pdf

[8] Field Survey/2011

route. For instance, a route from (Kariakoo- Mbezi) can be charged three times: Kariakoo-Ubungo 300TZS ≈ 0.2USD, Ubungo- Kimara (300TZS) then Kimara - Mbezi (300TZS). Similarly, in Tegeta, one route from Kariakoo to Tegeta can be charged: Kariakoo - Mwenge (300TZS), then Mwenge – Africana, Africana –Tegeta. Respondents added that, the illegal transport fare is used regularly during the night, when demand for commuter transport is at its peak as workers stream home. In line with this, a three-month survey conducted in the city by the guardian revealed that, the same illegal fare was especially severe along Mwenge – Bunju , Mwenge – Gongo la Mboto, Ubungo-Mbezi and Kariakoo –Mbagala; which have high traffic demands during the night and in the evening (the guardian, 27th/Dec/2011). The routes mentioned are also long routes connecting city center to periphery areas.

Box 6.3 Reality about transport fare for the residents in Mbezi and Tegeta wards

A woman aged 35 years old explained,

"You can board a daladala from Kariakoo heading to Tegeta, but instead of paying 500TZS you are just told to pay 600TZS or 900TZS, without any further explanation about the new transport fare they charge."

An experienced woman aged 29 years old ,who regularly commutes to and from Mbezi said,

> *Daladala bus Kariakoo – Mbezi can pick passengers from Kariakoo to Ubungo charging each person 500TZS fare and in reaching Ubungo, conductor announces that the bus is not proceeding further on the route. After all passengers have come out, then they wait a few minutes and calls for passengers heading to Kimara, upon reaching Kimara, they repeat the same trick, charging a fare to Mbezi, at the end, we end up paying 1000TZS instead of 500TZS. This is how residents in Mbezi suffer from daladalas Transport*

'Lack of monitoring by relevant authorities, scramble for transport and long distance were mentioned as factors contributing to this illegal behavior by *daladala's* operators'.

Field Observation (2011)

One driver (26 years-old) and conductor (25 years-old) during focus group discussion explained that in the evening they do so because of long distance (Kariakoo- Tegeta) and traffic congestion.

> *You know people are complaining for nothing, after all we are helping them, for us we get no profit rather than suffering. First of all the route is long (Kariakoo - Tegeta) and traffic jam is too much. In the evening if we want to go to Tegeta /Mbezi we have to accept being on the way for 4hours per trip, there is no profit at all.* "We *decide to charge at least more than the normal fare so as to compensate the time we spend on the way because of traffic congestion. Otherwise we couldn't cut the route.*

According to focus group discussion conducted in Tegeta, respondents explained, the behavior of *daladala's* operators to do whatever they want it displays the weakness of responsible authorities, and other factors such as poor road conditions and high demand for public transport. This was also justified by this quotation *"It is so difficult to explain what is going on in periphery areas, because we know that most of the roads are in poor conditions and unregistered; therefore, their being saved by unregistered daladalas."*(An official from SUMATRA)

In line with political ecology approach, the problems of transport costs in sprawl areas can also be linked with the failure of government institutions to ensure proper movement of people including checking that the official transport fare is being implemented by public transport providers in all parts of the city. Likewise, WBCD (2007) pointed out that, a general weakness of the National Transport Policy is that; it has placed more focus on facilitating vehicle movements rather than the efficient movement of people (public transport users).

6.4 Poor, Old Transport Modes and Few in Number

Urban sprawl in the study area is accompanied with the use of poor and old modes of public transport. Poor and old motorized transport dominates public transport in periphery communities. From direct observation on the use of public transport to reach my study area, I was able to observe the quality of the modes of public transport operating in Mbezi Msumi and Mpigi Magoe sub-wards. For example, in case of Mbezi Msumi sub-ward it was observed that, the

dominant modes of public transport were light trucks/lorries, pick-up, mini-buses and motorcycles (Figure 6.4 and 6.5 respectively).

> *For us we are living as if we are not belonging to this city* "urban exclusion". Look, *the transport we are using, as if we are in a rural area. Our main modes of transport are Lorries, pick-up, and still they are not available all the time. You have to wait for them even when you have an emergency (A female respondent- 39 years old-Mbezi Msumi)*

Figure 6.4 Mode of public transport used in the study area

Source: Fieldwork (2011)

Note: Poor quality mode of public transport. *Daladala*-min-bus, the first from the left and to the right is lorry/truck waiting to transport communities in Mbezi Msumi sub-ward.

