

# **CONSEQUENCES OF INEFFECTIVE PLANNING ON THE RESIDENTS OF KANYAMA SITE AND SERVICE**

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Project report submitted to the Department of Geography at the University  
of Zambia in partial fulfillment of the degree in Natural Resources.


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**DEDICATIONS**

This piece of work is dedicated to my late grandmother Rhodah Mvula whose inspiration has seen me through my academic life.

## DECLARATION

I Chisupa Fines.J.R declare that this project has been composed by me and that the work record is my own. All maps and diagrams were drawn by me and all quotations have been distinguished by quotation marks. The sources of all materials used have been specifically acknowledged. The project has not been previously submitted for an academic award.

Signature  Date 29/10/2004

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Finally, I sincerely thank my Brothers and Sisters for their love and support during my undergraduate studies at the University of Zambia.

## ABSTRACT

Kanyama site and service is recognized as a planned settlement by the local authorities. As such it is supposed to have urban social amenities and utilities. However, floods occur nearly every year in this settlement. Furthermore, households throw garbage wherever possible. Hence it is common to see solid waste in heaps along and on roads. Being a resident of Kanyama site and service, such observation<sup>s</sup> prompted the research to carry out a study in this residential area.

After the investigation, the researcher found out that: there is a problem of floods because the required drainage system has not been built. The disposal of waste is uncontrollable due to non-provision of waste management facilities by the Lusaka city council.

Long queues at communal taps are common because of inadequate number of communal taps. Instead of having 25 households per communal tap, there are only <sup>six</sup> 6 communal taps which cater for all households who use communal taps. It was further observed that water supply pipes have not been thoroughly laid. Hence it is difficult for most households to have individual water connections.

It was also learnt that there was inadequate monitoring by the local authorities. As a result, illegal houses have been built on the market plot and play park plot. Furthermore, places within most legal households plots meant for outdoor activities are being used for the construction of additional house structures. Plot owners do this so as to raise <sup>funds</sup> income, which would supplement, their income from other sources.

To achieve the above results both secondary and primary information was collected. The instruments used include <sup>the</sup> structured and unstructured questionnaires:

Field observations were also made. To analyse the data, frequencies, charts, tables and graphs have been used.

Finally, the findings of this study will highlight the problems faced by the residents of Kanyama site and service.

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# CHAPTER ONE

## INTRODUCTION

### 1.1 BACKGROUND TO THE STUDY

Housing although a basic human need is the most difficult and expensive one to fulfill. It constitutes a major problem throughout the world (Knauder, 1982). The housing problem has externalized itself through the spontaneous squatter (unauthorized) settlements in most cities of developing countries (Magutu, 1991:35-55). Simons (1979) defines a squatter as a settler without right of title or more rarely a person who settles on public land with a view to acquiring title under government regulations.

To address the problem of housing, a number of strategies have been used. During the 1960's, it was almost a universal formula for housing policy to hold that governments would solve the housing problem by building and subsidising the necessary housing units. The experience of this attempted solutions led to the realisation that governments would not, or could not, mobilise enough resources to make such programmes work (Jimenez, 1982:739-752). Since the late 1970s, a new framework of ideas about housing policy has replaced the above formula. Thus the new policy asks governments to supply the missing elements and in effect, to incorporate self-help into public housing programmes (World Bank, 1974). This is the philosophy on which the now favoured "Site and Services Schemes" as a low-income housing policy is premised. Unlike squatters, homeowners in Site and Services Schemes have title deeds; hence, they are legal occupants of the land (Grimes, 1976).

There are varied definitions and descriptions of Site and Services programmes but practically all those writing on this topic agree that its central concept is the provision of serviced plots. Serviced means that the foundation of the houses is made and water pipes are installed to provide water on an individual household basis (Magutu, 1991:35-55).

In Zambia, Site and Service programmes can be traced from the upgrading of squatter settlements. The policy of upgrading squatter settlements was first established in the Second National Development Programme of 1972 – 1976. In 1975, schemes to bring service to some 6,000 dwellings were in progress on the Copperbelt and in Kabwe while the Lusaka City Council's World Bank aided project was intended to bring services to at least 17,000 dwellings (Simons, 1976).

There are two types of Sites and Service settlement in Zambia basing classification on their genesis. The first type is one in which the local council provides unoccupied serviced plots which, the people buy and build houses on. The second type can start in one of the two ways. Houses of a squatter settlement may be demolished and as an upgrading strategy, access roads are built and water pipes are installed to supply water on a commercial basis from standpipes. Often the toilets are pit latrines. Alternatively, people are given plots to construct houses on their own. This was the case with Kanyama Site and Service. Like in the preceding case, water pipes were supposed to be installed and access roads built.

## **1.2 PROBLEM STATEMENT**

As part of the recognized urban settlement, Site and Service settlements are supposed to have urban social amenities and utilities. These include schools, markets, shops, religious and cultural centres, clinics, electricity, clean water supply, public lighting and tarred roads.

However, the situation is quite different for Kanyama Site and Service. The physical plan (Figure 2) was sufficient but it has not been implemented accordingly. Hence, the built Kanyama Site and Service is as shown <sup>in</sup> ~~on~~ Figure 3. Some plots that were supposed to have other facilities on them have houses instead. In some areas access roads have their sizes reduced or even blocked due to the extension of houses. Furthermore, the access roads do not have a drainage system<sup>s</sup> to prevent flooding which is a very serious problem in Kanyama in general. In addition to this, the standpipes available are very few and only located on one side of the compound.

Therefore, this report will present an analysis on the lapses in implementation of the plan for Kanyama site and service and explain the impacts it has on the residents.

✓ Good

### 1.3 OVERALL OBJECTIVE

*The overall objective of this study is*

To investigate the impacts of ineffective planning in Kanyama Site and Service on the residents.

#### 1.3.1 Specific Objectives

*Following the overall objective presented above are the following specific objectives:*

- (a) To establish if urban social amenities and utilities are present in this settlement. ✓ *which one?*
- (b) To find out the extent of floods, uncontrolled garbage disposal and inadequate water supply. *where?*
- (c) To determine the possible solutions to problems identified. *where?*

### 1.4 RESEARCH QUESTIONS

- 1 What amenities and utilities are there in Kanyama site and Service?
- 2 Do floods occur in Kanyama Site and Service, and what is the extent?
- 3 Where do the residents of Kanyama throw their garbage?
- 4 Is the water supply adequate in Kanyama Site and Service?
- 5 Is there a solution for the problems faced by the residents of Kanyama Site and Service?

### 1.4 RATIONALE

Many writers who write on housing (World Bank, 1974) have looked at site and service schemes as the best strategy for addressing the Housing problems. ✓

There are however remarkably few documents to highlight lapses in the implementation of these programmes. In view of this, it is of practical importance to consider one site and service residential area (Kanyama) and study the effectiveness of planning as well as the impact it has on the residents. The study will bring information to the government of Zambia and other stakeholders.

The information will include the problems being experienced by the residents due to lapses in the implementation of the site plan. It will also highlight the need to adhere to

site plan on the part of residents. The study will also in a small way assess the impact of the site service Programme and make recommendation on how the area can be improved.

As a result, the findings of this research will help government, residents and other stakeholders to improve the living conditions in Kanyama site and service. The Lesson from Kanyama site and service will also help in improving other site and service residential areas.

## 1.6 DEFINITIONS OF TERMS

**1.6.1 Ineffective ~~is~~ planning** a situation where planning is sufficient but during implementation the plan is not exactly followed.

**1.6.2 Squatter:** a settler without rights of title or more rarely, a person who settles on public land with a view to acquiring title under government regulations (Simons, 1976).

**1.6.3 Squatter settlement:** settlement that exists without the approval of local authority and infringes regulations regarding land use and building standards (Seymour, 1975:71-7).

**1.6.4 Floods:** large amount of water covering land, which is normally dry (Ward, 1980).

**1.6.5 Garbage (solid waste):** waste material emanating from domestic, commercial, industrial, agriculture, and other human activities (LGC, 1966). *meaning?*

**1.6.6 Garbage disposal:** The act or means of getting rid of Garbage or waste.

**1.6.7 Household:** The people living together in one house

??

## 1.7 ORGANISATION OF THE REPORT

This study on the consequences of ineffective planning on the residents of Kanyama site and service is divided in seven chapters.

~~Chapter one comprises the background, problem statement, study objectives, research questions, rational and definition of terms.~~ Chapter two reviews the available literature on the issues raised in this study. Chapter three deals with the aspects of the study area. Chapter four is the methodology, which high lights the sources and the methods used in data collection. It also indicates the problems encountered during the study.

only?

Chapter five presents the main points of the research findings, Chapter six gives the interpretation of the research findings. Finally, Chapter seven presents a summary of the research and recommendations on effective ways of addressing the problems faced by residents in Kanyama site and service.

Good!

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Housing

##### 2.1.1 Introduction

Among developmental issues, housing has been singled out and given prominence and there is now a profile literature on housing in developing countries. Indeed it is essential although many other needs also exist: jobs must be created, people must be fed and clothed, their health must be protected, they must be supplied with transportation and other support services, in addition to being sheltered (Magutu, 1991:35-55).

##### 2.1.2 Global Situation

During the 1960s it was almost a universal policy for governments to build and subsidise the necessary housing units so as to address the housing problem (Jimenez, 1982:739-752). The experience of this attempted solution showed that governments could not mobilise enough resources to make such Programmes work. In the 1970s, this formula was replaced by the now favoured “sites and services schemes” as a low-income housing policy. There are varied definitions and descriptions of sites and services programmes, but practically, all those writing on this topic agree that its central concept is the provision of serviced plots (World Bank, 1974).

