THE UNIVERSITY OF ZAMBIA
DEPARTMENT OF GEOGRAPHY

AN ENVIRONMENTAL PROFILE OF AN URBAN SQUATTER SETTLEMENT, CHAWAMA COMPOUND, IN LUSAKA.

BY

DELIWE NDHLEMA
94090343

A GEO 474 PROJECT REPORT SUBMITTED TO THE DEPARTMENT OF GEOGRAPHY, SCHOOL OF NATURAL SCIENCES, UNIVERSITY OF ZAMBIA IN PARTIAL FULFILMENT OF THE BACHELOR OF ARTS DEGREE WITH EDUCATION.

APRIL, 2000

DEDICATION

To the memory of my late father, Brigadier General S. H. Ndhlema who taught me to work hard and inspired me to attain higher heights.

To my loving mother, Queen, and my husband Kelvin for their encouragement and financial assistance during my study.

I will always love you and God bless.

DECLARATION

I, Deliwe Ndhlema, declare that this project has been composed by me and that the work recorded 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 referred to have been specially acknowledged and the project has not been previously submitted for an academic award.

Signature: _____

Date : 28/04/2000

ACKNOWLEDGEMENTS

I wish to extend my heartfelt gratitude to my research supervisor, Mr. Kapungwe, for his patience, interest in my work and academic guidance by giving suggestions and encouragement through and through until my work was completed.

I extend my thanks to the members of staff in the Geography Department for their support and help, materially and emotionally. This includes Mr. Chailila and the Cartographers in the Cartography Department for their advice and suggestions with maps.

I sincerely thank my family for their love, material and emotional support they gave me during the research period.

I also thank my friends and course mates for having made our stay on campus enjoyable: Brenda, Naomi, Helen, Madrine, Kunda, Mumba, Chiko, Mwepya and all the Geography fourth year students in the year 2000.

Special thanks to the residents of Chawama for their time and information provided for the study. My gratitude goes to Mr. Mbulo and Mr. Moyo from Lusaka city Council and the various officials from ECZ, C.S.O and Chawama for answering all my questions.

I also thank Ms. R. Moono, for typing and compiling the manuscript.

Thanks to the many individuals not specifically mentioned here, but who contributed greatly to the study.

Finally, above all I uplift the name of the Lord Almighty, God, for his mercy, guidance and provision throughout my research.

TABLE OF CONTENTS

LIST OF TABLES

TITLES

LIST FIGURES

TITLE

LIST OF ABBREVIATIONS

C.S.O.	-	Central statistical office
E.C.Z	-	Environmental Council of Zambia
L.C.C.	-	Lusaka City Council
M.O.H	-	Ministry of Health
N.C.D.P	-	National commission for Development Planning
ZESCO	-	Zambia Electricity supply cooperation

ABSTRACT

The growth of squatter settlements is a phenomenon common in urban centres in many African countries including Zambia.

Chawama squatter settlement, which is on the out-skirts of Lusaka originated in the 1950's and has since independence grown in size and number. The growth of this settlement is taking place on such a large scale that it has since been recognised and legalised by the council.

The study aimed at compiling an Environmental profile of Chawama that provided contemporary information that would be useful for municipal planning purposes. This was achieved by identifying, examining and assessing the socio-economic and the Environmental conditions of Chawama.

The study established that Chawama compound as an unplanned settlement lacks essential services. Among the symptoms of this social deprivation are worsening public health, inadequate household income, minimum levels of sanitation, erratic and inadequate water supply. This has led to the general degradation of the environment and the outbreak of environmental related illnesses such as malaria, cholera, diarrhoea and respiratory tract infections.

There is need to control the problems emanating from the squatter settlement and this will involve the participation of the community, the private sector and the major stake-holders in Government who are affected and have an effect on the development of the squatter settlement.