Figure 6.5 Small car (pick-up) used as public transport

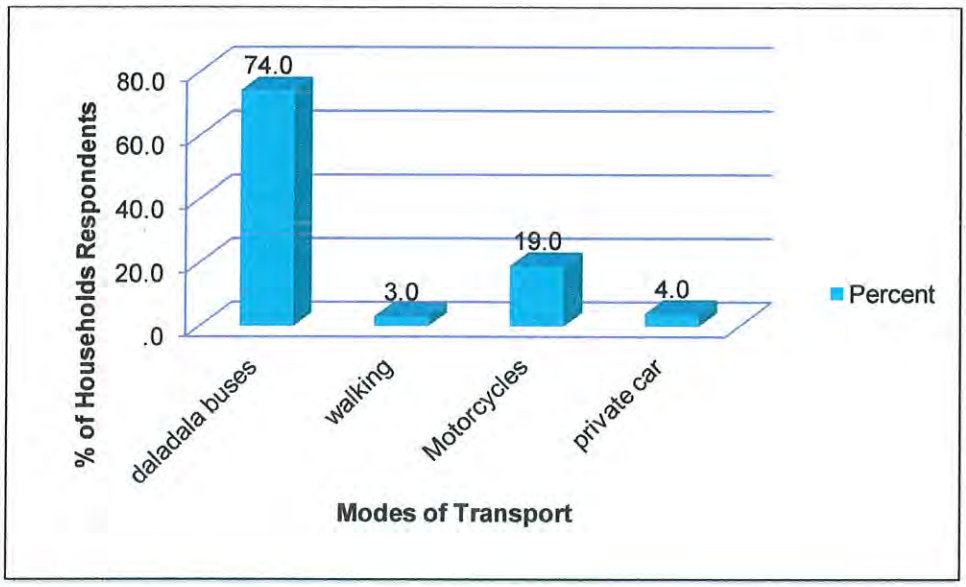
Source: Fieldwork (2011)

Note: Residents in Msumi sub-ward entering in small car (pick-up). Demand for public transport services is higher than supply.

Data collected from SUMATRA shows that in total about 775.4Km of the city's roads are served by the registered *daladala,* while the remaining parts of the city including periphery areas are served mainly by non-registered public transport. According to respondents, mini-buses which operate in their areas are those which have been chased from operating in city center or have their license expired in other routes or/and lacking qualification for re-registration as to provide public transport as per SUMATRA set criteria. Currently, SUMATRA announced that; "all public transport minibuses will be prevented from entering city center, starting from August/1/2011". The reason behind this is to ease congestion, and these affected *daladalas* would continue operating outside the city center (*Guardian, 30th, January/2010).*

From my observation and data from SUMATRA, most of the modes of public transport used in remote areas are in very bad condition which puts the safety of the passengers to be at risk. Sometimes when *daladala* (min-bus) happens in the study area is the one with carrying capacity of only 15 passengers. Yet the demand for *daladala* is higher than any other modes of transport. For instance, it was found that most of the households' respondents (74%) use public transport (*daladala*/truck/Pick-up) on a daily base, 22% make use of other modes such as motorcycles/*bajaji*/walking; while 4% use private car (Figure 6.6) .

Figure 6.6 Households respondents on the use of different modes of transport



Source: Field survey (2011)

Due to their livelihoods activities such as petty trading, involvement in daily mobility seems to be inevitable. For instance, a woman involved in selling fried fish explained;

> *I wake up at 4:00 am, going to ferry to buy fish and comeback home to fry and sell them to my customers. So I have a lot of works to do within a short time; and all these needs effective and efficient mode of transport. My customers' come around 11.00 am, to buy fish for lunch, if they find I'm not yet ready, they go to buy from another place and therefore, I lose my customers. Here I am competing with my friends, as you know yourself nowadays we are led by competitive market if you are lazy, you will not make it.*

This shows that efficiency and effectiveness of the public transport is very important for this person to make reasonable development since a person is highly depend on public transport services. Moreover, respondents in this study explained that an alternative mode of transportation is to hire motor-cycles which are also expensive. It costs more than 2000TZS (≈1USD). This means that, for the low income group, it is a punishment and heavy load, to what they are trying to get for their survival. Motorcycles and small vehicles such as *Bajaj* were the main modes which seemed to be available for most of the time; despite the fact that it was also not affordable to everybody. Motorcycle is considered to be more efficient for the majority especially when there is an urgent transport need like transporting a pregnant woman to hospital, avoiding traffic congestion and to be on time. However, motorcycles kill many people due to lack of experience and skills of most motorcycle's riders. At the same time, most of the roads have no provision for separate routes for motor cycles. As they struggle to share the same road with cars, accidents have been very common.

6.5 Other Effects of Urban Sprawl Observed Apart From Transportation

- Environmental degradation: Urban sprawl in the study area causes a wide range of environmental damage like loss of biodiversity, decrease of air quality, as houses which are constructed in large lots are accompanied deforestation (Fan, 2004; EEA, 2006).