##### 2.1.3 Lesson from Nairobi

From some of the evaluation programmes in Nairobi, Ghana (1984) made the following observation:

- (i) Social cultural traditions, still strong in the urban milieu, encourage large families and these tend to overcrowd even the maximum plot that
- (ii) is provided (for example, the Dandora – Nairobi plots range from 60m<sup>2</sup> to 100m<sup>2</sup>, the typical maximum plot size in these programmes),

- (iii) Where nuclear family structures predominate, they tend to occupy only part of the house and sublet the remaining rooms in order to subsidise their income. This results in high occupancy levels and is due, largely to lack of other sources of income.
- (iv) Even with the maximum plot size of 100m<sup>2</sup>, there is no room for a healthy indoor/outdoor living environment and thus no improvement in the informal settlement, a situation the site and services Programme intend to remedy.

#### 2.1.4 ZAMBIAN SITUATION

Until the early 1970's, Zambia had an institutional approach to housing, which was originally based on the colonial governments policy of providing housing for all employees in the city (Department of Town and Country Planning, 1972). Council and government aims since independence had been to continue to provide low cost housing, rather than encouraging private or individual enterprise to meet the housing needs. Employers linked this policy with the policy of rent subsidisation, some of the residential areas developed under this policy include Kabwata, Chilenje, and Libala in Lusaka.

However, it was later realised that the financial resources of the government and city council were inadequate to meet the needs. This realisation led to gradual change in emphasis on housing policy. Since 1965 there has been increasing emphasis on the provision of serviced plots. By 1968, an official policy on integrated housing was formulated. The first residential areas to be built under this policy include; Mtendere, Kaunda Square stages I and II, Change in Lusaka, Pamodzi in Ndola, and Chawama in Kafue.

The sites and services strategy seems to have worked well in these early sites and service residential areas. The physical plan was followed accordingly.



The main reasons for this success are present below. In the case of Kaunda square stages I and II, Mtendere, and Pamodzi, the local council provided unoccupied serviced plots and financial loans were readily available (department of town and country planners 1972). For Chawama self-help housing project in Kafue, there was: continuity of field supervision by township council officers from inception to completion, involvement of a donor, American Friends Service Committee (AFSC) to assist in the project, and adequate supply of resources to meet the needs of the project. (AFSC ~~Report~~, 1975).

## 2.2 Water Supply

### 2.2.1 Overview

Water is the basis of life, its vital to all animals and plants. It has a unique quality of being an inexhaustible natural resource, which nevertheless is in short supply. Although there is a lot of water stored in rivers, lakes, seas and underground. “Water of acceptable quality and quantity available at the right place and time is not inexhaustible” (Dasman, 1962). In Zambia there are abundant water resources. The country has an extensive river network system consisting of the Zambezi, Kafue, Luangwa, Chambeshi and Luapula River. In addition to this, there are several lakes and a number of relatively productive aquifers in various parts of the country. However, very few people are able to access this water because of some reasons. Among these include poor infrastructure development and weak institutional capacity/ (Ministry of Finance and National Planning Public Investment Programme <sup>INOFMP</sup> 2000).

According to the Ministry of Local Government and Housing peri-urban and water supply and sanitation strategy. Water is said to be accessible only when it is within 200 metres of walking distance. In many instances, infrastructure does not exist or it is inadequate to meet the demand of water. For example, in Lusaka the housing project unit recommended one communal tap per 25 dwellings in site and service areas (Martin, 1975).

In the African context, standpipes constitute a key element of any strategy for improving water supply to low income communities. Public standpipes are typically installed by utilities in low income areas, and financed directly by the utility, by the local authorities or through grants from central government, donors or Non Governmental Organizations ([www. Wupafrica.org](http://www.Wupafrica.org)).

√ The United Nations Development Programme (Human Development Report of 1996) indicates that of the (45 million people in Southern Africa, only half had access to safe water. The majority of those lived in rural areas.

### **2.2.2 Water Problems in Urban Zambia**

At independence, Zambia found herself in a situation where she had squatter settlements with problems of domestic water availability. Due to the urgency of the problem and lack of funds, it was recognised that communal water standpipes should be the initial solution because of the affordability as compared to per capital basis.

√ During the First National Development Plan, 1966 – 1970, the Government recommended that domestic water should be shared from one standpipe by 20 plots. In the Second National Development Plan, 1979 – 1983, though there is mention of domestic water supply to sites and services areas, no proposal was made on the number of dwellings per tap. The idea behind the recommendation was that communal piped water be within a reasonable distance and shared by a few families.

√ There has been recognition that within sites and services schemes are people of varying economic status. As such water reticulation is designed in such a way that allows for future individual connections depending on residents ability to pay for the service (Njau, 1981).

Before implementing ~~the~~ government's recommendations, district councils often ~~make recommendations taking~~ into account local conditions like amounts of funds available. For instance in Lusaka, the Housing Project Unit recommended one standpipe per 25 dwellings in site and service settlements (Martin, 1975).

Studies by the Central Statistics Office show 55% of households in Zambia had access to safe water in 1998 as compared to 47% in 1996. In Urban areas, it is estimated that 90% of the <sup>meaning</sup>inhibitors had access to safe water in 1998 as compared to 82% in 1996 whereas only 38% accessed safe water in rural areas in 1998 as compared to 28% in 1996 (Bull, 2000, 3)

The Zambia government in its National Conservation strategy of 1985 indicated that serve water shortages were expected by the year 2000. These fears were also echoed by Musambachime (1990:28) when he indicated that, due to rapid population growth, it is feared that Zambia may experience a serve water shortages by the year 2000 if not matched with infrastructure development. Musambachime (1990:28) had raised a very important point that of augmenting water facilities to meet the increased water demand of the expanding population size. Most of the water reticulation systems in Zambia were built a long time ago to cater for a small population that has since grown.

Jayarajan (1976:68) had recognized four major factors affecting water demands and supply. These are as follows.

- (i) Population growth in urban areas causes an increase in the demand for water due to increases economic activity and domestic use of water,
- (ii) As people become wealthier they tend to use more water for things like bathing, cooking, watering lawns and washing their cars. Furthermore, the liberalisation of the country's economy may lead to increased economic activity, most industries may come up hence more water will be required,
- (iii) Policies and programmes for housing affect the demand and supply of water in that, the new housing schemes such as the sites and services schemes create the need for a new water reticulation system to be set up to supply water to new areas. Though new housing areas are established at a fast rate, the water supply system is not usually expanded just as

fast as the houses. Therefore more pressure is put on the existing system *and*

- (iv) Another factor that affects the supply of water is wastage. Studies by the Department of water affairs in 1975 showed that millions of litres of water are wasted every year *(cite some!)*

## 2.3 Floods

Floods ~~hazards~~ comprises many aspects such as structural damage, loss of life and property, contamination of food and water, disruption of social economic activities and infrastructure like transport and communication networks. Man's response to such disasters is determined by both the nature of the hazard and the resources available (White, 1964).

According to Nicholas O` Dwyer (1978), urban environment reduces the infiltrating capacity of the urban impervious surface and as a result some water accumulates on the surfaces of City of Lusaka. The flat limestone areas to the west and south have rock outcrops with no natural surface drainage. As a result, it is liable to flooding some of the residential areas which are prone to flooding include, Chawama, Misisi, Chibolya, John Laing, Old and New Kanyama. This is not different with Kanyama Site and Service. Furthermore; the water accumulates on <sup>the</sup> impervious surface of the city centre especially around Soweto market, which finds its way ~~heading~~ towards Kanyama. This is made possible by the gentle fall in <sup>a</sup> slope of 1 degree in 1300 metres <sub>^</sub>

## 2.4 SANITATION

### 2.4.1 SOLID WASTE MANAGEMENT

Inefficient solid waste management is a serious problem in Urban centres because of poor planning and management. For example, of more than 200,000 tones of waste generated in Lusaka in 1997, only 15% of it was disposed at authorized dumping sites, the rest (85%) went to unauthorized sites. Solid waste may be defined as waste material emanating from domestic, commercial, industrial, agriculture, and other

human activities (Lusaka City Council, 1996). On the other hand, solid waste management includes all activities that seek to minimize the health environmental and aesthetic impacts of solid waste. These activities are grouped into:

- (a) Outside Storage
- (b) Collection
- (c) Transportation
- (d) Processing and recovery
- (e) Disposal

To solve the problem of solid waste, the facilities for the above activities must be available to the residential areas. (Molao, et al., 1999).

#### **2.4.2 LIQUID WASTES**

The Lusaka water and Sewerage Company provides reticulated sewerage service to only 36.1% of the city of Lusaka population. Hence most areas use pit – latrines (46%) and septic tanks (15%) (Simwinga, 1997).

The problems associated with pit latrine and septic tanks arise from the high water table around most parts of the city. In the rainy season these overflow into the surrounding land and eventually drain into the city streams, which get heavily polluted (Agyemang, 1997).

#### **2.5 ROAD INFRASTRUCTURE**

Findings of the study by Simwinga, (1997) indicate that the road infrastructure is rundown and can hardly be maintained in most settlements of Lusaka. Hardly any traces of tarmac can be seen. Most roads are poor in condition and are impassable in the rain season due to poor drainage system.

## CHAPTER THREE

### STUDY AREA

This Chapter aims at describing geographical aspects of the study area in relation to the research topic.

#### 3.1 SELECTION OF THE STUDY AREA

In order to highlight the consequences of ineffective planning in site and service areas on the residents, Kanyama site and service was chosen as the case study because of the following reasons:

- a) Kanyama site and service is a planned residential area and a plan exists at Lusaka city council. (Figure 2) further more, *what does this mean?*
- b) The Government recognises this residential area as legal. However this residential area is prone to flooding and other problems like inadequate water supply.
- c) Being a resident of Kanyama site and service, the researcher is very familiar with the area. As a result it was cheaper and less problematic for the researcher to undertake the survey.

