AN EVALUATION OF THE CAUSES OF URBAN SPRAWL AND ITS IMPLICATIONS ON PLANNING AND MANAGEMENT OF NSANGI PARISH, KYENGERA TOWN COUNCIL

BY

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DECLARATION

I Muduwa Brenda, do hereby declare that the work presented in this report is my original work, except where it is acknowledged and that to the best of my knowledge it has not been submitted for any degree program to Makerere University or any other university.

Signed

MUDUWA BRENDADate: 01/04/2018

Signed

Dr. Omolo Fredrick Okalebo
Supervisor
Date: 28/12/2018
DEDICATION

This report is dedicated to my family for the continuous support and encouragement throughout my studies. To my beloved lecturers also who have provided me with un-conditional support to forthcoming academic achievement. May the loving God bless you abundantly.
ACKNOWLEDGEMENT

I would like to acknowledge the efforts of the stakeholders in Kyengeta Town Council for their contributions during the data collection exercise carried out from their area in this case Nsangi parish.

I generated this report with full consultation and guidance from my lecturer and supervisor Doctor Omolo Fredrick Okalebo, and the report is expected to be used for further research by other scholars.
ABSTRACT

Urban sprawl is a common phenomenon associated with most towns in many parts of the world. Thus, Ugandan towns are not unique in this respect. The dissertation therefore sets out to investigate the causes of urban sprawl and its implication on planning and management of Nsangi parish in Kyengera Town Council. The study also goes further to identify any other types of development which contribute to the explanation of the present mixed pattern of development within the Nsangi parish. Having analyzed these aspects, the study comes out with planning proposals for the whole study area. The study area has a total population of 14408 people (2014 Uganda Population Census). The major source of information in writing the dissertation was that obtained through field surveys carried out in the study area. Surveys involved interviewing people using a designed questionnaire. Informal interviews were also conducted. More information was obtained from government offices in Uganda. In treating the issue of urban sprawl, the general problems associated with it, are examined. The study stresses that in dealing with urban sprawl areas, consideration has to be given to the towns where this sprawl is originating. Similarly, the issue of urban sprawl is viewed in relation with the urgency of planning for this parish. While the study aims at discouraging urban development within Nsangi at this stage, it is felt that the area should be planned. In Identifying urban sprawl areas the following selected indicators are used; population growth rates and densities, commuter patterns places of work, Employment types in the area, occurrence of urban settlements and intensity of use of electricity. The study reveals that urban Sprawl influence from Kampala exists in the first six parishes immediately adjacent to the city. Different recommendations are put forward to help come up with measures in combating of urban sprawl.
CHAPTER ONE

1.1 INTRODUCTION

The study is about an investigation on the causes of urban sprawl and its implications on the planning and management of Nsangi Sub County. Urban sprawl is a common aspect associated with most towns in many parts of the world. Urban sprawl refers to the expansion of human population away from the central urban areas into low density, monofunctional and usually car dependent communities. Urban sprawl can also be defined as “a pattern of land use in an urbanized area that exhibits low levels of some combination of eight distinct dimensions: density, continuity, concentration, compactness, centrality, nuclearity, diversity and proximity.” (Galster, Hanson, 2001).

Urban sprawl has the following indicators: population growth rates and densities, commuter patterns, places of work, employment types, and occurrence of urban settlements and intensity of use of electricity. There are various reasons as to why people leave the city center to move to the urban fringes, these are distinct according to the different interests and preferences. Some of these causes are high land rates in the city center, improved infrastructure in form of roads and extension of utilities, increase in people’s disposable income, congestion in the city center, lack of urban planning in the suburbs, raise in population growth among others.

1.2 BACKGROUND OF THE STUDY

Uganda is urbanizing at a rate of 5% per annum, the urban growth rate in Africa is 11 times more rapid than the growth rate in Europe (NDP, 2016). The term “sprawl” was first used in 1937 by Earle Draper of the Tennessee Valley Authority in the context of a national conference of planners (Wassmer 2002). Sprawl was referred to as an unaesthetic and uneconomic settlement form. According to Wassmer (2002) the term “urban sprawl” was first used in the opening paragraph of an article by the sociologist William Whyte in Fortune magazine in 1958. Planners have since then used the term to categorize an urban development, generating undesired social effects. Urban Economists also adopted the term and added to the debate terms like scatter, leapfrogging and ribbon development. The Real Estate Research Corporation inaugurated in 1974 the controversial debate on positive and negative effects of sprawl (Real Estate Research
Corporation, 1974). In the 1990s the phenomenon of sprawl was adopted by other sciences as well as the general public in the US.

1.3 STATEMENT OF THE PROBLEM

High rates of urbanization in Kampala city has caused people to move outwards to the suburbs and peri-urban areas. This may perhaps be due to high land rates in the city center, improved infrastructure in form of roads and extension of utilities, rise in the standards of living, and congestion in the city center, lack of urban planning, consumer preferences, and rise in population growth among others. The reason why many people choose to move to the suburbs are not particular and clear thus this study then seeks to establish and examine the major reasons for sprawl.

1.4 OBJECTIVES OF THE STUDY

The main objective of this study is to find out the causes and implications of urban sprawl to planning and management of Nsangi Sub County.

The specific objectives

- To examine the causes of urban sprawl
- To examine the effects and implications of urban sprawl to planning and management
- To suggest the strategies and recommendations to manage urban sprawl

1.5 RESEARCH QUESTIONS

- What are the causes of urban sprawl?
- What are the effects of urban sprawl?
- What are the implications of urban sprawl to planning and design?
- What are the strategies and recommendations of managing urban sprawl?
1.6 SIGNIFICANCE OF THE STUDY

The research will contribute to literature review that will be used by different people and authorities. This literature review will be useful for planners, KCCA authority, policy makers among others. Urban sprawl is a wide phenomenon that needs to be looked into in an extensive manner. This research will aim at providing the possible solutions and measures to urban sprawl.

1.7 JUSTIFICATION

The increasing number in population growth in Kampala city has caused movement of people out to the suburbs including Nsangi. There been limited research in this area of urban sprawl. Therefore this research aims to identify the policy measures to manage urban sprawl and possible solutions related to it.

Urban sprawl can result into various consequences on the environment and therefore needs to be looked into.

It is therefore important to have an insight by the society on these impacts in order to prevent them.

1.8 SCOPE OF THE STUDY

The study will focus on the causes, effects and implications of urban sprawl. It will also focus on formulation of strategies and recommendations of managing urban sprawl.

This research will take the case of Nsangi, with the main emphasis in the cells of Mukono, Kyambazi, Buwali and Nsangi.

1.9 BACKGROUND OF NSANGI SUB COUNTY

Nsangi is a town in central Uganda. It is one of the urban centers in Wakiso district. It is located on the tarmacked, all weather Kampala-Masaka highway. Nsangi is located approximately 20km (12 miles) by road west of Kampala, Uganda’s capital and largest city. The coordinates of the town are 0
Some of the landmarks in Nsangi include; the administrative headquarters of Nsangi sub county, an administrative unit, the offices of Nsangi town council, Nsangi central market, chrysanthemus Uganda limited-a horizontal farm belonging to the Madhivani group, the Kampala-Masaka highway- the highway passes through the town in a northeast to southwest direction.