- Change of agricultural land into residential use. Land conversion has resulted in the massive loss of farmlands to housing developments. Decline of urban agriculture and food insecurity are the impacts of urban sprawl due to the fact that a large land is being used for commercial and residential purpose (Figure 5.4 showing housing in a large lot).

Table 6.3 Household respondents on the public transport problems

Public transport problems in the study area	Percent (%)
Poor roads	30
Traffic congestion	21
High transport cost	18
Few buses and old	25

Field survey 2011

6.6 Summary

There is a clear relationship between urban sprawl and public transport problems. The study found that, spatial distance, traffic congestion, poor roads network, poor and old modes, and increase in transport costs are the main impacts of urban sprawl on public transport services. However, the study identified other effects of urban sprawl apart from transportation like; environmental degradation and climatic change, loss of agricultural land as well as reduction in food security. The key challenge here is how to take advantages of urban sprawl to help our people and avoid negative effects of it.

CHAPTER SEVEN: INTERVENTION MEASURES

7.0 Introduction

This chapter is trying to put forward the intervention measures for urban sprawl. Based on the challenges of urban sprawl presented, it is clear that without intervention measures; urban sprawl will increase poverty to low income groups. In line with political ecology approach, policies for redistributing urban utilities are very importance to planners and governance (Harvey, 1973 cited in Walker, 1998).

In understanding intervention measures towards urban sprawl in the study area, communities in Msumi, Mpigi Magoe, Luis and Tegeta were asked to reflect on challenges they face in their place, and provide their opinions and views on the solutions to the problems. The following are the intervention measures for urban sprawl in the study area.

7.1 Decentralization Policy

The physical structure of Dar es Salaam city shows that the centralization of services at the central business district that continues to be a magnet, which attracts different movements toward inner city. In relation with political ecology approach, centralization of services in one area is the outcome of spatial injustice created by urban authorities over resources distribution. The implications of these, is continuing with residential expansion outside the main commercial area, leading to high demands for public transport services and traffic congestion. It was noted that a majority of the households' respondents in the study area work and obtain basic services in the city center. In this regard, decentralization of services will help to reduce; spatial injustice over resources allocation and the function of the city center. On the other side, rural –urban migration shows urban bias over rural areas. Whereby, the concentrations of services in urban areas continue to activate rural-urban migration hence rapid increase of population in urban areas and uncontrolled urban sprawl. Decentralization of services will help the communities in the peripheral areas to access facilities and services within their areas. It will help to reduce over dependency on the city center which adds more demands for *daladala* buses and increase in traffic congestion.

Respondents in the study area suggested that decentralization should be done in banks, government offices, shopping centers and all other public services. During Focus Group Discussion it was suggested that it will be better if services were located nearby residential areas, instead of the current situation where residential areas and area for basic services; like hospitals and public offices are far from each other. This situation forces people to travel long distance to look for public services.

> *These days we have banks here in Tegeta, which helps us a lot, thus issues related with banks, there is no need to go to the city-centre like it was before. If government could do the same in terms of government offices such as ministry of agriculture, and ministry of Land Housing and Human settlements we could avoid some movements to inner city and this would help a lot to reduce traffic congestions as well as overcrowded in public transport* (Elaborated by a 35year old woman in Tegeta sub-ward).

As it was observed during the study, the decentralization of services in different parts of the city; is a sustainable policy in overcoming the impacts of urban sprawl, not only to the communities in the sprawl areas but also to the city residents. Reflecting on the spatial structure of the city, the decentralization will help to reduce long traveling distance searching for urban utilities. Moreover, decentralization will help to reduce car dependence in travel, traffic congestion and unnecessary movements toward the city centre. Therefore, if decentralization of public services will be implemented effectively, the current traffic flow will be changed. This implies that the large group of people who want to travel at the same time toward/out of the inner-city and the scrambling for *daladala* buses in rush hours will be reduced to a large extent.

From people's perceptions and views in the study area, decentralization policy seems to be more realistic in solving the challenges of urban sprawl on access to public transport services in the study area. In contrast with decentralization of services, urban sprawl in Dar es Salaam demands large investment on the transport networks, modes and other traffic services. All these are very expensive and it requires long term planning to be completed (Alphonse 2008; TANROADs, 2011). For example, Dar es Salaam Rapid Transit (DART) Project, that is aimed to improve public transport system and get rid of heavy traffic congestion in the city is expected to cost

about 185billion (TZS) - upon its completion (Daily news 16thJanuary/2011). Furthermore, in understanding the aspect of power and politics in political ecology approach, the respondents in this study were asked to reflect on public transport problems they face and relate these problems with government efforts to end public transport problems like traffic congestion, through DART and new effort by SUMATRA to prevent min-buses from city center.