CHAPTER ONE

1.0 INTRODUCTION

Rapid population growth has an impact on urban housing. In order to provide adequate housing, the rate of population should be less than the growth rate of housing. But in Zambia, the population increase is much higher than that of the available housing units. (NCDP 1992). Due to the inadequate housing facilities to meet the demand of the increasing problem, it has led to a huge back log of housing needs and the mushrooming of squatter settlements.

Since these settlements are not planned, they usually lack adequate access to social services such as clean water, good sanitation and the people are exposed to unhealthy living crowded conditions, some of which lead to Environmental problems.

These Environmental problems need attention and there is need for environmental action by all the major stakeholders.

The management of the Environment is however to be based on existing data on the problems faced by the city. This information is usually in form of an Environmental Profile.

In the case of information for managing squatter compounds, an Environmental profile is to be outlined to analyse the nature, trends and factors that influence environmental quality in squatter settlements. of the cities.

In the formulation of a comprehensive Environmental Profile of a typical squatter settlement, the baseline data included land-use, energy use, water resources and supply; sanitation and disposal of solid or hazardous wastes. Statistics on socio-economic, housing, health conditions and the natural environment.

1.1. STATEMENT OF THE PROBLEM.

There is an apparent shortage of houses in the city of Lusaka, which is evident by the alarming rate at which unplanned settlements are mushrooming.

The high population living in these settlements are an indication of the magnitude of the problem. Currently over 70% of Lusaka's estimated population of 1.2 million live in these unplanned and unserviced settlements leading to all kinds of environmental hazards.

The Government and other stakeholders are finding it difficult to plan for squatter settlements because of inadequate information which can be used for building public commitment, planning and decision making.

Therefore it becomes necessary to investigate the Social, Economic and Environmental conditions prevalent in the squatter settlement by compiling an Environmental Profile.

1.2 RESEARCH OBJECTIVES

The Broad objective of the study was to investigate or find out the Environmental Profile of the squatter settlement called Chawama, on the outskirts of Lusaka town.

SPECIFIC OBJECTIVES

The Research project specific objectives are as follows:

1. To indetity and assess the Socio-Economic status of a squatter settlement.
2. To identify and assess Environmental conditions in a squatter settlement.
3. To provide contemporary information or data on the Environmental and Social Economic status of squatter settlements useful for municipal planning purposes.

1.3 RATIONALE

Housing problems are very serious in most African cities, the growth of shanty towns and squatter settlements is a world wide phenomenon and the literature in the field is increasing. There are however remarkably few documentations on the use of land and houses in existing squatter settlements.

The purpose of the report is to represent such as a documentation and analysis and thereby to contribute to the understanding of the housing problems and the living situations in squatter settlements.

It is of practical importance to study squatter settlements because of the magnitude of the problem. Lusaka has experienced a haphazard growth of unplanned settlements literally engulfing the city. Therefore, there is need to gather information to formulate strategic and driven interventions to facilitate the eradication of such settlements as some are emerging in places designated for other developmental purposes.

The lack of readily available drinking water, sewerage connections, garbage collection and basic measures to prevent diseases is resulting in the outbreak of diseases such as diarrhoea, dysentery, cholera etc. The current perennial outbreaks of cholera in most squatter settlements is a constant reminder of the vulnerability of the squatters and the urgency of the problem.

The identification of the Environmental problems in the area will help find ways to solve them and be able to manage the environment which is being encroached upon.

This study was also done to address gaps in knowledge about squatter settlements. This was as a response for the need for an Environmental research that is comprehensive, multi-sectoral and consistent.

This study is also a contribution as an input in the planning process for action for building public commitment and decision making as well as for formulation of policies, strategies and action plans for sustainable development.

The findings of the study are useful to some stakeholders such as the council, Government, Ministry of Housing, Ministry of Environment to help them to improve the conditions of housing and living conditions in squatter settlements.

1.4 DEFINITION OF TERMS

The following terms have been used in this study.

1. **Environment** - The forces and conditions that surround and influence living and non-living things. The conditions can be natural or social in which people live (World Book, 1987: 260).

2. **Environmental profile** - Is the outline on the issues and state of the Environment. (Hornby, 1969).