In the environs of town and in the surrounding Nsangi sub county and in the neighboring sisa sub county many households have engaged in growing khat as known as Miira but is locally referred to as mairungi. The product is sold in Kampala to members of the Somali community in kisenyi, a section of the city. Truck drivers from neighboring Kenya also buy it for personal use and prevalent. Local growers have built houses, schools and bought personal property from the sale of this product.

LOCATION OF NSANGI SUB COUNTY
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 The concept of urban sprawl

2.1.1 Background of urban sprawl

The term “sprawl” was first used in 1937 by Earle Draper of the Tennessee Valley Authority in the context of a national conference of planners (Wassmer 2002). Sprawl was referred to as an unaesthetic and uneconomic settlement form. According to Wassmer (2002) the term “urban sprawl” was first used in the opening paragraph of an article by the sociologist William Whyte in Fortune magazine in 1958. Planners have since then used the term to categorize an urban development, generating undesired social effects. Urban Economists also adopted the term and added to the debate terms like scatter, leapfrogging and ribbon development. The Real Estate Research Corporation inaugurated in 1974 the controversial debate on positive and negative effects of sprawl (Real Estate Research Corporation, 1974). In the 1990s the phenomenon of sprawl was adopted by other sciences as well as the general public in the US.

At this time the Anti-sprawl-movement rose and first measures of urban sprawl were conducted. (Small, 2000) argues that the public and policymakers often use the term as a medical analogy. Urban sprawl is seen as a disease, detected by its undesirable symptoms. Many cures are offered for this disease, although we seem to be lacking a solid understanding of the underlying causes and mechanisms. (Wassmer, 2002) argues that sprawl has become the concept of the “enemy”, without understanding exactly what it really is. As the concept of sprawl was “invented” in the US, it was anchored in the US context and discussion for a long time. The image of lively towns, with a strong historic background, is dominant. In recent years, however, the debate has spilled over to Europe. This is justified at least in part by the obvious development problems of many European cities, as the continent presents a very scattered puzzle of territorial conditions. Urban sprawl has also continued to be a problem in developing countries not leaving out Uganda.
2.1.2 Definition of urban sprawl

Urban sprawl is notoriously difficult to define. (Cervero, 2000) claims that sprawl “is like pornography. It is hard to define but you know it when you see it.” Others see sprawl as too general a concept: “the term is so abused that it lacks a precise meaning and defining sprawl has become a methodological quagmire” (Audirac, 1990).

(Siedentrop, 2005) mentions five quite different types of definitions of sprawl:

Urban sprawl is basically another word for urbanization. It refers to the migration of a population from populated towns and cities to low density residential development over more and more rural land. The end result is the spreading of a city and its suburbs over more and more rural land. In other words, urban sprawl is defined as low density residential and commercial development on undeveloped land. Most of the time, people will move from these areas to try to find better areas to live. This has been the way of the world since the beginning.

1. Definitions of sprawl according to density attributes of a settlement system: these definitions consider low-density forms of settlement, decreasing density und functional decomposition of cities as sprawl. Representatives of these definitions are for example (Glaeser and Kahn, 2003), (Fulton., 2001)

2. Definitions of sprawl that deal with de-concentration processes of urban functions combined with the spatial expansion of urban uses into rural areas, represented by for example. (Glaeser, 2003), (Pumain 2003) among others.

3. Definitions of sprawl characterized by structure and form attributes of a settlement system. Sprawl is understood as an urban form building process that transforms a former monocentric compact structure into a discontinuous, polycentric and disperse settlement structure (Galster, 2000, Torrens, Alberti 2000)

4. Definitions based on socially relevant effects of land use, e.g. traffic induced effects, loss of fertile soils, etc. (Ewing, 1997, Downs, 1999).
5. Definitions based on normative planning and order perceptions. Unplanned urban development that runs counter to the objectives of spatial development is identified as sprawl (Gassner 1978).

2.1.3 Characteristics of urban sprawl

Many of the aspects which characterize sprawl have been already mentioned indirectly. (Burchell, 1998) characterize sprawl in two ways: on the one hand residential low density scattered development and on the other hand non-residential scattered commercial and industrial development. Scattered development is a form that is commonly associated with urban sprawl. He further describes 10 points that characterize urban sprawl – these following characteristics are based on a review of research findings:

· Low residential density

· Unlimited outward extension of new development

· Spatial segregation of different types of land uses through zoning regulations

· Leapfrog (discontinuous) development

· No centralized ownership of land or planning of development

· All transportation dominated by privately owned motor vehicles.

· Fragmentation of governance authority over land uses between many local governments

· Great variances in the fiscal capacity of local governments because the revenue rising capabilities of each are strongly tied to the property values and economic activities occurring within their own borders

· Widespread commercial strip development along major roadways
· Major reliance upon the filtering or “trickle-down” process to provide housing for low-income households.

This categorization brings a lot of points into the discussion – the problem is that within this list, the limits between causes, characteristics and consequences of sprawl are ambiguous and a clear distinction between these categories is not entirely possible. The 10 points stated can be subdivided in spatial patterns, main causes and main consequences of sprawl.

One of the most elaborated characterizations of urban sprawl is given by Galster et al. Galster contends that sprawl is characterized by 8 dimensions. Within this section we present these 8 dimensions and their meaning:

· Density: is a widely used indicator of sprawl whereby different types of density can be described.

· Continuity: is the degree to which the unused land has been built densely in an unbroken fashion. Sprawl can be continuous or discontinuous in other places.

· Concentration: describes the degree to which development is located disproportionately rather than spread evenly.

· Clustering: sprawl is frequently clustered what means that it only occupies a small portion of the respective land area.

· Centrality: the loss of centrality is one of the most serious concerns about sprawl.

· Nuclearity: describes the extent to which an urban area is characterized by a mononuclear pattern of development.

· Mixed uses: sprawl is seen as a process that separates the different kinds of land uses (separation of homes, workplaces, conveniences, income segregation along residential communities).
Proximity: proximity is the degree to which land uses are close to each other (Housing, work, shopping, etc.). The lack of proximity contributes too many of the externalities attributed to urban sprawl.

According to Wikipedia, the following are the characteristics of urban sprawl:

2.1.4 Single-use development

This refers to a situation where commercial, residential, institutional and industrial areas are separated from one another. Consequently, large tracts of land are devoted to a single use and are segregated from one another by open space, infrastructure, or other barriers. As a result, the places where people live, work, shop, and recreate are far from one another, usually to the extent that walking, transit use and bicycling are impractical, so all these activities generally require an automobile. The degree to which different land uses are mixed together is often used as an indicator of sprawl in studies of the subject.

2.1.5 Job sprawl and spatial mismatch

Job sprawl is another land use symptom of urban sprawl and car-dependent communities. It is defined as low-density, geographically spread-out patterns of employment, where the majority of jobs in a given metropolitan area are located outside of the main city’s central business district (CBD), and increasingly in the suburban periphery. It is often the result of urban disinvestment, the geographic freedom of employment location allowed by predominantly car-dependent commuting patterns of many American suburbs, and many companies’ desire to locate in low-density areas that are often more affordable and offer potential for expansion. Spatial mismatch is related to job sprawl and economic environmental justice. Spatial mismatch is defined as the situation where poor urban, predominantly minority citizens are left without easy access to entry-level jobs, as a result of increasing job sprawl and limited transportation options to facilitate a reverse commute to the suburbs.