#### 3.2 LOCATION

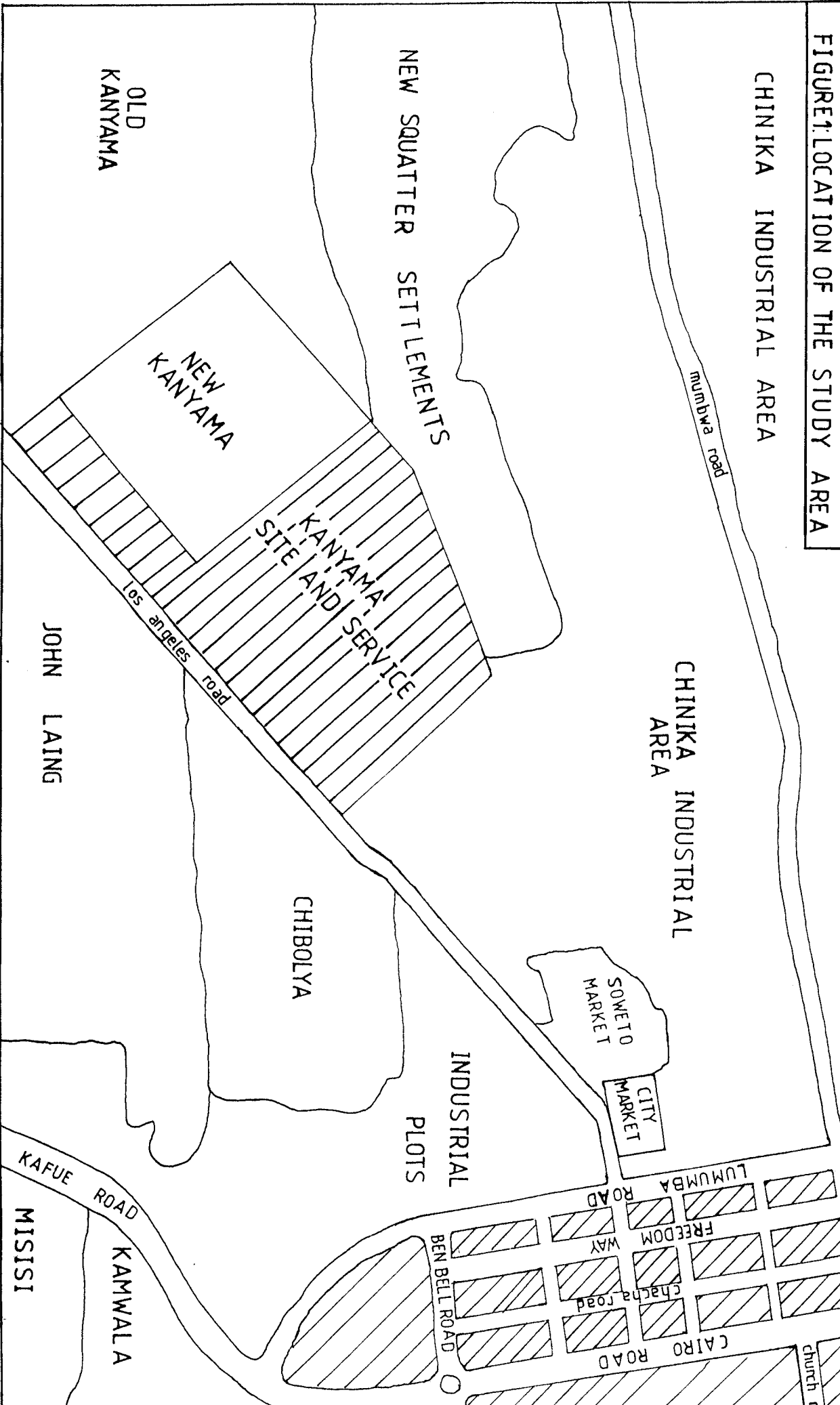
Kanyama Site and service is located about 1.5 kilometres west of Lusaka City centre. It shares boundaries with New Kanyama, Chibolya, Chinika Industrial area and New Squatter settlements of Kanyama. The details of this are shown on figure 1.

#### 3.3 CLIMATE

The area experiences four distinct but *equal* seasons like the rest of Lusaka district, these include:

- (i) The winter season (June – August),
- (ii) The pre-rainy season (September – October),
- (iii) A long rainy season (November – March) *and*
- (iv) The post-rainy season (April – May).

FIGURE 1. LOCATION OF THE STUDY AREA

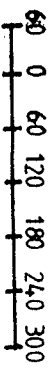


KEY



STUDY AREA

SOURCE: MINISTRY OF LANDS, QUICKBID SATELLITE IMAGE 200



SCALE

FIGURE 2: KANYAMA SITE AND SERVICE PLAN

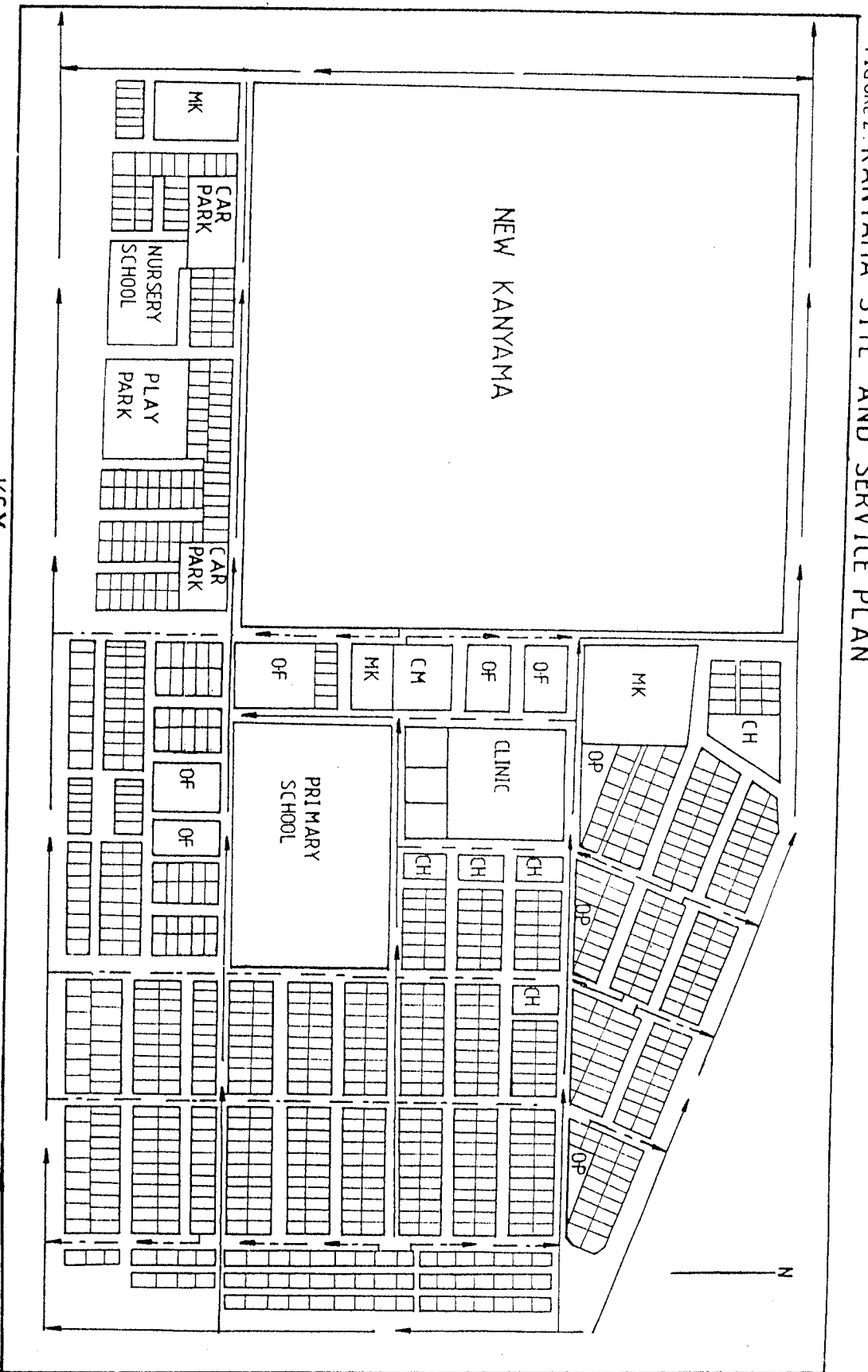
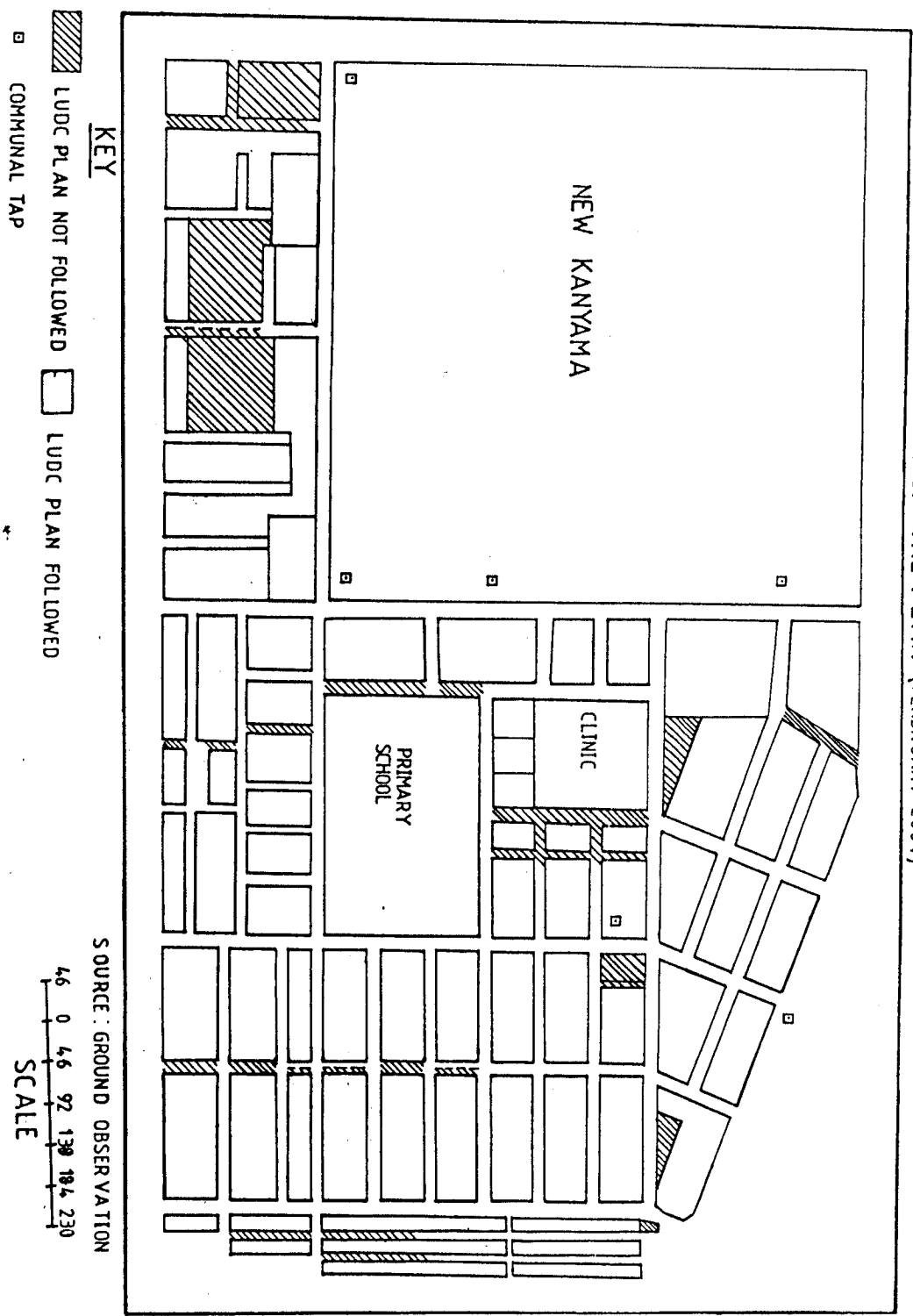