Box 7.1 People's perceptions

One respondent (40 years) replied,

"You know, that is politics, for the government like ours, in reality DART cannot be implemented. How many years we have heard that they will construct flyovers? Just even in one junction like Ubungo. May be after 2030 when a person like me will have already died"

Another respondent (27 years),

"Preventing mini-buses is not a solution at all to help public transport users. It aims to benefit some few people. Look, a mini bus takes 15-25 passengers, but the same carrying capacity of private car is used by one person is allowed. Who is benefiting here?"

"DART is a good idea, but not immediate solution for the current transport problems, it will take time to be completed and it is a very expensive project. The government should think first of simple solution like improving service roads"(a woman aged 35 years old)

Question for reflection on public transport problems in Dar es Salaam city.

What will happen if one day all private cars in the city will not operate and allow only daladala buses to operate? (Hope traffic jam will be reduced to a large extent).

Fieldwork (2011)

7.2 Extension and Improvement of Road Conditions.

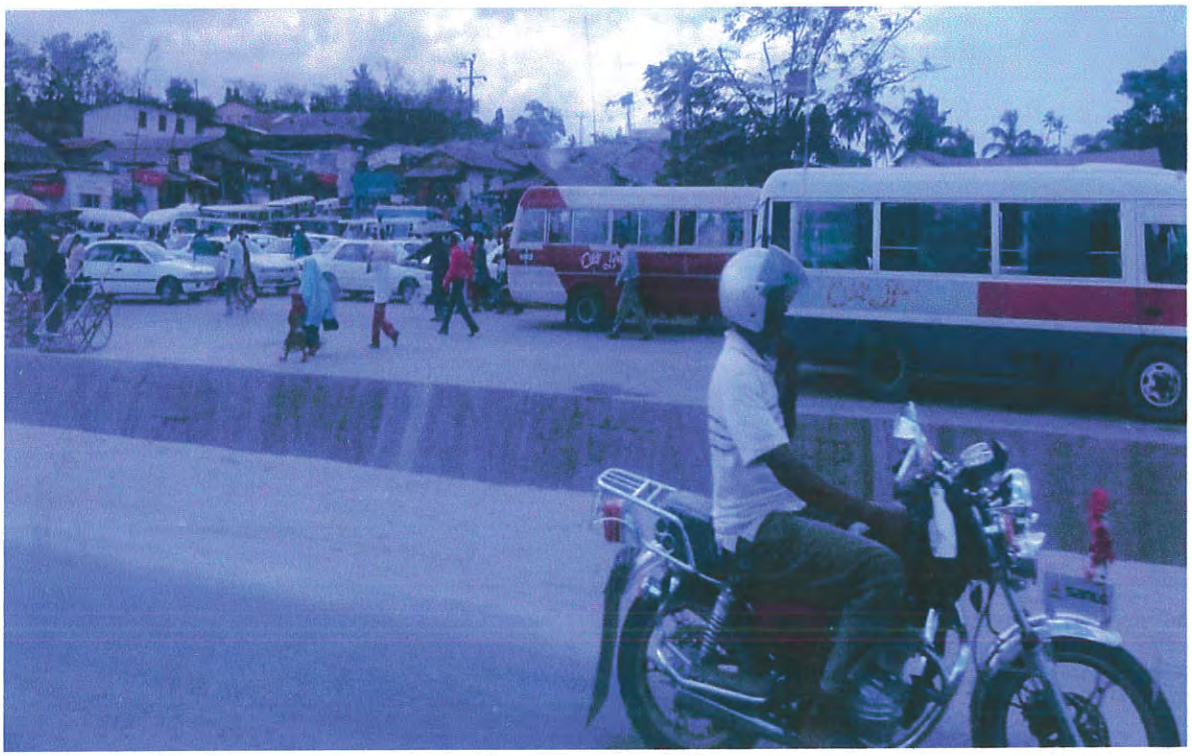
One of the major important areas for intervention regarding urban sprawl is road network. As it was observed poor road conditions characterizes the urban sprawl in Dar es Salaam. Extension and improvement of roads condition is very important in order to reduce the impacts of urban sprawl in the study area.

During the field study, the respondents suggested that, in order to solve the problems of public transport; roads have to be constructed in the level of tarmac. Generally Dar es Salaam has a poor road conditions, most of the trunk roads connecting different parts to the city center are very narrow. Most of feeder or service roads are earth roads (figure 6.1 about road conditions).

The respondents explained that in context of poor roads condition, it is hard for bus operators to take new buses to operate due to the fact that they will be easily damaged. It was observed that all sub-wards involved in this study were characterized by a poor road network and old mode of public transport. Poor road conditions make it difficult for peripheral communities to access good and quality public transport bus.