Job sprawl has been documented and measured in various ways. It has been shown to be a growing trend in America’s metropolitan areas. The Brookings Institution has published multiple articles on the topic. In 2005, author Michael Stoll defined job sprawl simply as jobs located
more than 5-mile (8.0 km) radius from the CBD, and measured the concept based on year 2000 U.S. Census data. Other ways of measuring the concept with more detailed rings around the CBD include a 2001 article by Edward Glaeser and Elizabeth Kneebone's 2009 article, which show that sprawling urban peripheries are gaining employment while areas closer to the CBD are losing jobs. These two authors used three geographic rings limited to a 35-mile (56 km) radius around the CBD: 3 miles (4.8 km) or less, 3 to 10 miles (16 km), and 10 to 35 miles (56 km). Kneebone's study showed the following nationwide breakdown for the largest metropolitan areas in 2006: 21.3% of jobs located in the inner ring, 33.6% of jobs in the 3-10 mile ring, and 45.1% in the 10-35 mile ring. This compares to the year 1998 - 23.3%, 34.2%, and 42.5% in those respective rings. The study shows CBD employment share shrinking, and job growth focused in the suburban and exurban outer metropolitan rings.

2.1.6 Low-density

Sprawl is often characterized as consisting of low-density development. The exact definition of "low density" is arguable, but a common example is that of single family homes on large lots. Buildings usually have fewer stories and are spaced farther apart, separated by lawns, landscaping, roads or parking lots. Specific measurements of what constitutes low-density is culturally relative; for example, in the United States 2-4 houses per acre might be considered low-density while in the UK 8-12 would still be considered low-density. Because more automobiles are used much more land is designated for parking. The impact of low density development in many communities is that developed or "urbanized" land is increasing at a faster rate than the population is growing.

Overall density is often lowered by "leapfrog development". This term refers to the relationship, or lack thereof, between subdivisions. Such developments are typically separated by large green belts, i.e. tracts of undeveloped land, resulting in an average density far lower even than the low density indicated by localized per-acre measurements. This is a 20th and 21st century phenomenon generated by the current custom of requiring a developer to provide subdivision infrastructure as a condition of development. Usually, the developer is required to set aside a certain percentage of the developed land for public use, including roads, parks and schools. In the past, when a local government built all the streets in a given location, the town could expand
without interruption and with a coherent circulation system, because it had condemnation power. Private developers generally do not have such power (although they can sometimes find local governments willing to help), and often choose to develop on the tracts that happen to be for sale at the time they want to build, rather than pay extra or wait for a more appropriate location.

2.1.7 Conversion of agricultural land to urban use

Land for sprawl is often taken from fertile agricultural lands, which are often located immediately surrounding cities; the extent of modern sprawl has consumed a large amount of the most productive agricultural land, as well as forest, desert and other wilderness areas. In the United States the seller may avoid tax on profit by using a tax break exempting like-kind exchanges from capital gains tax; proceeds from the sale are used to purchase agricultural land elsewhere and the transaction is treated as a "swap" or trade of like assets and no tax is due. Thus urban sprawl is subsidized by the tax code.

2.1.8 Housing subdivisions

Sprawl in Milton, Ontario. This photograph is an example of Canadian suburban development.

Housing subdivisions are large tracts of land consisting entirely of newly built residences. New Urbanist architectural firm Duany Plater-Zyberk & Company claim that housing subdivisions "are sometimes called villages, towns, and neighborhoods by their developers, which is misleading since those terms denote places that are not exclusively residential." They are also referred to as developments.
Subdivisions often incorporate curved roads and cul-de-sacs. These subdivisions may offer only a few places to enter and exit the development, causing traffic to use high volume collector streets. All trips, no matter how short, must enter the collector road in a suburban system.

2.1.9 Lawn

Because the advent of sprawl meant more land for lower costs, home owners had more land at their disposal, and the development of the residential lawn after the Second World War became commonplace in suburbs, notably, but not exclusively in North America. The creation in the early 20th century of country clubs and golf courses completed the rise of lawn culture in the United States. Lawns now take up a significant amount of land in suburban developments, contributing in no small part to sprawl.

2.1.10 Commercial characteristics

In areas of sprawl commercial use is generally segregated from other uses. In the U.S. and Canada, these vary from strip malls, which refer to collections of buildings sharing a common parking lot, usually built on a high-capacity roadway with commercial functions (i.e., a "strip"). Similar developments in the UK are called Retail Parks. Strip malls consisting mostly of big box stores or category killers are sometimes called "power centers" (U.S.). These developments tend to be low-density; the buildings are single-story and there is ample space for parking and access for delivery vehicles. This character is reflected in the spacious landscaping of the parking lots and walkways and clear signage of the retail establishments. Some strip malls are undergoing a transformation into Lifestyle centers; entailing investments in common areas and facilities (plazas, cafes) and shifting tenancy from daily goods to recreational shopping.

Walmart Supercenter in Luray, Virginia.
Another prominent form of retail development in areas characterized by sprawl is the shopping mall. Unlike the strip mall, this is usually composed of a single building surrounded by a parking lot that contains multiple shops, usually "anchored" by one or more department stores (Gruen and Smith 1960). The function and size is also distinct from the strip mall. The focus is almost exclusively on recreational shopping rather than daily goods. Shopping malls also tend to serve a wider (regional) public and require higher-order infrastructure such as highway access and can have floor spaces in excess of a million square feet (ca. 100,000 m²). Shopping malls are often detrimental to downtown shopping centres of nearby cities since the shopping malls act as a surrogate for the city centre (Crawford 1992). Some downtowns have responded to this challenge by building shopping centres of their own (Friedan and Sagelyn 1989).

Fast food chains are often built early in areas with low property values where the population is expected to boom and where large traffic is predicted, and set a precedent for future development. Eric Schlosser, in his book *Fast Food Nation*, argues that fast food chains accelerate suburban sprawl and help set its tone with their expansive parking lots, flashy signs, and plastic architecture (65). Duany Plater Zyberk & Company believe that this reinforces a destructive pattern of growth in an endless quest to move away from the sprawl that only results in creating more of it.