FIGURE 3: GROUND OBSERVATION OF THE PLAN (FEBRUARY 2004)



The average temperature is about 20°C with a minimum of 15°C and a mean maximum of 26°C. Rainfall is heaviest in December with an average of 220mm for the month (Agyemang, 1997).

### **3.4 PHYSICAL CHARACTERISTICS**

#### **3.4.1 GEOLOGY**

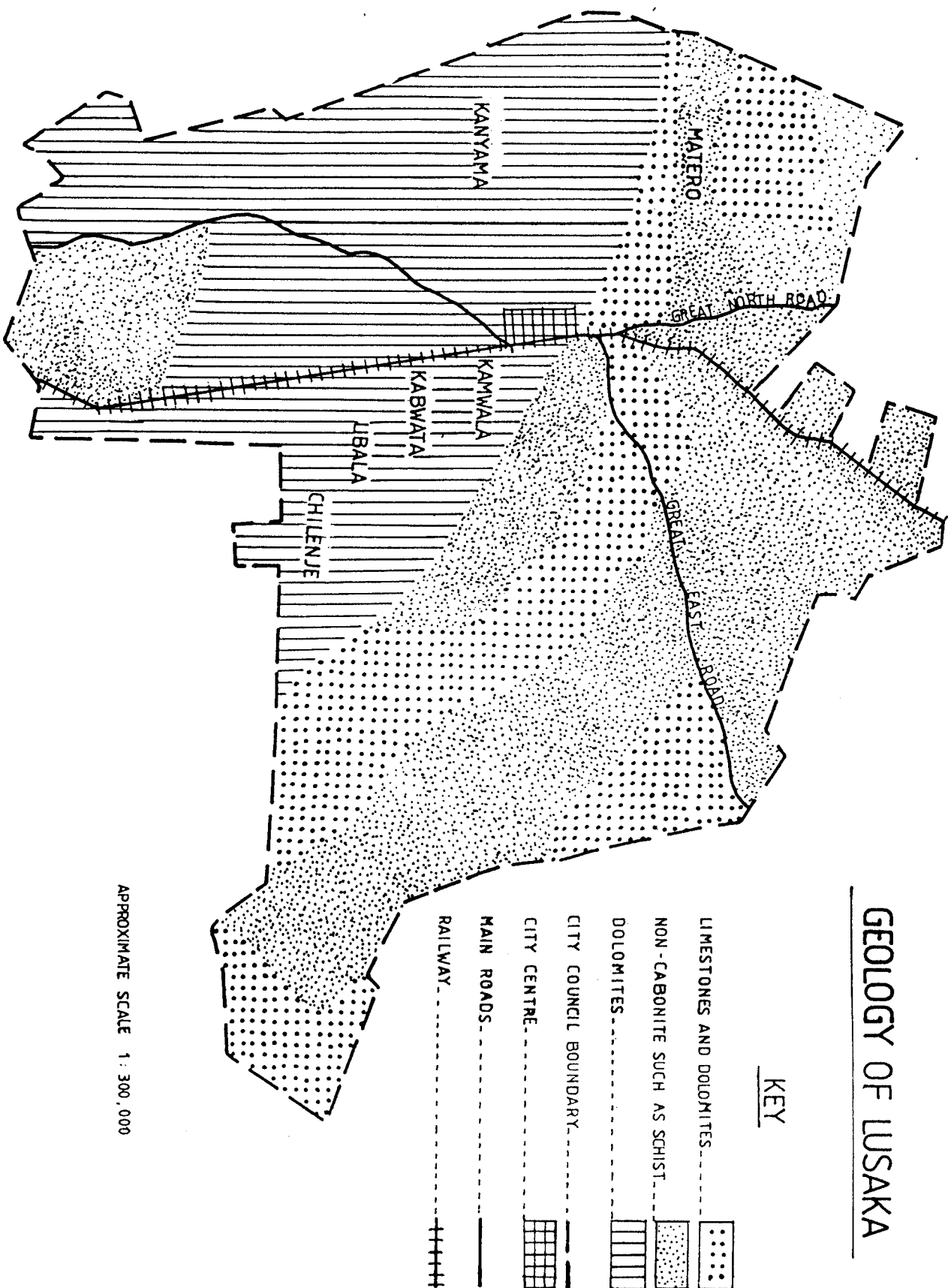
The geological setting comprises of a very ancient pre-Cambrian basement complex overlain by more recent limestone and dolomites (Figure 4). The basement complex consists of granites, gneisses and Quartzites outcrops. This provides the area with valuable sources of construction material and at the same time make it prone to flooding (Agyemang, 1997).

#### **3.4.2 SOILS**

Conelins (1984:46) argues that the soil cover of the area is generally thin allowing rock outcrops to be seen in many parts. It has been pointed out also that soil development has tended to reflect and depend on the underlying parent rock.

#### **3.4.3 RELIEF AND DRAINAGE**

The study area is generally on flat low-lying topography with some rock outcrops in some parts. There is no distinct relief variation. The area also lacks natural surface drainage; Williams (1984:14) actually described the area as a generally low-lying surface level without surface drainage. The nearest natural surface drainage is the Chilongolo stream, which is situated about 3km southwest of Kanyama site and service. (Nicholas O'Dwyer, 1978). Because of the flatness of the area, the flow of this stream is very low. Its capacity to drain water is also small. As a result the study area is prone to flooding. However, the area is underlain by a good limestone aquifer storing adequate groundwater, which can be tapped through boreholes. The area has below it a main water logged zone between the depth of 27m to 40m (Williams 1984: 115).



## GEOLOGY OF LUSAKA

### KEY

LIMESTONES AND DOLOMITES

NON-CARBONATE SUCH AS SCHIST

DOLOMITES

CITY COUNCIL BOUNDARY

CITY CENTRE

MAIN ROADS

RAILWAY

### 3.5 DEVELOPMENT OF LUSAKA

Before discussing the development of Kanyama Site and Service, it is important to explain the development of Lusaka and Kanyama in general (so as to put the reader in a broader perspective). Lusaka like most towns in Zambia is a product of European enterprise and planning. It started as a siding for the railway linking Livingstone to Kabwe. The railway reached Lusaka in 1905. The siding was named after a Lenje headman called Lusakaas (Davies, 1976). In 1931, it became the capital city of Northern Rhodesia (Zambia) because of its central location (Knauder, 1982). As a government centre and also a centre of cultural activities, Lusaka has attracted many people since independence in 1964. One serious problem that has emerged is that of housing. Many approaches have been used to solve this problem. The colonial government followed a separation policy in the provision of housing. European housing areas were established along the Ridgeway because the land was suitable for sewerage disposal by means of septic tanks. On the other hand, the flat limestone area to the west and south, with its bad wind conditions, rocks near the surface and the liability to flooding was left for Africans (Department of Town and Country Planning, 1972). This form of development was motivated by many factors such as the need for housing by the Africans and the need for privacy by the Europeans. [D.C.P.]

### 3.6 DEVELOPMENT OF KANYAMA SITE AND SERVICE

The development of Kanyama Site and Service can be traced to the development of Kanyama settlement. Kanyama started as a squatter settlement during colonial days when Africans were not considered as permanent residents in towns. They could not therefore buy land as long as the colonial government owned it. As a result, Africans only depended on the houses supplied by the employers (Department of Community Development, 1966). However, with the increasing influx of people from rural areas after independence, it was not possible to meet the new demand for housing. Hence, people started settling illegally on vacant pieces of land and were called squatters (Department of Town and Country Planning, 1972). [D.C.D.]

In 1965, the local government declared Kanyama as a temporal resettlement area on which families without accommodation elsewhere in the city could rent a plot with basic services. The basic facilities consisted of unsurfaced roads, a piped water supply with communal taps, a primary school and a health centre (~~Department of Town and Country Planning~~, 1972). This temporal resettlement area was called New Kanyama (Figure 2). In 1967 a scheme for providing shops and churches was approved. Before its recognition as a permanent settlement in 1968, New Kanyama had no prescribed standards of buildings.