Therefore, urban growth has to go hand in hand with improvements of the road conditions to the level of tarmac. Improvement of the road conditions will act as a catalyst for good quality buses to operate in feeder roads instead of the present situation where *daladalas* largely operate in trunk roads. It is clear that if roads will be improved access to *daladala* buses will also be easier. In line with this intervention measure, it was observed that some government efforts has been started to improve transport services in the study area; for instance with the constructions of new *daladala* bus stop in Mbezi ward. The new bus stop will help to accommodate more *daladalas* and avoid congestion whereby the present bus stop is unable to do so. (Figure 7.1 shows the old d*aladala* bus stop, while Figure 7.2 the new *daladala* bus stop).

Figure 7.1 The current on use *Daladala* Bus Terminal in Mbezi-Ward



Source: Fieldwork (2011)

Note: The current on use *daladala* bus stop in Mbezi ward, which is shared by shops, small market for petty trading activities and different modes of transport such as motorcycles, bicycle and pedestrians. Yet, the area is very small to accommodate all activities at once. This condition is unsafe for passengers and pedestrian as well.

Figure 7.2: A new Mbezi *daladala* Bus Terminal

Source: Field work (2011)

Note: The new constructed *daladala* bus station in Mbezi ward, it has resting places for passengers, light and enough space to accommodate more *daladalas* buses.

7.3 Introduction of New Modes of Transport

Currently, people in Dar es Salaam depend much on bus transport which consists of 60% of the roads transport (Kanyama *et al,* 2004). This makes residents in the city to have high demands for this mode than supply. Respondents suggested different modes of public transport that could be established or improved such as water transport (boats) for the residents in Tegeta; because they are located along the shores of the Indian Ocean.

Furthermore, it was noted that the city has railway already connecting the city and other parts up country like Kigoma, Mwanza, Tabora, Mbeya and other regions. Yet there is no train which provides services in the city. Therefore, respondents in this study proposed that, it would be wise

if railway transport would be introduced for residents in the city. The use of train for the city purposes could reduce scrambling and overcrowding in *daladala* buses, because the train would take a larger number of people than *daladala* buses. This mode is also free from frequent accidents compared to the current modes like motorcycles and tricycles. The proposed alternative modes (boats and trains) would help to reduce traffic congestion caused by high dependency on road transport as roads are in poor conditions and narrow to accommodate different modes of transportation. There are limited routes for pedestrians and non-motorized transport in Dar es Salaam city.

7.4 Compact City Strategy

Due to the rapid increase of population which is continuing to affect the city in different perspectives, it is time now to make a more efficient utilization of land to accommodate large numbers of population within small areas, for example, through the condominium projects. The current situation shows that the housing structure which is dominant with the majority of residents in the study area is that of detached single house in large lots which tends to encourage extensive use of land. In this case the urban sprawl in Dar es Salaam is inevitable as long as population of the city is increasing.

Unplanned and uncontrolled urban sprawl is a dominant feature of the city. This situation has been accompanied with extensive land use consumption and inaccessibility of facilities and services in sprawl areas. In this context, a compact city strategy seems to be one of the sustainable intervention measures for urban sprawl in this study. This is due to the fact that, a compact city strategy encourages intensive land use which will help to cope with the challenges of rapid increase of urban population. Furthermore, this strategy is more environmental friendly, it tends to avoid car dependency because accessibility of facilities and services are made available nearby residential areas.

Olmedo (2008) in a paper about "*Spatial and Transport Planning Integrated Policies*" wrote that, the alternative planning strategy to the dispersed city and the problems associated with urban sprawl such as traffic congestion, pollution, inaccessibility of services and car dependency can be best resolved by compact city. Therefore, high rising buildings like condominiums would

help to encourage intensive utilization of land resource and avoiding further development of uncontrolled urban sprawl in the study area.

7.5 An Integrated Land use and Transport Planning

The problem of urban sprawl and access to public transport services is an outcome of lack of integration between land use and transport planning. Integrating transport planning within land use development seems to be necessary in overcoming the growing problem of land-use and accessibility to public transport services for periphery communities. This will help to reduce trip lengths, demand for motorized transport, and transport costs. On the other hand walking and cycling to the bus stops will be encouraged. It was noted in this study that, uncontrolled land use development is featured by; poor or lack of public transport, long travelling distance and poor infrastructures. Sahail *et al* (2002) stated that failure to provide services in an integrated way with unplanned/planned urban expansion is one of the current urban transportation problems. Peripheral communities need to travel long distance to work, marketing as well as to access basic services. All these display absence of integrated land use development and transport planning.