**Sprawl can also be defined in different perspectives as follows;**

1. Sprawl is defined as one or more existing patterns of development. Those most frequently mentioned are low-density, leapfrogging, distance to central facilities, dispersion of employment and residential development, and continuous strip development. This definition characterizes land use conditions, and it is conceivable that continuous, development (ribbon development along corridors), and leapfrog development are two different kinds of sprawl (Harvey and Clark 1965). Other development patterns frequently characterized as sprawl in different literatures include large lot single-family residential, radial discontinuity, single land use or physical separation of land uses and widespread commercial development. (Harvey, 1965)

2. Sprawl is defined as a process of development that occurs over some period of time as an urban area expands. This suggests that some parts of an urban area may pass through a sprawl
stage before eventually thickening and diversifying so they can no longer be characterized as sprawl, at least by those authors who used to signify a stage or process of development. They hose sprawl as a verb, rather than a noun connoting a condition. But there is little in the literature to indicate when sprawl metamorphoses into non-sprawl. (Galster, 2000)

3. Sprawl is defined by an example, by reference to the average density of a particular urban area. In some literatures, sprawl is frequently defined by one or more examples of low-density or scattered patterns of urban development. Los Angeles is usually named the best exemplary definition of sprawled city. The flexibility of definition by example makes it possible to include all sorts of development patterns, from planned communities with clustered housing and mixed uses to exurban rural estates. (Clark, 1965)

4. Sprawl is used as an aesthetic judgment about a general urban development pattern. Generally, sprawl is widely known as ugly development with tendency to discontinuity and haphazard layout. (Wolman, 2009)

5. Sprawl is a cause of an externality, such as high automobile dependence, isolation of the poor.

6. Sprawl is the consequence or effect of some independent variable, such as fragmented local government, 'poor' planning, or exclusionary zoning. Sprawl occurs as a consequence of the fragmentation of control over land use in metropolitan areas. As the term so widely used, all descriptions of sprawl leave one to search for something more definite and solid. Questions like how far a development should has to stretch, how dense or thin should it be in order to be called 'sprawl’ will be left unanswered. But with an empirical definition it would be easier to conduct a discussion of the forces and factors that cause certain patterns of development and face the consequences that follow from certain urban planning forms for different population groups, such as a region’s poor residents. This can make it easier to tackle problems that can arise from poor land management and therefore lead one to best and effective usage of the limited resource: land.

Thus generally speaking, as a noun, sprawl implies a condition characterizing an urban area or part of it at a particular time. Based on descriptions of conditions characterizing sprawl in
literature and amplified by observation and experience, the following conceptual definition is suggested (Galster, Hanson, R.Ratcliffe, Wolman, Coleman and Freihage, 2001). Sprawl is a pattern of land use in an urbanized area that exhibits low levels of some combination of eight distinct dimensions: density, continuity, concentration, compactness, centrality, nuclearity, diversity and proximity.

2.2 CAUSES OF URBAN SPRAWL

Urban sprawl can be caused by a variety of different things. These causes will mainly include:

2.2.1 Lower Land Rates: Lower cost land and houses in the outer suburbs of the cities, because the centers of urban development have really made people want to stop settling in these areas and want to venture further out.

2.2.2 Improved Infrastructure: There is increased spending on certain types of infrastructures, including roads and electricity. This is something that hasn’t always been available, and there are still some areas that don’t have these luxuries. That doesn’t mean that they aren’t working on it.

2.2.3 Rise in Standard of Living: There are also increases in standards of living and average family incomes, which means that people have the ability to pay more to travel and commute longer distances to work and back home.

2.2.4 Lack of Urban Planning: People love to find areas that are less trafficked and more calm, which leads them to sprawl out to other sections of the town. Unprecedented development, cutting of trees, loss of green cover, long traffic jams and poor infrastructure that force people to move out to new areas.
2.2.5 **Lower House Tax Rates:** Cities will usually have high property taxes, and you can usually avoid these taxes by living in the outer suburbs because the taxes are usually lower than they would be in other situations.

2.2.6 **Rise in Population Growth:** Another factor that contributes towards urban sprawl is rise in population growth. As number of people in a city grows beyond capacity, the local communities continues to spread farther and farther from city centers.

2.2.7 **Consumer Preferences:** People in high income groups have stronger preferences towards larger homes, more bedrooms, bigger balconies and bigger lawns. This also causes urban sprawl as this option is not available in crowded cities. People generally look out for low-density residential areas where they can get home according to their preference.

2.3 **Effects of urban sprawl**

2.3.1 **Increase in Public Expenditure:** They can actually play a part in the increases of public costs, because these changes in infrastructures and building must actually be paid for by someone- and it is usually the tax payers’ money that pays for the expenditures.

2.3.2 **Increased Traffic/ infrastructure and transport costs**

Populations will begin to use their cars more often, which means that there is more traffic on the roads, and there is also more air pollution and more auto accidents that you have to worry with. Living in larger, more spread out spaces generally makes public services more expensive. “Since car usage becomes endemic and public transport often becomes significantly more expensive, city planners are forced to build highway and parking infrastructure, which in turn decreases taxable land and revenue, and decreases the desirability of the area adjacent to such structures. Providing services such as water, sewers, and electricity is also more expensive per household in less dense areas.” (William, 1959)
2.3.3 Health Issues

When people use their vehicles, even to go to a very short distance, people are going to be more overweight and are also going to have to deal with ailments such as high blood pressure and other diseases that come about with obesity. Sprawl leads to increased driving, and increased driving leads to vehicle emissions that contribute to air pollution and its attendant negative impacts on human health. In addition, the reduced physical activity implied by increased automobile use has negative health consequences. Sprawl significantly predicts chronic medical conditions and health-related quality of life, but not mental health disorders. The American Journal of Public Health and the American Journal of Health Promotion, have both stated that there is a significant connection between sprawl, obesity, and hypertension.

“In the years following World War II, when vehicle ownership was becoming widespread, public health officials recommended the health benefits of suburbs due to soot and industrial fumes in the city center. However, air in modern suburbs is not necessarily cleaner than air in urban neighborhoods. In fact, the most polluted air is on crowded highways, where people in suburbs tend to spend more time. On average, suburban residents generate more per capita pollution and carbon emissions than their urban counterparts because of their increased driving. “ (Galster, 1990)

2.3.4 Environmental Issues

Sprawl can also cause certain environmental issues that you may want to be aware of. In fact, when you think about going out to develop these lands you will have to worry about the wildlife that lives in these lands. You will be displacing them, and it can really cause a ripple in the environment. Urban sprawl is associated with a number of negative environmental outcomes.

One of the major environmental problems associated with sprawl is land loss, habitat loss and subsequent reduction in biodiversity. A review by Czech, 2000 and colleagues finds that urbanization endangers more species and is more geographically ubiquitous in the mainland United States than any other human activity. Urban sprawl is disruptive to native flora & fauna and introduces invasive plants into their environments. Although the effects can be mitigated
through careful maintenance of native vegetation, the process of ecological succession and public education, sprawl represents one of the primary threats to biodiversity.

Regions with high birth rates and immigration are therefore faced with environmental problems due to unplanned urban growth and emerging megacities such as Kolkata.

Other problems include flooding, which results from increased impervious surfaces for roads and parking; increased temperatures from heat islands, which leads to a significantly increased risk of mortality in elderly populations.

Due to the larger area consumed by sprawling suburbs compared to urban neighborhoods, more farmland and wildlife habitats are displaced per resident. As forest cover is cleared and covered with impervious surfaces (concrete and asphalt) in the suburbs, rainfall is less effectively absorbed into the groundwater aquifers. This threatens both the quality and quantity of water supplies. Sprawl increases water pollution as rain water picks up gasoline, motor oil, heavy metals, and other pollutants in runoff from parking lots and roads.

Gordon & Richardson have argued that the conversion of agricultural land to urban use is not a problem due to the increasing efficiency of agricultural production; they argue that aggregate agricultural production is still more than sufficient to meet global food needs despite the expansion of urban land use.

2.3.5 Impact on Social Lives: When people move further out, they also have an impact on their social lives. They don’t have neighbors that live as close, which means that they will not really stay as social as they should. This isn’t always the case, but it is something that should be taken note of.