The residents put up several structures using various materials. The materials varied from plastered walls, burnt bricks, and cement blocks to poles. The roof materials varied from corrugated tin, asbestos to combined tin and asbestos. The majority of the buildings had virtually no foundations. However, after 1968 the development was slightly controlled by the local authorities (~~Department of Community Development~~, 1966). Hence, the houses in New Kanyama are of both sub-standard and prescribed standards.

<sup>and</sup>  
Between 1972 / 1976, the policy of upgrading squatter settlements was established in the Second National Development Plan. This legalized the occupation of land expropriated by urban settlers (Simons, 1976). It led to the introduction of Sites and Services Schemes in Zambia. As part of recognized urban settlements, Site and Service areas are planned. Therefore, they have prescribed standards of buildings and are supposed to have urban, social amenities and public utilities. By 1989, Kanyama Site and Service plots had been established. According to the Lusaka Urban District Council Plan (Figure 2), this settlement has an approximate area of  $6,428\text{m}^2$  ( $0.6428\text{km}^2$ ) and a total of 880 plots. These plots consist of 857 household plots and 23 plots for public facilities like schools, churches and markets. During the same year (1989), the construction of houses had started. Individual house owners constructed the houses, and the local authorities supervised the construction so that the houses were built according to the prescribed standards.

Being an extension of New Kanyama, Kanyama Site and Service shares most of the public facilities with New Kanyama. These facilities include the clinic, school, markets and churches. To this effect, most of the public facilities are found in between the two residential areas (Figure 2).

By the time this research was conducted (~~year~~ 2003 – 2004) most of the houses had been constructed and were occupied. Most of the churches were still under construction but they have reached a stage whereby they can temporarily be used for meetings. The main road connecting Kanyama Site and Service to the Lusaka City Centre (Los Angeles Road) is tarred while the roads within the settlement are without drainage and names, and <sup>are</sup> unsurfaced.

*A. J. J. J.*

## **CHAPTER FOUR**

### **RESEARCH METHODS**

#### **4.1 INTRODUCTION**

This chapter describes the methods used by the researcher in conducting the research. It looks at the major sources of data, sampling procedure and sample size as well as describing how the data collected was analysed. The chapter further outlines the problems encountered by the researcher during fieldwork.

#### **4.2 SOURCES OF DATA**

Both primary and secondary data were collected during this study. Primary data was obtained from the residents and relevant authorities. Secondary data was collected from the University of Zambia geography department library, main library and from the Lusaka city council. These are detailed in the sections, ~~which follow~~ *name them!*

#### **4.3 METHODS USED IN DATA COLLECTION**

Data was collected through questionnaires, interviews, observations and library research

##### **(a) The Interview Schedule**

An interview schedule was prepared to obtain primary information from the residents of the study area. The interviews were conducted in two ways.

People who were literate were requested to fill in the questionnaire but for the illiterate, the researcher filled in the questionnaire on their behalf as they responded to the questions during the interviews. For details about the information collected, refer to Appendix 1.

##### **(b) The Unstructured Questionnaire**

Besides the interviews conducted with residents, unstructured questionnaires were used to collect primary information from the relevant authorities.

The issues and institutions covered were as follows:

##### **(i) Lusaka City Council**

The survey department of the Lusaka City Council provided the plan for the study area while the Peri-urban section provided verbal information on

possible solutions to the problems of floods, garbage disposal and missing recreation facilities.

(ii) **Lusaka Water & Sewerage**

The Peri Urban Engineer gave informational details on the problem of water for such areas.

(iii) **Kanyama Constituent Member of Parliament**

The information sought was concerned with the current developmental activities in the study area.

(iv) **Zambia Electricity Supply Corporation (ZESCO)**

ZESCO authorities were visited so as to know why the supply of electricity to Kanyama was not reliable as said by most residents.

(c) **Library Research**

A variety of secondary information about: flood, sanitation, sites and services policy, why and when it came about, was collected from the two libraries earlier mentioned. The other information collected included the development of Lusaka and the study area as well as their physical characteristics.

#### 4.3.1 SAMPLING METHOD

Due to some financial constraints, only a small sample of plot holders was taken. The sampling was based on 880 total number of plots (Figure 2). The sample size was 50 and it was selected at an interval of 18. This interval was derived by the formula

$$K = \frac{n}{N}$$

Where K = the interval

n = the total number plots

N = the sample size

Thus every 18<sup>th</sup> plot holder was selected for the sample. The first plot was randomly chosen. For household plots, homeowners were the respondents. On the other hand, key informants. Were picked when dealing with non household plots.



**4.4 METHODS OF DATA ANALYSIS**

The results of the study are presented through tables, charts, frequencies and photos.  
~~Based on this, the analysis was done.~~

**4.5 LIMITATIONS**

There were a number of difficulties experienced during data collection. Firstly, it was difficulty to find some selected plots. This was due to the disorders that exist in some parts of the study area. <sup>~~This is not a sentence.~~</sup> For example, in cases where access roads have been blocked, Secondly, it was difficult to obtain information from the Lusaka City Council due to lack of published materials. Hence the information collected is verbal.

## CHAPTER FIVE

### RESULTS

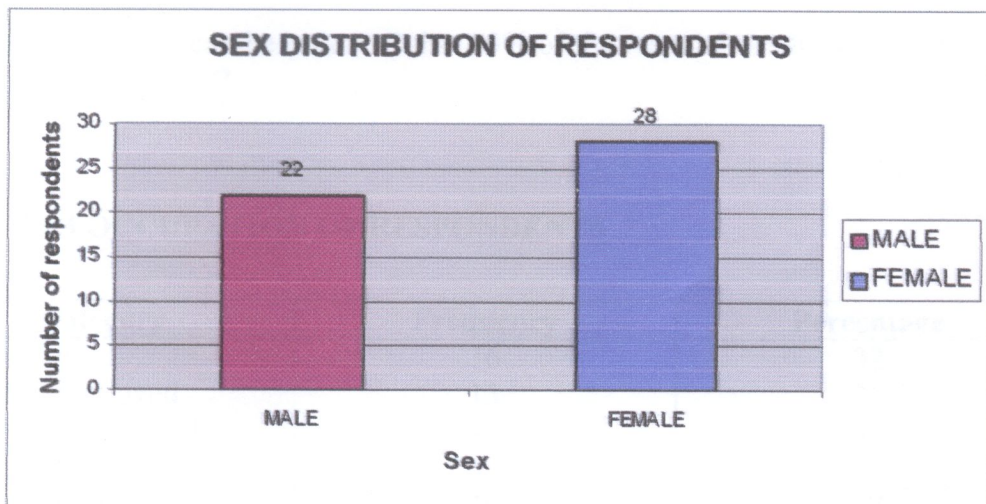
This Chapter covers the presentation of the results obtained from the field. This chapter will help in coming up with a clearer picture of the consequences of ineffective planning on the residents of kanyama site and service in Lusaka. The issues covered are presented below.

#### 5.1 GENERAL PROFILE OF RESPONDENTS

##### 5.1.1 Composition of respondents by sex

From the total of fifty (50) respondents, 22 were males and 28 were females representing 44% and 56% respectively (table 5.1:1).

TABLE 5.1.1 SEX DISTRIBUTION OF RESPONDENTS



According to figure 5.1.1, the distribution shows that there were more females than males.

**Table 5.1.2 AGE DISTRIBUTION OF RESPONDENTS**

Age group	Number of respondents	Percentages
18-30	22	44
31-43	19	38
>43	9	18
TOTAL	50	100

*Explanation!*

**Table 5.1.3 EDUCATION ATTAINMENTS OF RESPONDENTS**

Education category	Number of respondents	Percentages
Never been to school	2	4
Primary	8	16
Secondary	24	48
Tertiary	16	32
TOTAL	50	100

From Table 5.1.3, it can be observed that 80% of the respondents have attained secondary education. *So what?*

**Table 5.1.4 OCCUPATION OF RESPONDENTS**

Category	Frequency	Percentage
Housewives	16	32
Formally employed	13	26
Informally employed (informally sector)	21	42
TOTAL	50	100

From Table 5.1.4, it can be observed that most people are in the informal sector and very few are formally employed. *What does this imply?*

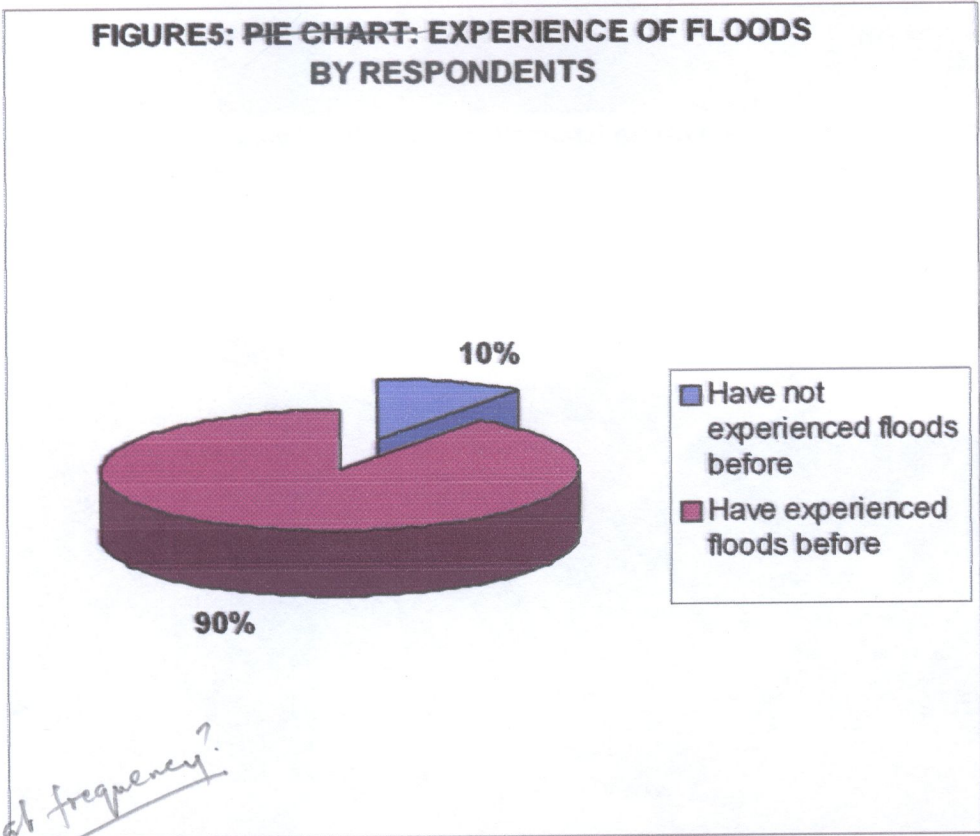
**5.1.5 OWNERSHIP OF THE HOUSE**

From the interviews conducted, it was established that 64 % of the respondents were renting, while 36% owned the houses.