3. **Squatter** - Those that occupy land owned by others without the land owners consent. (Johnston and Gregory. (Ed) 1997)

4. **Squatter settlement** - Settlement that exist without the approval of the Local Authority and infringe its regulations regarding land use and building standards. (Seymour, 1975).

5. **House-hold** - A group of persons who normally eat and live together, make common provisions for food or other essentials for living and they have only one person whom they all regard as the head. (C.S.O, 1993).

1.5 ORGANISATION OF THE REPORT.

This study on the Environmental Profile of an urban squatter settlement, Chawama compound in Lusaka is discussed in six chapters, each with a heading.

Chapter one comprises the introduction, problem statement, study objectives, rationale of the study and definition of key terms. Chapter two reviews the available literature on the subject. Chapter four is the methodology which highlights the sources of data, sample size and sampling procedure and problems encountered in the study.

Chapter five presents the analytical matter and gives the research findings. Finally, chapter six gives the conclusion arising from the findings and recommendations where suggestions are made by the researcher on effective ways of addressing the problems faced in urban squatter settlements.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 DEFINITION

There are many terminologies used to describe unplanned settlements. Terms such as squatter settlements, uncontrollable settlements, shanty town etc. For the purpose of this project, the term squatter settlement was used to emphasise the fact that the people are taking up unauthorised possession of unoccupied premises where settlements emerge that are unplanned, unserviced and uncontrollable. (Schyster, 1979).

2.2 GENERAL LOCATION OF SQUATTER SETTLEMENTS.

The issue of squatter settlements is a national problem affecting all the urban centers of Zambia. In Lusaka, there are over 30 squatter compounds or informal settlements in and around Lusaka, over 50% of the population of the city live in informal housing. (Moll, 1997).

Squatter settlements in urban areas develop normally on the fringe of cities but also develop in open spaces that have been left. Generally, they are usually extensive covering as much area as is available.

Most of these squatter settlements have sprung up in places designated for other developmental purposes. For instance Misisi and Chibolya squatter settlements on the western side of the city are located on prime land designated for commercial purposes and Ng'ombe in the North east, is on a plot reserved for Diplomatic missions. (L.C.C. 1995).

2.3 CAUSES OF SQUATTER SETTLEMENTS.

The growth of squatter settlements can be traced back to the colonial period when the Administrator housed the African labour force in semi-permanent settlements like the old Chilenje and Kamwala. This became more pronounced and increased after independence as the demand for low cost houses increased while no new houses were built.

Seymour, et. al, 1976, further argues that the unauthorised occupation of urban land is primarily a function of the discrepancy between supply and demand in the market for legal low cost housing. Squatting expresses unsatisfied demand, both quantitative housing is analysed in terms of several aspects of 'migrancy' and 'poverty'.

Economic explanations of squatter settlements are supplemented by considerable emphasis upon political factors which affect the control over urban the supply of public housing and the rate of rural-urban migration. (Seymour, 1975).

Despite the efforts of the Local Authority, the population growth has outstripped the ability to provide services, hence the mushrooming and growth of illegal settlements not supported by an services at all.

2.4 SOCIO-ECONOMIC CONDITIONS.

2.4.1 Population

Due to the phenomenon growth of Lusaka, presently over 70% of Lusaka's estimated population of 1.2 million people live in these unplanned and unserviced settlements. (Agyemang et. al, 1997). Huge numbers of people are living in these settlements and these settlements occur widely throughout the world.

2.4.2. Income and poverty

Though poverty levels are quite high in the city, this phenomenon is very prevalent in the unplanned or unserviced areas among the marginalised residents. The sources of income for most households include petty trading in basic commodities such as sugar, informal and very few in formal employment. (C.S.O, 1995).

According to a study by Moser and Holland, 1996, they observed that the majority of the people in Chawama are poor. About 55% of them earn amounts which are well below the poverty line and that over half of the households in Chawama had income from their own enterprises.