Urban sprawl may be partly responsible for the decline in social capital in the United States. Compact neighborhoods can foster casual social interactions among neighbors, while sprawl creates barriers. Sprawl tends to replace public spaces with private spaces such as fenced-in backyards.

Critics of sprawl maintain that sprawl erodes quality of life. Duany and Plater-Zyberk believe that in traditional neighborhoods the nearness of the workplace to retail and restaurant space that provides cafes and convenience stores with daytime customers is an essential component to the
successful balance of urban life. Furthermore, they state that the closeness of the workplace to homes also gives people the option of walking or riding a bicycle to work or school and that without this kind of interaction between the different components of life the urban pattern quickly falls apart. James Howard Kunstler has argued that poor aesthetics in suburban environments make them "places not worth caring about", and that they lack a sense of history and identity.

Urban sprawl has class and racial implications in many parts of the world; the relative homogeneity of many sprawl developments may reinforce class and racial divides through residential segregation.

Numerous studies link increased population density with increased aggression. Some people believe that increased population density encourages crime and anti-social behavior. It is argued that human beings, while social animals, need significant amounts of social space or they become agitated and aggressive. However, the relationship between higher densities and increased social pathology has been largely discredited.

2.3.6 Safety

A heavy reliance on automobiles increases traffic throughout the city as well as automobile crashes, pedestrian injuries, and air pollution. Motor vehicle crashes are the leading cause of death for Americans between the ages of five and twenty-four and is the leading accident-related cause for all age groups. Residents of more sprawling areas are generally at greater risk of dying in a car crash due to increased exposure to driving. Evidence indicates that pedestrians in sprawling areas are at higher risk than those in denser areas, although the relationship is less clear than for drivers and passengers in vehicles.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Research design

The study was mainly qualitative, it involved the observation of the nature of settlements as well as the collection of the views from the community, especially those aimed at establishing whether the area was how it appears as it is today. Analytical level of data collection will be used on different variables depending on how to arrive to facts. For example interviews will be used to determine the causes of urban sprawl. Variables that can’t be analyzed will be described and emphasis will be put on awareness of coming up with planned environments. This survey will be made from the sketch samples of the population.

3.2 Data sources

The researcher used two sources of data which is primary and secondary data sources.

3.2.1 Primary sources of data

The researcher collected data on the causes, effects and implications of urban sprawl through gaining first-hand information using observation. This was supplemented by administering of questionnaires and survey questions to the authorities and residents.

Other methods included photography; recording aiming at capturing the existing situation, and also interviews in order to get people’s views.

3.2.2 Secondary Data Sourcing

Appropriate information to back-up my research was obtained through literature review of researches that are related to my study. The literature was obtained from different sources such as Makerere University Main library and other online documents such as journals, publications, newsletters, and newspapers. Therefore here information was obtained from reading books and other documents that had information relating to the researchers topic of study.
3.3 POPULATION

Nsangi parish has got a population of 14,408 people according to the Uganda census 2014 with male 6,767 and female 7,641. There are 3,597 households within Nsangi parish. It has also got 4 cells that is Nsangi cell, Mukono cell, Kyambazi cell and Buwali cell.

3.3.1 Sample size and target population

A sample is “a smaller (but hopefully representative) collection of units from a population used to determine truths about that population” (Field, 2005). Ideally the whole population is supposed to be used to get the information for the research. However, due to the limited resources available to the researcher, the researcher cannot investigate the whole population. The researcher will use smaller portions of the population to represent all the main traits of the whole population.

A representative sample was chosen that included the technocrats like the town clerk, physical planner, surveyor, and engineer among others. A sample was also obtained from the household heads. A sample of 51 people were selected and divided through appropriately as follows;

<table>
<thead>
<tr>
<th>Sample population</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>technocrats</td>
<td>5</td>
</tr>
<tr>
<td>households</td>
<td>40</td>
</tr>
<tr>
<td>politicians</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>51</strong></td>
</tr>
</tbody>
</table>
The following formula was used to arrive at the sample size

\[
\text{SIZE} = \frac{X^2NP(1-P)}{d^2(N-1) + X^2P(1-P)}
\]

\[X^2 = \text{table value of Chi-Square} \ @ \ d.f. = 1 \text{ for desired confidence level}
0.10 = 2.71 \quad 0.05 = 3.84 \quad 0.01 = 6.64 \quad 0.001 = 10.83
\]

\[N = \text{population size}
\]

\[P = \text{population proportion (assumed to be .50)}
\]

\[d = \text{degree of accuracy (expressed as a proportion)}
\]

The way these samples were divided is included in the sample framework and design below;

### 3.4 SAMPLE FRAME AND DESIGN

#### 3.4.1 Purposive sampling

The researcher employed purposive sampling method to get respondents who had relevant information as far as the research was concerned. These included the physical planner for Kyengera town council, and the Chairman LC1 of the different villages within Nsangi parish. This helped in capturing information regarding urban sprawl and management strategies in the area.

#### 3.4.2 Simple random sampling

Here every subject in the population has the same chance of being selected. For this the respondents of the households have the same chances of responding to the questionnaires and interview guide. Their information is considered the same and relevant to the research. This was used to get different respondents within the different cells.
3.4.3 Convenience sampling

A convenience sample is a type of non-probability sampling method where the sample is taken from a group of people easy to contact or to reach. For this research was focused on the households especially the women and the heads of families since they are always home and are willing to provide information that is required. They have also some time to respond to the questions.

3.4.4 Area or cluster sampling

The researcher used cluster sampling so that it is organized on group basis and not on the basis of the individual. In this case Nsangi parish has 4 villages/cells of which these will have to be represented through administering at least 10 questionnaires in each village/cell. Respondents should come from each village.

3.4.5 Stratified random sampling

The purpose of stratified sampling is to ensure that significant sub-groups of the population are represented in the sample. The population is then divided into layers or strata representing sub categories before the sample before the sample to work with is drawn. For this research, the population was divided into both men and women to ensure that both sexes are adequately represented in the sample.

3.5 DATA COLLECTION TECHNIQUES AND INSTRUMENTS

3.5.1 Interview Method

The method entails questioning the respondents orally using a set of prepared questions. The respondents were interviewed on an individual basis and answers recorded. Structured interview method was used in order to answer the pre-arranged questions. It also entailed interviews with the chairperson, residents and community based organizations. The method assumed that the respondents interviewed have information required and understand the questions posed to them and their willingness to provide relevant answers while at face with the researcher.
3.5.2 Questionnaire Method

These were formulated to target different groups and were answered by respondents in a written form. The questionnaires were administered to randomly selected respondents for the purpose of guiding the study. Both open ended and closed ended questions were used. The open ended questions allowed the respondents to answer questions while giving details and more insight on the problem of study. The closed questions were used so as to reduce on the time spent while administering the questionnaires.

3.5.3 Observation Techniques

Direct observation was used to examine phenomenon in the field. The researcher had to move through the area of study while making observations of the phenomenon of urban sprawl as manifested in the area.

3.5.4 Secondary Data Sourcing

Appropriate information to back-up my research was obtained through literature review of researches that were related to the study. The literature was obtained from different sources such as Makerere University Main library and other online documents such as journals, publications, newsletters, and newspapers. Therefore here information was obtained from reading books and other documents that had information relating to the researchers topic of study.

3.5.5 Photography

This was used to act as backup and evidence that the researcher actually visited the study area. The photographs taken helped in accurately ascertaining the existing situation in the area regarding urban sprawl.