**Table 5.1.6 LENGTH OF STAY IN KANYAMA SITE AND SERVICE OF RESPONDENTS**

Length of stay (years)	Frequency	Percentage
< 1	8	16
1-5	19	38
6-10	18	36
11-15	5	10
TOTAL	50	100

From the table above (table 5.1.6) it is observed that 84% of the respondents have uniformity stayed in kanyama site and service for one or more years. in tenses!



*with what frequency?*

Figure 5 show that most of the respondents have experienced the occurrence of floods and the plates below show some of the areas during times of floods. These photos were taken on 14<sup>th</sup> February 2004





**Plate1; showing flooding at Pamodzi market in Kanyama site and service**



**Plate2; showing flooding near Kanyama Clinic.**





**Plate3; showing flooding on one of the roads within Kanyama site and service**



**Plate4; showing some flooded houses in Kanyama site and service**

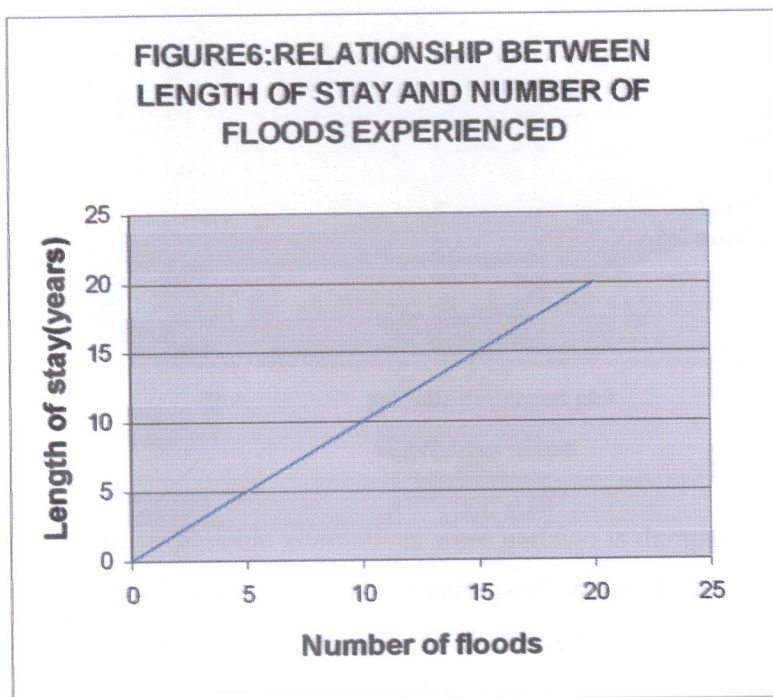


Figure 6 shows that there is a positive relationship between length of stay and the number of floods experienced by respondents.

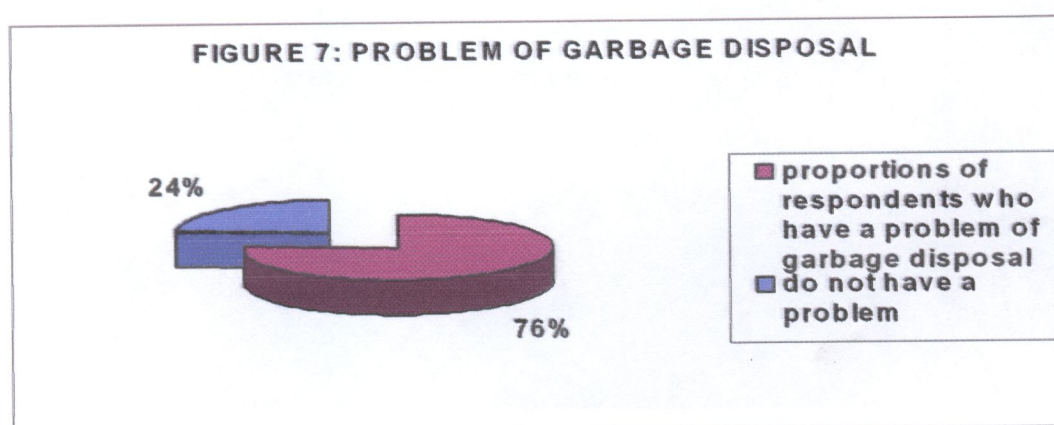


Figure 7 shows that the majority of respondents have a problem of disposing garbage



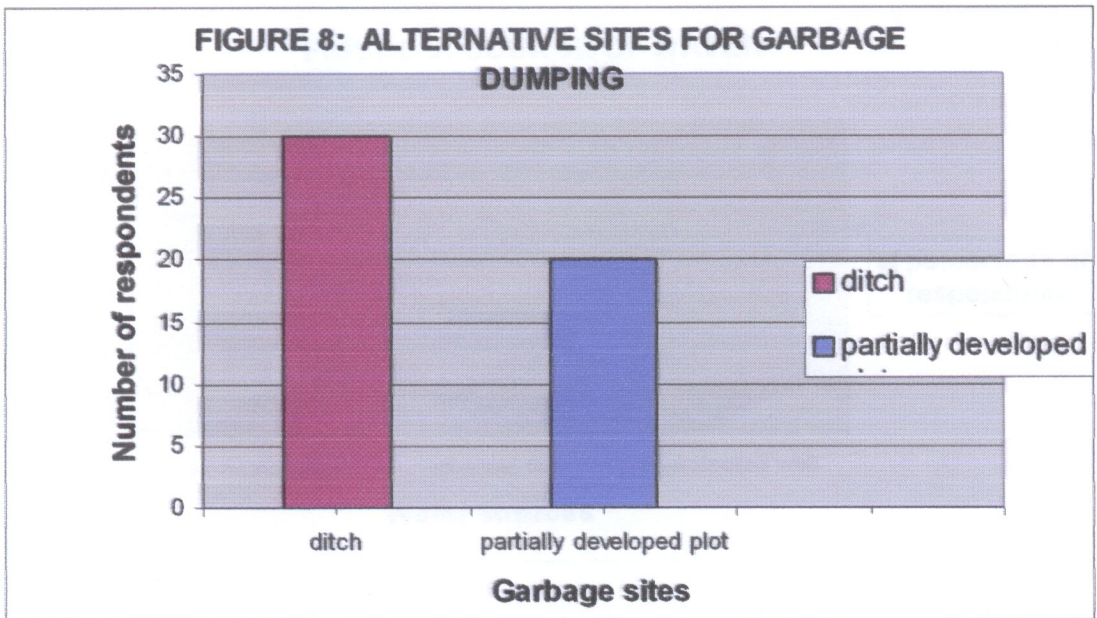


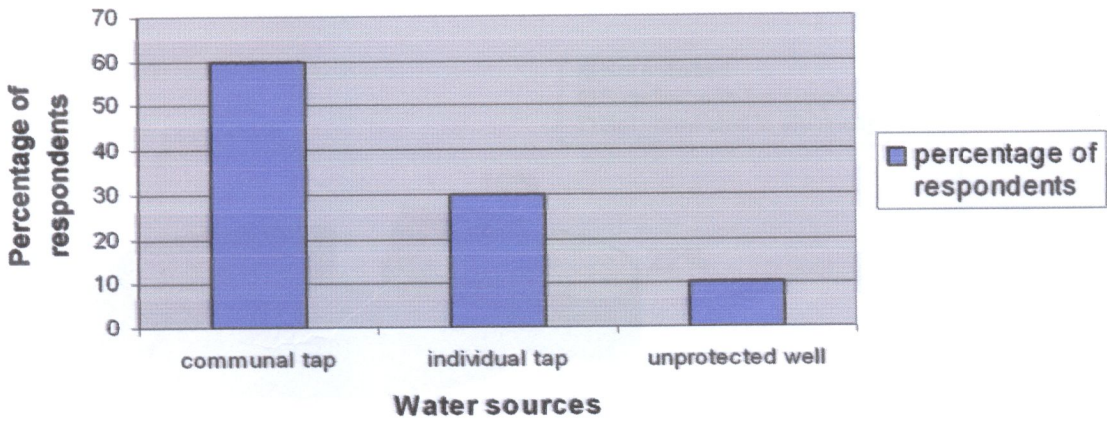
Figure8 shows the two possible alternatives were garbage is damped in Kanyama site and service. Most ditches were not dug for garbage disposal, they have resulted from sand mining and quarrying. In places were the ditches are filled up, the residents resort to dumping garbage on or along the roads (plate5)



Plate5: Garbage dumped along the road



**FIGURE 9: SOURCE OF WATER**



As seen from Figure 9, the majority of respondents use communal taps as their sources of water.