In line with political ecology approach; political will, power and decisions should be in formulating one institution to control all issues related with land use development and transport planning. Ojoro (2011) states that, in Tanzania there are several institutions dealing with urban transport without proper coordination. Ojoro further added that it is possible even to find building within road reserve. Similarly the interviews conducted with one official (TANROADs) and one official from department of urban planning, Ministry of Land, Housing and Human Settlements (MLHHS) revealed that, lack of clear and coordinated institution to deal with transport and land-use development is a big challenge towards implementing urban transport policies.

7.6 Summary

Urban sprawl is a big challenge in Dar es Salaam where the city is characterized by centralization of services. The continuous increase in spatial distance outside central business has to go hand in hand with decentralization policy, if we want to avoid the effect of urban sprawl on public transport such as traffic congestions, and poor roads networks among other things. In addition to that, urban sprawl has to be planned, formal and controlled rather than being unplanned and uncontrolled. Urban sprawl in the study area is characterized by lack of services, environmental degradation, climatic change, informal settlements and disappearing of agricultural land.

UNFPA (2007) states that, servicing the already settled areas is more costly than providing serviced land on unoccupied sites. In relation with political ecology approach, government priorities should first be directed on providing urban people with serviced land instead of waiting to solve problems emanating from unplanned urban sprawl. Planners, policy makers, urban government and communities have to reflect on demands of all groups in urban environment and prepare policies which reflect the current urban challenges such as land, housing, food, transportation and high cost of living.

CHAPTER EIGHT: SUMMARY, CONCLUSION AND RECOMMENDATIONS

8.0 Introduction

This chapter presents a summary of the findings and some key issues that emerged in this study. Furthermore, conclusions, recommendations and areas for further study have been presented.

8.1 Gap and Future Challenges

8.1.1 Migration, Population Growth and Government Efforts

The main challenges of the current and future urban sprawl are on the root causes of urban sprawl. Rural-urban migration and out-migration from city center to periphery areas continue to add more population within the city as well as in the outskirts of the city. As it was found that more than 95% of the populations in the periphery areas are immigrants from within and outside the city. The current impact of migration results in high rates of population growth in urban areas, with more pressure on urban land, housing and access to urban services like public transport and infrastructures. Kaur (2008) explains that the population of the World has been increasing and thus poses a high demand on urban land and onto the spatial growth of the cities. However, little efforts have been made by the governments toward resolving the issue of population growth in cities. Many public services and development projects are directed in already serviced areas. These trends will continue to activate migration toward Dar es Salaam hence worsening uncontrolled urban sprawl.

8.1.2 Land and Housing Policies

Another major challenge to be considered by urban government is land and housing issues. As this study and other writers show, demand on land and housing force many people to establish settlements in periphery areas. Data from this study showed also, residential development in periphery is informal, uncontrolled and unplanned. Seleki (1995) noted that, due to several difficulties in the process of acquiring a building plot in planned land; most of people in urban areas of Tanzania resolve the problem by building in unplanned and un-serviced land. This shows that responsible authorities in land and housing issues have failed to provide proper solutions on access to land and housing to the majority, particularly to low income groups. This is also related to political ecology approach which explains that, any decisions over resources

such as land and housing has direct impact at the micro-level. Unplanned urban sprawl and poor access to public transport services cannot be detached from the impacts of government's decision over land resource, housing and other urban utilities.

8.1.3 Politics and Implementation of the Plans

Politics is a main problem in any nation desiring to bring development to its people. Politics exist in every sector. Power and politics in formulating policies, plans and implementation of plans are the main challenges that need to be considered in thinking future urban sprawl and public transport services. In this study, respondents argued that, some decisions taken by city authorities such as continuing with investments in city center rather than directing to other areas and failure to introduce alternative modes of public transport is because of politics (Box 7.1).

8.2 Drivers of Urban Sprawl

The findings show that there are several factors that influence urban sprawl in the study area. These factors are like inadequate spatial planning of the city, rapid population growth, land and housing issues, urban agriculture and low living cost. Political ecology approach helps us to associate these factors with inability of urban authorities to ensure equality in resource distribution and predict population growth in the city, hence leading into urban sprawl. Inadequate planning of the city in terms of physical structure displays weaknesses in macro institutions responsible for managing urban expansion. In this respect, political ecology approach is relevant for understanding and reforming urban governance so as to ensure sustainable urban expansion.

8.3 Urban Sprawl and Public Transport Services

The study establishes that urban sprawl has greater impact on public transport services. The impacts include traffic congestion, poor road conditions, high transport cost and poor modes of public transport. In this regard, urban sprawl demands new roads, modes of public transport, and decentralization of services from inner city. All these are costly at the local as well as national level. Incapacity and lack of political will of urban government to respond to these challenges make the problems unsolvable.