3.6 DATA PROCESSING AND ANALYSIS

In order to ensure data correctness and accuracy, the data collected was processed and analyzed using different techniques so as to extract accurate information. Responses from questionnaires
and interview guides will be sorted, arranged and later processed into summary tables, graphs and photographs among other tools. The process will also involve editing, coding and tabulation.

3.7 DATA PRESENTATION

Data was presented using different techniques so as to extract accurate information. Responses from questionnaires and interview guides will be sorted, arranged and later processed into summary tables, graphs and photographs among other tools. The process will also involve editing, coding and tabulation
CHAPTER FOUR

4.0 FIELD FINDINGS

This chapter focuses on findings obtained from the field including presentation of the relevant quantitative and qualitative information. Analysis of findings is based on the research questions, literature review and conceptual frame works.

Framework for chapter three

This chapter answers the research questions in order to fulfill the objectives of the research. The findings are based on the interviews and observation done while in the field
4.1 CAUSES OF URBAN SPRAWL

4.1.1 Why people move to settle in Nsangi

The data collected indicates that most people in Nsangi parish moved into the area purposely for both land and work. The information obtained from field reveals that 37.5% moved to Nsangi for land, 27.5% for work, 10% for both work and land and 25% for other activities like attaining education and visiting of friends.

Figure 1:

Cap: showing the residential houses in Nsangi parish
Table 1:

Cap: showing purpose of movement

4.1.2 Travel to Kampala city

The sample survey results indicate that the percentage of commuters to Kampala city daily is 65%. This is within a distance of between 14-16 km from Kampala city. On basis of weekly commuting, results of the survey show that it is 17.5%. Results of residents that commute monthly shows that it is 17.5% as well. The overall results on frequency of travel indicates that high percentage of daily commuters are of those people who commute daily to Kampala city.

Findings further indicate that percentages of people who commute both weekly and monthly to Kampala city are generally low.

Table 2: showing travels to Kampala

Source: author 2018
4.1.3 Purpose of travel

Findings of the sample survey indicate that the highest percentage of people commute to work in Kampala city and other trading centers like Kyengera, Kitemu parishes or within the trading center of Nsangi. Results show that 62.5% of all commuters travel to work. 22.5% of commuters travel for shopping, 5% travel for leisure and 1% travel for other activities like education.

Results from the analysis of commuter patterns within the study area show that the percentage of people who commute daily to Kampala is highest. Similarly it is indicated that the percentage of People who commute to work in Kampala and in Nsangi trading center is slightly lower.

Table 3: showing purpose of travel

Source: author 2018

4.1.4 Work places

Sample survey results reveal that the percentage of people working outside the study area that is to say Kampala and other towns is 82.14%, while those that work within study area of Nsangi trading centers is 17.86%.
4.1.5 Period of settlement

The sample survey results indicate that the percentage of 62.5% ofNsangi parish have settled in the place between 0-10 years which indicates recent immigrations to the place, 20% of the population has settled in the place between 11-20 years and the lowest percentage which is that of people who have spent over 41-50 years in the place. The results indicate that the sprawl to Nsangi parish has started placing and is expected to increase over time.

Table 4: showing work places

Source: author 2018
4.1.6 Former residence

The sample survey results indicate that the percentage of people who migrated from districts such as Masaka and Mpigi is 80%. 12.5% came from nearby sub counties and 2.5% migrated from Kampala city. This indicates that people migrated from populated towns and city to low density development over more and more rural land.

Table 5: showing period of settlement

Source: author 2018
4.1.7 Type of house

The sample survey results indicate that 92.5% of people live in permanent houses. This indicates that they came for settlement in Nsangi and are willing to stay for longer periods. 2.5% of people live in temporary houses and 5% of people live in semi-permanent houses.
4.1.8 Renting

The sample survey results indicate that 50% of the people rent houses and 50% do not rent the houses. This can be compared to the percentage of people who do not own the houses. This indicates that they either rent the house or stay with the relatives and do not rent. Therefore they neither own the house nor pay rent.

Table 7: showing those that are renting

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>20</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
</tr>
</tbody>
</table>

Source: author 2018

4.1.9 Own house

The sample survey results show that the percentage of people who own their houses is 55%. Those that do not own houses are 37.5%. This indicates that the proportion of people who own their houses when compared to the type of house as seen above is highest.
Table 8: showing those that own houses

Source: author 2018

Figure 2: showing some of the owned residential houses

Source: author 2018

4.1.10 urban settlements

Urban settlements in the study area marked by the existence of trading centers. The centers lie along Kampala-Masaka highway thus providing a clear example of ribbon developments. These
Trading centers consist of shops, bars, food stuffs and shelter. There also exists residential structures, some institutions and night clubs. No trading centers exist deep in Nsangi parish off Kampala-Masaka road. The existence of trading centers indicates the sprawling of urban areas especially these centers are recognized as a feature of urban sprawl because they accommodate part of the town working population. In the case of the study area there is one major trading center which is called Nsangi trading center.

Figure 3: showing commercial along Kampala-Masaka road

Source: author 2018

4.2 EFFECTS OF URBAN SPRAWL AND ITS EFFECTS ON PLANNING AND MANAGEMENT

4.2.1 Occupation

Results show that 1% of the total number of people working are involved in agriculture which is the lowest percentage. This indicates sprawl due to the reduction in agricultural activities in Nsangi parish. 24% of the people are engaged in commerce, 8% in office work and 5% do not work. Commercial employment is particularly confined to the trading centers.
4.2.2 Means of travel

The sample survey results indicate that 27% of the total sample use taxi for travelling to different places. 9% use private cars, 2% use bus, 1% uses a bicycle and 1% walking.
4.2.3 Lighting system

Regarding the use of electricity, the survey findings show that 95% of people in Nsangi parish use electricity as a lighting system, 2.5% use solar and 2.5% use a halicane lamp.

![Bar Chart: Lighting System](chart.png)

Table 11: showing lighting system

Source: author 2018

4.2.4 Source of water supply

90% of the sample survey use piped water, 2.5% use borehole water, 2.5% use the well and 5% use spring water. The highest percentage of this sample survey population uses piped water for domestic uses.
Table 12: showing source of water supply

Source: author 2018

4.2.5 Is the area planned?

The sample survey results show that 33% of the people say the area is not planned and 7% of the people say the area is planned.
4.2.6 Are the services adequate?

60% of the people in the sample survey say the services within the area are adequate and 40% of the people say they are not adequate.

Table 14: showing the services

Source: author 2018

4.2.7 Sex

26% of the total survey sample were female and 14% were male
Table 15: showing sex

Source: author 2018

4.2.8 Age

The sample survey results indicate that 25 people out of the 40 questionnaires were between the ages of 21-30 and had the highest percentage.

Table 16: showing age
Most of the population that was interviewed were married followed by those that were single.