**FIGURE 10: PIE CHART: PROPORTION OF RESPONDENT CONNECTED TO ELECTRICITY**

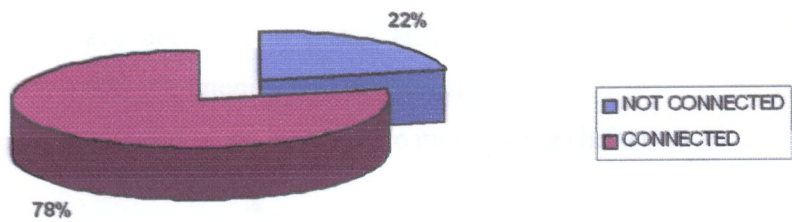
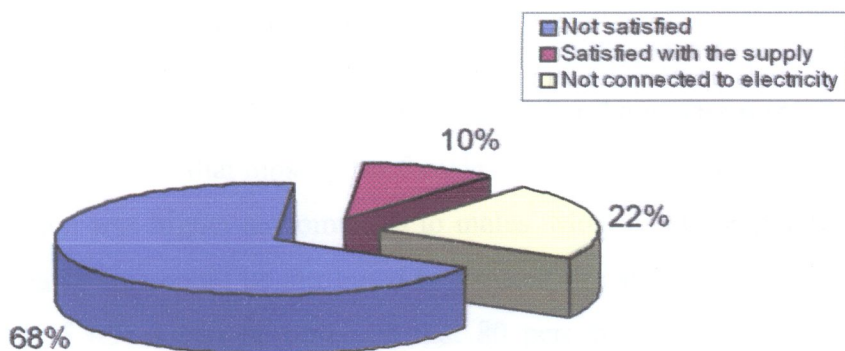


Figure 10 shows that 78% of the respondents are connected to Electricity while 22% are not. However the majority of the respondents are not satisfied with the supply of Electricity (Figure 11).

**FIGURE11:IMPRESSION OF RESIDENTS ABOUT THE SUPPLY OF ELECTRICITY**



## 5.5 RECREATION FACILITIES

From the interview with the residents and field observation, it was realised that some recreation facilities have been put in place. However, other facilities are missing. These include: play park, community hall and sports center. To worsen the situation houses have illegally occupied plots, which were meant for such facilities.

**Table 5.2 SOME FIELD OBSERVATIONS**

Planned	Acture
3 Markets	2 Markets
1Communal water taps/25 household plots	6 Communal water taps for the whole Kanyama site and service
Play park	Plot occupied by houses
Drainage system	Not constructed

## CHAPTER 6

### DISCUSSION

#### 6.1 General profile of respondents

According to Table 5.1.1, the distribution shows that there were more females than males. <sup>where</sup> This is due to the fact that most of the females are housewives hence the chance of finding them at home was higher as compared to males. <sup>where</sup> Most of the respondents were aged less than 43 years. This could be attributed to reduced life span because of HIV/AIDS issues. From Table 5.1.3, it can be observed that 80 percent of the respondents have attained secondary education. Therefore most of the respondents understood the questionnaire and answered it appropriately. From the interviews conducted, it was also established that 64 percent of the respondents were renting, while 36 percent owned the houses. <sup>this</sup> This most likely points to the fact that a considerable number of house owners use their houses primary for rental purposes as a form of earning income. From Table 5.1.6 it is observed that 84 percent of the respondents have stayed in kanyama site and service for one or more years. Hence they were familiar with the questions raised by the researchers. For example Figure 6 shows that there is a positive relationship between length of stay and the number of floods experienced by respondents.

#### 6.2 Houses

##### 6.2.1 Existence of Illegal Houses

Illegal houses have been constructed on some public facility plots. These plots include: play park plot, nursery school plot and the market plot (Figure 3). This happened due to lack of monitoring on the part of the Lusaka city council. With the high demand for household plots in Kanyama site and service, people took advantage of these idle plots and built houses. Currently, the Lusaka city council considers such houses illegal. However, no action has been taken <sup>against</sup> so far. This could be attributed to weaknesses in the laws. The only alternative would be to upgrade such areas, since the lay out of houses has not been done to standards. There are no through roads in

these areas. This will make it difficult for service providers to provide the necessary facilities.

### **6.2.2 Development of Substandard Housing Structures**

For those household plots, which are legal, it was observed that most plots have no room for a healthy outdoor living environment. This is not different from what Chana (1984) observed in Nairobi. Most households who own the houses have built additional structures on spaces meant for outdoor activities such as gardening. Thus, there is going to be very little improvement in the informal settlement, a situation the sites and services programme intends to remedy. The main causes of this are; lack of monitoring by the Lusaka City Council and the desire to maximize income from plots by the owners. Nevertheless, the materials used and the individual plans of these houses are of the standard required in site and service areas.

### **6.3 Absence of a Comprehensive Drainage System.**

The Lusaka District Urban Planning Committee had planned that this residential area should have the drainage system constructed before the houses were built. The whole idea was to overcome the problem of flooding. As mentioned in section 3:4:3 of Chapter three (3), Kanyama site and service lies on a flat monotonous kerstic terrain with no natural drainage system.

↓ In addition to this, the water, which accumulates around Soweto market and the industrial plots between Soweto and the study area, finds its way heading towards study area. This is made possible by the gentle fall in shape of 1 degree in 1300 metres (Nicholas O Dwyer, 1978).

Nevertheless, by the time this research was conducted (~~year~~ 2003 – 2004) the required drainage system had not been constructed. Furthermore there were no immediate plans to address the drainage issue. According to the Lusaka City Council and Kanyama Member of Parliament, the issue of drainage is really a serious one, but it has not been addressed

due to financial constraints on the part of government. The absence of a comprehensive drainage system has led to one serious problem (Flooding). According to the findings of this study, 90 percent of the residents interviewed had experienced flooding. Furthermore, field observations as shown by plates 1-4 show how serious the problem is. Therefore, it can be said that Kanyama site and service is prone to flooding like the rest of Kanyama, which is not planned.

### 6.3.1 Effects of Floods

Although most of the floods that have occurred in Kanyama have not attracted the attention of government, floods cause a number of problems. (White 1964) observed that flood being about contamination of food and water, structural damage, disruption of socio-economic activities and infrastructure like transport networks. *What do you mean?*

### 6.3.2 Temporal Solutions

To adapt to this, some households make temporal solutions. These include: raising the ground level in the plot by putting some soil, coal or stones. The other alternative is putting sand or soil in sacks to create footpaths in flooded areas. Nevertheless, both solutions are only help full when the rains are not heavy and frequent.

## 6.4 Water Supply

According to the Lusaka Housing Project Unit, site and service areas are supposed to have one communal tap for every 25 households (Martin 1975). However, field observation of Kanyama site and service reviewed that the number of standpipes (communal taps) is inadequate to meet the prescribed standard (Figure 3). There are only six (6) communal taps and these taps are unevenly distributed. Furthermore, the third National development plan states that water pipes are supposed to be installed in sites and services areas. The pipes installed should facilitate individual connections where possible, apart from supplying water on a communal basis. The findings of this research do not match with

these standards. The pipes have not been ~~rayed~~ in all the parts of the study area, they are only found in line with communal taps. As a result, very few residents can afford to have individual water connections.

Due to ~~in~~ inadequate water infrastructure, prolonged water shortages and overcrowding at communal water points are very common. Furthermore, even the few residents who have individual water connections complain of low water pressure. The water pressure is so low that water cannot even come out from the shower tap. Some of the impacts cited were reduced domestic productivity and opportunity cost of time. This is especially true when one considers women and children who in most cases are the ones who fetch for water. Households, who draw water from communal taps (60% of respondents), pay a fee of K20, 00 per twenty-litre container while those who have individual water connections (20%) pay a fee of K20, 000.000 per month, to the water provider (~~Lusaka Water and Sewerage Company~~).

To adapt to the water problem, residents draw and store water in a variety of containers whenever they can. These containers are mainly plastic and metallic containers. The most commonly used are: 20 litres, 50 litres and 100 litres containers. Plastic containers are preferred because of their durability. The water problem in Kanyama site and service is well understood by the service provider.

The peri-urban engineer of the Lusaka Water and Sewerage Company said that plans are under way to address this problem. Nevertheless, the biggest challenge is on raising the funds for the installation of the required water infrastructure.

The above findings are in line with the expectations of Musambachime (1990) and the <sup>[ZGNCS]</sup> ~~Zambian Government National Conservation Strategy~~ (1985) that pointed out that by 2000 there would be severe water shortages in Zambia.

## 6.5 Electricity Supply

According to the policy of site and service schemes, site and service areas are supposed to have electricity. In Zambia, the Zambia Electricity Supply Co-operation (ZESCO) is responsible for the supply of electricity to such areas. During the study in Kanyama site and service, it was observed that adequate electricity supply lines have been installed to facilitate the supply of electricity to each individual plot. Hence, residents who can afford to pay for electricity have their houses connected to electricity. In effect 78 % of the respondents are connected (Figure 10). Nevertheless, most of the respondent interviewed complained of frequent disruption of supply without notice. They said that during many days, they stay without electricity for 2 or 4 hours per day. As a result 68% of them are not happy with the supply of electricity (Figure 11).

However, when there is a disruption in the supply of electricity, households use the unclean bio fuels such as charcoal, coal, candles and kerosene. Of these, charcoal and candles are the commonly used. According to ZESCO authorities, the disruption of electricity experienced by the residents was mainly due to load shedding and the installation of additional electricity infrastructure in other parts of Kanyama. Load shedding was done when the Kafue gorge hydro – power station was under renovation.

## 6.6 Solid Waste Management

From the study, 76% of the respondents indicated that they had problem of garbage disposal. This problem has resulted because the facilities for waste management are lacking. As a result, garbage is damped in ditches. Most ditches were not dug for garbage disposal, they have resulted from sand mining and quarrying. As a result, most of them are illegal. In places where the ditches are filled up, the problem is more pronounced. The residents resort to dumping garbage on partially developed idle plots or along the roads (Figure 8, Plate 5, respectively). The facilities for waste management are supposed to be provided by the Lusaka City Council. However, due to inadequate funding and reduced income generations from its own ventures, the Lusaka City Council has failed to provide these facilities. This has resulted into waste mismanagement. Waste generators (households, groceries, bottle stores, taverns, churches / schools, market stalls, community

center and street vendors) dump garbage (solid waste) in heaps on and at the road sites, open spaces and ditches (pits). In some instances waste is burnt in unauthorized Places.