8.4 Conclusion

The study was conducted in Kinondoni Municipality involved two peripheral wards namely Mbezi and Kunduchi. In relation with the objectives of this study, factors influencing urban sprawl, challenges on public transport services and intervention measures were identified analyzed and discussed by respondents. For example, factors influencing urban sprawl in the study area were demand on land and housing, low living cost in peripheral area and household size to mention few.

Furthermore, urban sprawl in the study area poses a big challenge for sustainable future development. Urban sprawl in Kinondoni municipality indicates failure of urban authorities to ensure proper way of land development. This has led to inaccessibility of public transport and other urban utilities in the peripheral areas. However, the main challenges continue to remain to the public transport users. These challenges are like traffic congestion, high transport costs and poor road conditions.

Strong efforts is needed to ensure that the future spatial expansion is taking place in planned areas where access to basic utilities like public transport become available and affordable to all urban residents. Political ecology approach helps us to realize the important of good governance, politics and power in enhancing equality in resource distributions. Political will by urban governance is needed to support implementation of plans and proper way in distributing urban services. In the study area for example, effective and efficient governance is required in achieving the introduction of alternative modes like train, boats and bus rapid transit in the city.

8.5 Recommendations

Based on the findings and general conclusions of the study, this thesis puts forward the following main recommendations.

- Government, urban planners, policy makers and community need to consider factors influencing urban sprawl and reformulate land and housing policies which will include urban poor to benefit with land and housing service in urban areas. In this regard, the city will be inclusive for all groups, particularly the poor to benefit from planned urban areas. Urban sprawl needs to be controlled and planned so as to avoid the negative impacts at the community and national levels.

- Regarding the impact of urban sprawl on public transport services, the major concern here is to ensure that the expansion of the city goes hand in hand with the provision of public transport services. In this case the study recommends that investment on public transport services is very crucial in reducing challenges of poor public transport conditions in the study area.

- Due to inadequate spatial planning of the city, urban sprawl will continue to increase traffic congestion despite the all efforts that would be taken to expand road networks. This study suggests that decentralization of urban utilities should be considered as one of the best solutions for reducing transportation problems such as traffic congestion and costs of public transport. The future city plan has to take into consideration the challenges of urban transportation in the context of urban sprawl particularly to the most disadvantageous groups in urban areas. Furthermore, the future urban form should aim to provide sustainable public transport services. In this case, the design of cities for achieving sustainable public transport should focus on providing efficient, effective and accessible public transport services to all users in a safe and environmentally acceptable condition.

In achieving all these recommendations it will require good governance with demonstrable political will in implementing plans and policies since resources are already available, for example land and human resource.

8.6 Areas for Further Research

- Detailed study need to be conducted on motorcycle as mode of transport in the context of urban sprawl. This study realized that, residents in the sprawl areas tend to use motorcycle as the alternative mode of transport available for emergency in order to avoid traffic congestions in the city. However, the extent in which motorcycle accidents continue to affects the livelihoods of the people is not much known.

- Another area for further study is on urban sprawl and access to water services. During the study, residents in Mpigi Magoe and Mbezi Msumi explained that, apart from the transport problem; they also face problem of access to water. Therefore, the study identifies this area for further study, due to the fact that water is an essential factor for human life.

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The Guardian , 28th February 2012.

APPENDICES

Appendix 1 Survey Questionnaires with the Households

- **Personal information**: My name is Lucy Joseph. I am a Master's student in Urban Development and Urban Challenges in East Africa, sandwich programme between Norwegian University of Sciences and Technology (NTNU) & Addis Ababa University (AAU). I am doing my research on Urban Sprawl and Access to Public Transport Services in Dar es Salaam, Tanzania particularly in Kunduchi ward (Tegeta) & Mbezi Louis ward. I therefore kindly request your response on the following questions. Thanks.
- **General information**
  Name of the study area (Municipality): .....Ward.....Sub ward (street).....
- **Household respondent**
  Household's respondent (head).....Size of the household....Sex...Age....Education level.....Marital status (a) Married (b)Single c)divorced d)widow/widower

A. Questions for the households:

1) For how long have you been living in this area? (a) 0-1yr, (b)>1-5 yrs,(b)>5-10 c) >10 yrs.
2) What is your occupation? (a)Business person (b) civil servant (c) none.
3) Where is your working place? (a) Posta b) Kariakoo (c) Others
4) What is the distance to your working place a) <2km b)2km-5km c)>5km-10km d)>10km
5) Why do you value to be in this area (periphery)? .....
6) What are the challenges have you been experiencing in this area?
7) What are the challenges of public transport do you face in this area?
8) How do you cope with the challenges of public transport services?
9) Often, which mode of transport do you use? (a) Bicycle (b) Walking (c) private car (d) Taxi e) Daladala bus
10) How many modes do you take to reach your destination? a) One b).Two c).Three d) More than three. Do you think why? .....
11) How long does it take you to get public transport at the bus stop?
12) Often, at what time of a day do you face severe problem in accessing public transport services? a) Morning b) Afternoon c) Evening d) Both morning and evening e) The whole Day. Explain why? .....
13) Have you ever been involved in planning for your travel situation? yes/No

a) If yes; explain how you get involved? b) If No; would you like to be involved?