Table 17: Showing marital status

Source: author 2018
CHAPTER FIVE

5.0 DISCUSSIONS

5.1 CAUSES OF URBAN SPRAWL

5.1.1 Why people move to settle in Nsangi parish

The survey revealed that people have immigrated to Nsangi parish. Among these immigrants include a proportion of people from both Masaka and Mpigi towns. This indicates some rural-urban migration taking place in some parts of Nsangi parish. However a proportion of people also came from the nearby towns like Kyengera, Busega, and Nateete among others. Some of the things that have forced some people to move out of these towns include shortage of housing and also need to reside where they can commute to work easily that is to say Kampala and nearby trading centers. Similarly some cheaper housing has attracted people to the parish. Zoning specifications and planning controls within the towns have further made peripheral areas more attractive where there is freedom to put up ant type of structures and develop any type of activity in the place with no interference of planning regulations.

In addition land within Nsangi is cheaper compared to that of nearby towns like Busega, Nateete and Kyengera. As a result, people have preferred land outside the town boundaries. A more important factor contributing to the attraction of Nsangi parish for settlement is people’s desire to acquire land of their own outside the town where they can put up own structures, grow food crops to meet the families daily food requirement while commute to work.

5.1.2 Travel to Kampala city

The highest percentage of people travel to Kampala which indicates that majority of the population are able to afford the cost of travel to and from Kampala city. The cost of travelling to Kampala in a taxi from Nsangi is 1500 Ugandan shilling. And from Kampala to Nsangi is 2000 Ugandan shillings which gives a total of 3500 Ugandan shillings daily. This also indicates that the income of people in Nsangi is rising.
5.1.3 Purpose of travel

The survey findings reveal that most people travel to Kampala and nearby town for work. This explains the fact that most of the population in Nsangi parish is employed and a few people are not especially the women who stay at home as housewives.

5.1.4 Work places

Work places is one of the indicators used to identify urban sprawl which may be existing in certain parts within Nsangi parish. This method reveals where people within Nsangi parish work. If there is a substantial proportion of population in Nsangi who work in towns these people can truthfully be considered as that of Nsangi working population. Thus such people have chosen to make their home beyond the town and city boundaries where land is cheaper, there is no planning controls and above all they grow their own food crops.

5.1.5 Period of settlement

Residents of Nsangi parish have settled in Nsangi for less than 10 years which indicates a newly created settlement. These people have to settle in Nsangi for purposes of land and work. Though the survey also reveals that some people have settled in the area for more than 40 years. These inherited some the property like land and houses from their ancestors. Others have settled because of marriage issues.

5.1.6 Type of house

The houses that are existing are majorly permanent and with big compounds indicating low density residential neighborhoods. These houses have also got boys quarters and gardens. The houses are fenced and with good appearance. This indicates that the residents are ready to settle in the area. This also indicates that there are low density residential.

5.1.7 Own house

Most of the people within Nsangi own their houses and also land. This indicates that most of the population are landlords with freehold type of land tenure.
5.2 EFFECTS AND IMPLICATIONS OF URBAN SPRAWL

5.2.1 Occupation

People engaged in working work outside the study area that is to say Kampala city and nearby trading centers. These deal in retail shops, businesses among others.

People who are engaged in office work are those that commute daily to work places in Kampala city. Some of the people that carry out commercial activities are those that go foe shopping in Kampala city and they travel once a month to shop for their retail and wholesale shops in the trading centers.

5.2.2 Means of travel

This indicates that the highest percentage of people use public means for travel especially those that commute to work daily. This indicates that the population that travels daily by both taxi and private cars is highest. Populations will begin to use their cars more often, which means that there is more traffic on the roads, and there is also more air pollution and more auto accidents that you have to worry with. This will also call for air and noise pollution within the area.

5.2.3 Use of electricity

It is the aim of Uganda Electricity Board to supply electricity to the countryside beside the urban areas. According to the information obtained from Uganda Electricity Board offices in Kampala, electricity is supplied to people whom the Board feels will be able to pay the installation cost. That is the cost of wires from the voltage line to one’s house. Following from the intensive use of electricity outside the legal town boundaries could indicate a sprawling effect of an urban area. This indicates that people will have to extend electricity to their homes which they claim is expensive. One of the residents said that extending electricity to their homesteads would cost over one million Ugandan shillings of which she could not afford. This has forced them to resort to illegal access of electricity through what she called tapping from the main.
5.2.4 Source of water supply

Within the study area piped water is found almost everywhere in Nsangi parish meaning the study area is accessed with piped water. Though there are challenges associated with it. Most of the population does not have access to the water because the costs of extending the water to their households is high. The chairperson of Mukono cell said that extending water to her household would cost 600,000 Ugandan shillings of which she cannot afford. This therefore has forced the residents to resort to other sources of water which include boreholes, wells and springs. These sources of water are far from the residents which becomes so tiresome and it is through struggles that one gets the water like fighting. Water sources are 3km away from their households. This makes this a vital issue within the area.

5.2.5 Unplanned area

From the interviews conducted with the chairpersons of the areas, they claim that the area is taking the wrong direction because settlements are coming up in their own manner without control. Zoning restrictions do not exist within the area which gives people freedom to put up structures the way they want. This has culminated into substandard structures and disorganization within the area. According to the surveyor, most of the land owned by the people is not surveyed which makes their work difficult.

The above effects would result into the following:

- Increased car dependency that leads to both noise and air pollution
- Traffic congestion
- Need for provision of services
- Straining of infrastructure
- Need for planning and management
CHAPTER SIX

RECOMMENDATIONS AND CONCLUSION

5.1 CONCLUSION

In conclusion, of the research and studies shown it is evident that urban sprawl has been an issue dating back to ancient times. From oversight of environmental factors and more focus on economic progress, urban sprawl has been allowed to go unchecked. In addition, that urban sprawl is caused by different means via geological location. Solutions that prove to be successful in one location may not endure in others. Culture, economic structure, and the government play a role in the outcome of urban sprawl. In addition, as we began to address sprawl on a variety of levels from local zoning, personal transportation, and land-use decisions to federal regulations, it is imperative to consider health considerations into policy development. Understanding the health costs of urban sprawl, we can design the most effective solutions. Urban planning is the most potentially effective method, with its use of “smart growth,” characterized by its higher density, preserved green space, limited road construction balanced by transportation alternatives, a balanced development and capital investment between central city and periphery; and effective coordinated regional planning. Further research is needed to clarify the relationship between urban sprawl and daily life. This research would be most effective if concentrated in linking land-use, transportation, and health. One thing certain, if urban is not checked in the Nsangi parish, as well as other areas it will reach the point of no return. As it has been proven that urban sprawl has led to adverse effects on our environment, and in return the human condition has also been affected. More attention needs to be directed towards this emerging dilemma.

5.2 RECOMMENDATIONS

5.2.1 Water Supply

one of the problems that has to be solved and especially if the population of this parish is to continue growing, is provision of adequate and clean water. Earlier on it was indicated that the main source of water supply to this parish is piped water which is not adequate. Not only are water collecting points highly insufficient to the existing centers’ population and thus
congested, but the water is equally untreated. Due to congestion especially where water is obtained from wells, it tends to be contaminated which can be a health hazard. It is proposed therefore that in the short run in case of shortage of water, improvement be made on existing springs. People need to contribute money, buy pipes then can employ someone to dip these pipes in the hill sides where there are springs and this water will flow out through these pipes, instead of being collected on the ground. Alternatively people can group themselves in groups of 100 people, so that they collect funds, buy pipes and have these dug in the hill side. This would mean that each spring would be utilized by about one hundred people. The local chief with the co-operation of the center’s residents will have to organize the whole scheme.