### 6.6.1 Effects of waste Mismanagement

Waste that are not managed properly have many negative impacts on the surrounding and consequently on human health. Uncontrolled solid waste is a public nuisance in that it encroaches on roadways, diminishes landscape aesthetic and causes unpleasant odors and irritating dusts (WHO <sup>mean</sup> Expert Committee, 1971). Uncontrolled refuse and unsanitary pits in full public view are eyesores. In the case of Kanyama site and service, this is worsened during the rainy season, when the area gets flooded, part of the rubbish is carried <sup>way</sup> by the water and gets spread throughout the flooded area. Solid waste that are not properly disposed are known to be breeding and harboring grounds for rats, cockroaches, flies and other micro-organisms all of which are well known vectors of diseases that affect man and his welfare (Kar pagan, 1999). The burning of refuse in the open pollutes the air within the residential area and the surrounding areas (~~Environmental Council of Zambia~~ 1997).

### 6.7 Road Infrastructure

Road infrastructure is important for the efficient function of any community. Kanyama site and service is linked to the Central Business District by a tarred road (Los Angeles Road). Apart from the main road, which is tarred, there are other roads within the residential area. The state of these roads is deplorable, the roads lack drainage and most of them have rock out crops. In addition to this, some roads have been blocked (Figure 3). Maintenance of the road network is the responsibility of the ~~Lusaka City Council (L.C.C)~~. However, L.C.C does not have the capacity to construct and maintain roads from its own resources.

The effect of this deplorable state of the roads within the residential area is much felt during the rain season. During times of floods pedestrians have to walk through the water to and from the main road as they connect to their respective homes or as they move



within the settlement (Plate2). On the other hand, those who use motorized vehicles complain of damages to the vehicles. Plate 3 shows vehicles on flooded road. However, transport to and from town is not a problem since the main road (Los Angeles) is tarred.

## 6.8 Recreation Facilities

Most respondents showed that drinking places (e.g. bars and taverns) are common especially in the markets and their surrounding areas. This can be alluded to the fact that such businesses are easy to run and there is a high demand for them. However, some recreation facilities are missing to make this residential area a better place, compared to the informal settlements. Some of which include a play park and a tennis court. There was a plot meant for a play park but this plot has now been demarcated into household plots. According to the Lusaka City Council, politicians from various political parties in Kanyama authorised all the houses constructed on the play park plot. As a result houses do not have number<sup>s</sup> and the arrangement is not ordered. <sup>Meaning</sup>

Considering the strong political influences, which exist in Zambia, such houses will not be demolished. There fore the possibility of having a play park in this area is very minimal.

## CHAPTER 7

### CONCLUSION AND RECOMMENDATIONS

#### 7.1 CONCLUSION

Planning, though very important in every day life, in many instances it is not followed exactly due to various reasons. In the case of Kanyama site and service, the physical plan was sufficient but somehow, it has not been implemented accordingly. This has resulted in ineffective planning. A number of reasons are responsible for this; these include lack of political will to follow, laid down laws and plans, lack of awareness on the part of households, inadequate supervision and funding on the part of the Lusaka city council. This has lead to a number of problems.

To begin with, the drainage system recommended by the Lusaka urban planning committee has not been constructed and the roads are unsurfaced. As a result the drainage and road infrastructure are poor. This affects the movement of people and vehicles especially in the rainy season. Poor drainage leads to stagnation of water and floods especially in the rainy season.

The water supply system is also inadequate. There are only 6 standpipes to cater for all the households who use communal taps. There are also few households who have individual water connection because the supply pipes have not been laid thoroughly.

Substandard housing structures are mushrooming in most legal households plots, places designed to be used for outdoor activities such as a garden or lawn are being used to build additional houses.

Some illegal houses have been built on plots designed for public facilities such as play park and market plots. However, the materials used and the plans for individuals' houses are up to standards. The only problem is that such houses are congested.

Some vital facilities such as Play Park, baskets ball court, and tennis court are absent. This degrades the standards of such a residential area. Furthermore, children and the youth are denied the pleasure they would have if these facilities existed.

The Lusaka city council has not provided facilities for waste management. Hence, there is uncontrollable garbage disposal. Households throw garbage wherever possible.

Nevertheless, other facilities have been put in place. These include a clinic (which caters for the whole Kanyama and Chibolya) Churches, police post and a basic school.

## **7.2 RECOMMENDATIONS**

In view of the problems identified it is recommended that:

The original plan should be revisited and:

- (a) A comprehensive drainage system be constructed to address the flooding problem. The Lusaka City Council should team up with community based aorganisation and other interested parties to fund this project.
- (b) To achieve an efficient solid waste delivery service in Kanyama site and service, a partnership should be formed between the local authority, the community and private sector.

### **Responsibilities of the Parties**

#### **Lusaka City Council**

The council should:

- (i) Monitor performance of both the private contractor<sup>s</sup> and the solid waste management committee<sup>s</sup>,
- (ii) Enforce waste management regulations by laws and other laws dealing with public health<sup>~</sup>
- (iii) Pay the contractor on a monthly basis for delivery of the service.

#### **Solid Waste Committee**

A committee should be elected from the community. The committee members in liason with private waste company should:

- (i) Conduct community awareness and education programmes on solids waste management on regular basis,
- (ii) Be responsible for the collection of solid waste fees and ensure waste collection is paid for.
- (iii) Ensure waste is transported to the final disposal site in Chunga.

### **Private Waste Company**

The company should:

- (i) Provide skips and a skip lift truck
- (ii) Provide secondary collection and transportation services.
- (iii) Clean all transfer points as required
- (iv) Assist in community awareness programmes and maintain good relations with all residents, households and other solid waste generators.

In addition to this, the local health centers should monitor and supervise the solid waste management committee and ensure that the settlement is clean. To ensure sustainability of the solid management system. Solid waste generators should pay for waste disposal. The parties in this partnership should set fees for each group of waste generators. Funds raised should be used to pay for secondary waste collection that is transportation of waste from communal collection points to the Chungu disposal site. The funds should also cover operational costs of the solid waste management committee. This arrangement seems to be working well in Kaunda Square.

- (c) The Lusaka water and Sewerage Company should install the required pipes and communal taps so that water is made accessible to every household. The Lusaka water and sewerage company should also rehash with the community to come up with a workable programme in funding this project.
- (d) To avoid the development of illegal and substandard housing structures, there should be a site plan placed at the main entrance of the settlement and the council should be monitoring the construction of the structures on a weekly basis. This would ensure that every developer knows what is required of him/her. In addition to this stiffer laws should be made to punish those who

build illegally. This recommendation applies to new sites and services areas, which are being built.

Finally, future research on sites and services programmes should consider the provision of schools (both primary and secondary), health and library facilities. Has the provision of housing match the provision of the above facilities. *Meaning?*

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## **Appendix 1**

**THE UNIVERSITY OF ZAMBIA  
SCHOOL OF NATURAL SCIENCES  
Department of Geography**

### **QUESTIONNAIRE**

**TITLE: Consequences of Ineffective Planning on the residents of Kanyama Site and Service.**

Dear Respondent

Your have been chosen in a sample of residents in the study of the above-mentioned topic.

The information you will give will be confidential and for academic purpose only.

### **INSTRUCTIONS**

Answer the questions by ticking in the appropriate box and complete with sentences where necessary.

#### **SECTION A: PERSONAL INFORMATION**

1. Sex:

(a) Male ☐

(b) Female ☐

2. Age ☐

3. Occupation \_\_\_\_\_

4. Education

(a) Primary ☐

(b) Secondary ☐

(c) Tertiary ☐

(d) None ☐

5. Length of stay

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6. Do you own the house?

- (a) Yes                      [   ]
- (b) No                        [   ]

**SECTION B: FLOODS**

7. Have you experience floods before.

- (a) Yes                      [   ]
- (b) No                        [   ]

If your answer in question 7 is Yes, answer question 8.

8. How many times e.g. once, twice etc.

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9. What have you done to prepare for the flood hazard?

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10. Do you know of anything that is being done to overcome the problem of flooding?

- (a) Yes                      [   ]
- (b) No                        [   ]

If your answer is Yes, answer question 11.

11. What exactly is being done and who is responsible for this.

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## **SECTION C: SOLID WASTE DISPOSAL**

12. Do you have a ditch or ditches near your house?

- (a) Yes [ ]
- (b) No [ ]

13. Is there garbage mounting along near by streets?

- (a) Yes [ ]
- (b) No [ ]

14. Where do you throw your garbage?

- (a) Ditch [ ]
- (b) Along the road [ ]
- (c) Others Specify [ ]

15. Do you have problems in disposing garbage?

- (a) Yes [ ]
- (b) No [ ]

16. Does the council collect garbage?

- (a) Yes [ ]
- (b) No [ ]

17. Do you know any plots that have been reserved for garbage disposal?

- (a) Yes [ ]
- (b) No [ ]

## **SECTION D: WATER AND ELECTRICITY SUPPLY**

18. What is the source of your water?

- (a) Pipe [ ]
- (b) Well [ ]
- (c) Borehole [ ]

If your answer is (b) or (c) go to question 22.

19. How is the supply?

- (a) Reliable [ ]
- (b) Unreliable [ ]

If your answer is (b) go to question 20.

20. What measures have you taken to cope up with the problem?

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21. Have you complained to the relevant authority?

- (a) Yes [ ]
- (b) No [ ]

22. Are you connected to electricity?

- (a) Yes [ ]
- (b) No [ ]

If No go to section E.

23. How is the power supply?

- (a) Reliable [ ]
- (b) Unreliable [ ]

24. Have you complained to ZESCO?

- (a) Yes [ ]
- (b) No [ ]

25. What other sources of energy do you use?

- (a) Charcoal and Candles [ ]
- (b) Solar Energy [ ]

**SECTION E: RECREATION**

26. What recreation facilities do you have in this area?

- (a) Bars [    ]
- (b) Football ground [    ]
- (c) Swimming Pool [    ]
- (d) Others Specify

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27. Do you think some recreation facilities are missing?

- (a) Yes [    ]
- (b) No [    ]

If Yes, list them

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