14) Do you have any idea on Dar Rapid Transit DART? Yes /No.
15) A. In your opinion what challenges do you think would occur in implementing DART's?

B. What are the measures have been taken by government to improve public transport services in your place? .....

16) What are your suggestions to improve access on public transport services in this area? .....
17) If you have any question/suggestions and opinion your welcome? .....

Thank you .....

Appendix 2 Interview Guide with Municipality

Name of the institution/organization and department.....Position/title.....Contacts.....

Date.....place.....time.....

1) Who is responsible for the provision of public transport services?
2) What are the roles of government in providing public transport services?
3) How do you assess the performance of private sectors in proving public transport services for the periphery communities?
4) What are the major causes of urban sprawl?
5) What are the challenges/opportunities of urban sprawl in service provisions specifically on public transport service? .....
6) Are the currently public transport services accessible and affordable for the urban poor/low income groups in periphery areas? Yes/No. If Yes/ No, why? .....
7) What is Dar Rapid Transit (DART)?
8) How do you assess its implementation? Consider challenges/opportunities .....
9) How do you assess the current situation of traffic congestion?
10) What are the main causes of traffic congestion in Dar es Salaam?
11) What is the city plans to overcome traffic congestion?
12) Do you have current master city plan? What does it state concern public transport services? Can I see it?

Appendix 3 Interview Guide with (SUMATRA)

Name of the Institution.....Position/Title...Contacts.....Date.....Place....Time

QUESTIONS

1) Who is responsible for the provision of public transport services in the city? .....
2) Can you tell me how many public transport companies do we have?
    a) Corporate owned .....Number of buses.....
    b) Government owned.....Number of buses.....
    c) Individually owned.....number of buses.....
3) What are the roles of government regarding public transport services in the city?
4) Assess the performance of the private sectors in providing public transport services? Consider periphery areas.....
5) Are the current public transport services accessible and affordable for the public transport users particularly, low income group in periphery areas? If yes/no; give reasons .....
6) Assess the current situation of traffic congestion?
7) What do you think are the main causes of traffic congestion in the city?
8) What is the city plans to overcome traffic congestion?
9) What are the policies and laws guiding operations of the public transport services like *daladala* buses, motorcycles, and other modes?

Thank you for your cooperation

Appendix 4 Interview Guide with (TANROADs)
Name of the agency/organization .....Department.....Place.....date.....time...

Questions:

1) What are the roles of TANROADs concerning transport networks in the city?
2) How many roads do we have? Consider.....
    a. Trunk .....
    b. Regional .....
3) What are the intervention measures for improving roads network in the city? Consider periphery areas like: Kunduchi and Mbezi wards.
4) What are the challenges do you face from urban sprawl in improving roads network?
5) Do you have Dar es Salaam road master plan? What does it state concerning roads condition in periphery areas?
6) Who are the actors involved in roads network planning in the city?

Appendix 5 Interview Guide for the Private Companies (DARCOBOA)
Name of the company...Place .....date.....time...

Questions

1) When did you start providing public transport services in this area?
2) In which areas do you provide services?
3) What are the challenges do you face?
4) How do you cope with those challenges?
5) Do you get any supports from the government? Yes/No.
    a) If Yes, explain .....
    b) If No, why? .....
6) A) To what extent does your company meet the community's demand in this area?
    B) Why.....
7) Have you ever been involved in planning to improve access to public transport services? If yes/No, explain .....
8) What are your future plans in order to meet community's demand for public transport services?
9) What are your suggestions to improve public transport services particularly in periphery communities?

Appendix 6 Interview Guide with Ward /Sub-ward Chair Person

- Name.....Sex.....Age...Experience.....Marital status ....Education level.....
- Number of the household s in the ward: .....
- Total population in the ward.....Number of Sub wards.....

1) Where do you live?
2) What are the main challenges do communities in your ward encounter? .....
3) What are the challenges of public transport services do your people face in this ward? .....
4) What are the strategies have been taken to solve problems of public transport to your Community? Consider
    a. At the ward level.....
    b. District level.....
    c. Regional level.....
    d. National level.....
5) How does your community get involved in planning process regarding their travel situation?
6) What are the reasons for increasing migrants in your ward? .....
7) How do people acquire land/site in your ward? And at what price? .....

Thank you.