In the long-run however piped water should be extended to this parish. The ’ National water and Sewerage Board Kampala has indicated that before the present regime, it had embarked on a project of extending water not only to most parts of Kampala but even the immediate outside areas. Water pipes were already laid running to most parts of the city. The snug is that due to financial constraints the Board has not been able to get twin pipes for the main supplying source at Tank hill, so as to increase the present capacity as to be able to supply water to most parts of Kampala and the immediate outside areas. The project was being financed jointly by Uganda Government and World Health Organization. The Board expressed the view that as soon as it can get funds to purchase the twin pipes, the project will go on as initially planned. This has been achieved to some extent because there are pipes running through the parish.

Alternatively the existing wells have to be improved on by occasional empty in out the water as it often gets dirty. Then, fence around these wells to protect any other rubbish from getting in.

5.2.2 Drainage

The biggest problem that hits this area is blocked drainage channels which cause flooding on the road which usually invades residents' houses in rainy seasons. It is proposed that proper maintenance of the drainage channels should be done. From the end of these channels, the center’s residents should then dig the cuneal that will lead this water into the bush. Similarly within the centre there should be other drainage channels where water can collect and flow away instead of flooding all over the place, making it muddy. This has to be done by the people themselves.
5.2.3 Sanitation
Attempts have to be made to make people aware of general cleanliness. This is a task that health officers in the area have to carry on. There is a problem of where exactly garbage should be disposed of. Many alternatives are put forward in an attempt to have the problem minimized. One of them is that people in this area collect money and buy garbage tins. Then each garbage tin can be used by two to three households. Emptying of the garbage tin can be done alternatively among the user households. This means that a specific place away from the centre and any settlement, has to be chosen for dumping of this garbage.

The other alternative is to have money collected then put up refuse bankers. The Kampala structure plan proses that one big refuse banker can be used by 250 people. Thus these refuse bankers are proposed for introduction in this area, each refuse banker to people. The particular people using a specific refuse banker can employ somebody to empty it occasionally, or the centre as such with contributions from residents employ a certain number of people who will empty all of them now and then.

At the same time, the health officers have to check on people pit latrines and find if they are in good order, and advise those who do not have any, to do so in the shortest time possible. Likewise the people have to be given guidelines on general cleanliness, like cleaning their compounds and maintaining their structures in good conditions at any one time. There more than one household share a compound, this can be cleaned in a rotating order. Similarly advice on proper maintenance and cleanliness of bathrooms has to be given.

5.2.4 Open Space (recreational)
As these urban settlements continue to grow this amenity has to be planned for. Amenity open space provides areas where people can quietly relax in the open air. This will have to be indicated by the centers’ design layouts. Implementation is recommended to be undertaken by the residents of the trading centres organized by the local chiefs of these areas. Alternatively people can contribute money then employ someone to clear up the place. The ordinary maintenance of these places will have to be organized by the residents of these centres.
REFERENCES


QUESTIONNAIRE

Introduction

I am a student of Makerere University at the college of engineering, design, art and technology, department of architecture and physical planning, school of built environment. I am carrying out research on the causes of urban sprawl and its implications on planning and management. The information that will be provided will be used only for academic purposes. This information will be treated with utmost confidentiality and will solely be used for purpose of research. Your honesty in contributing towards it will be appreciated.

Thank you.

Households: (household heads)

SECTION 1: socio demographic characteristics of the respondent

1.1 Sex: a) male b) female

1.2 Age:
   a) 0-10    b) 11-20    c) 21-30
   d) 31-40    e) 41-50    f) 51+

1.3 Marital status:
   a) Single    b) married    c) widowed    d) others (specify)

SECTION 2:

2.1 Distance in miles from
   a) Kampala    b) Nsangi

2.2 How often do you travel to Kampala?
2.3 purpose of travel

a) Work  b) shop  c) leisure  d) other

2.4 What is your occupation?

a) None  b) agriculture  c) commerce  d) office  e) industry
f) Other (specify)

2.5 Where do you work?

a) Within study area  b) outside study area

2.6 means of travel

a) bicycle  b) own car  c) bus  d) taxi  e) other (specify)

2.7 how long have you settled here?

b)  a) 0-10  b) 11-20  c) 21-30
d) 31-40  e) 41-50  f) 51+

2.8 Why did you move here?

a) Work  b) land  c) both  d) other (specify)

2.9 Where did you come from and distance?

a) Province  b) county  c) district  d) sub county

SECTION 3:

3.1 type of house

a) Temporary  b) semi-permanent  c) permanent

3.2 What is the lighting system?
a) Electricity  
b) solar  
c) candle  
d) halicane lamp

3.3 source of water supply

a) Pipe  
b) borehole  
c) spring  
d) well

3.4 are you renting the house?

a) Yes  
b) no

3.5 do you own the house you are staying in?

a) Yes  
b) no

3.6 Who provides the services?

3.7 are they adequate?

a) Yes  
b) no

3.8 is the area planned?

a) Yes  
b) no

3.9 What are the planning issues associated with sprawl within the study area?
INTERVIEW GUIDE

An interview on the causes of urban sprawl and its implications on planning and management in Nsangi parish, Kyengera Town Council.

Introduction

I am a student of Makerere University at the college of engineering, design, art and technology, department of architecture and physical planning, school of built environment. I am carrying out research on the causes of urban sprawl and its implications on planning and management. The information that will be provided will be used only for academic purposes. This information will be treated with utmost confidentiality and will solely be used for purpose of research. Your honesty in contributing towards it will be appreciated.

Thank you.

Technocrats: (town clerk, physical planner, environment officer, engineer, surveyor)

1. What are the causes of urban sprawl?

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

2. What are the effects of urban sprawl?

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

3. What are implications of urban sprawl to planning and management?

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

4. Is urban sprawl considered as a threat to Nsangi?

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........................................................................................................................................
5. Are the services and facilities adequate?

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

6. What are the planning issues associated with urban sprawl?

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

7. Is the area planned?

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

8. Are there dedicated national/ regional/ local measures to limit urban sprawl?

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

9. Do you have any further comments/proposals or which measures the sub county could take to help in combating urban sprawl?

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

10. Any other comments?

........................................................................................................................................
........................................................................................................................................
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An interview on the causes of urban sprawl and its implications on planning and management in Nsangi parish, Kyengera Town Council.

Introduction

I am a student of Makerere University at the college of engineering, design, art and technology, department of architecture and physical planning, school of built environment. I am carrying out research on the causes of urban sprawl and its implications on planning and management. The information that will be provided will be used only for academic purposes. This information will be treated with utmost confidentiality and will solely be used for purpose of research. Your honesty in contributing towards it will be appreciated.

Thank you.

Politicians: (mayor, chairpersons, councilors)

1. What are the causes of urban sprawl?

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2. What are the effects of urban sprawl?

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3. What are implications of urban sprawl to planning and management?

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4. Is urban sprawl considered as a threat to Nsangi?

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5. Are the services and facilities adequate?

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6. What are the planning issues associated with urban sprawl?

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7. Is the area planned?

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8. Are there dedicated national/ regional/ local measures to limit urban sprawl?

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9. Do you have any further comments/proposals or which measures the sub county could take to help in combating urban sprawl?

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10. Any other comments?

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