2.4.3 Health conditions

Exposure to poor sanitary and health conditions is high in unplanned settlements due to a number of reasons such as inadequate clinics and other health services, poor sanitary and no systematic approach to garbage collection and disposal. (Simwinga, et. al. 1997).

This gives rise to poverty related and air-borne diseases such as cholera, malnutrition, Diarrhoea, which are also due to the deterioration of the physical environment. (M.O.H. 1990).

2.4.4. Road infrastructure

Findings in the study by Simwinga, et. al., 1997 indicate that the road infrasture is rundown and can hardly be maintained in most settlements, hardly any traces of tarmac can be traced. Most roads are poor in condition and are impassable in the rain season due to poor drainage system.

2.5 MUNICIPAL SERVICES

2.5.1 Housing

The main characteristics of houses in unplanned settlements is that housing units do not conform to standard design. The houses are mostly built of non-durable combustible materials, are densely built with no motorable access to them and with no sanitary facilities. (Knauder, 1982).

The houses are usually smoky, overcrowded and the environment makes the dwellers vulnerable to suffer from associated respiratory and other health problems. (Gaisie, et. al, 1993).

2.5.2. Water supply

Piped water is provided by the Lusaka water and sewerage company (LSWC) whose supply is very erratic and inadequate. Boreholes and wells are other sources of water but since these sources are not treated, it is unclean. (Simwinga, et. al, 1997).

2.6 ENVIRONMENTAL CONDITIONS

2.6.1 Natural Environment.

The flat terrain and limestone acquirer makes Lusaka prone to flooding of varying degrees of severity whenever it rains.

2.6.2. Sanitation and sewerage.

According to Agyemang, et. al, 1997, the majority of Lusaka's population depends on pit latrines (46%) mainly in Chibolya, John Laing, Chawama, Chaisa, Chainda, and Ng'ombe. All unplanned settlements are not in the sewerage reticulation system prompting residents to rely on the ordinary, unprotected pit latrine as the only affordable type of toilet. These pose a serious health problem by polluting ground water. This is compounded by the fact that water from wells and hand dug holes is largely untreated.

2.6.3 Solid waste management

There is no systematic approach to garbage or solid waste management in these settlements. Though significant amounts of wastes are generated everyday day due to increase in economic activities, with an admitted low capacity in human and equipment resources. The garbage is heaped and left to rot posing a health hazard. In other cases, the waste is spread along and on roads.

The Environmental concern raised by this situation is air pollution, due to decomposing rubbish, leakage of pollutants into the soil to contaminate both soil and ground water, the spread of diseases by fires and rodents and the unsightness of the appearance of these rubbish dumps. (Chipungu, 1994).

2.6.4 Liquid waste

The Lusaka water and sewerage company provides reticulated sewerage service to only 36% of the city of Lusaka's population. Hence most areas are unserviced and hence depend on pit-latrines (46%) and septic tanks. (15%). (Simwinga, et. al, 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 drains, eventually into the city streams which get heavily polluted. (Agyemang, 1997). Absence of adequate and reliable liquid and waste management creates unhealthy living and working environment, leading to poor health and economic performance of the population. The prevalence of diseases such as cholera is particularly highin the unplanned density parts of the city. The recent outbreak of cholera in Linda compound, near chilanga bears witness to this.

2.6.5. Energy use

For the city of Lusaka's normal lighting, cooking and heating, commercial and industrial purposes, the main source of energy is electricity generated by Zambia Electricity Supply Cooperation (ZESCO). Although electricity is available to some unplanned settlements, the majority of the households us charcoal as a back up energy source for cooking and heating.

The mbaula, the commonly used 'stove' for cooking uses charcoal, also generates significant amount of smoke which pollutes the air. (Agyemang, et. al, 1997).

CHAPTER THREE

3.0 DESCRIPTION OF THE STUDY AREA

This chapter aims at describing the Geographical aspects of the study area in relation to the research topic.

3.1 SELECTION OF THE STUDY AREA

In order to provide or compile the Environmental profile of an unplanned settlement, Chawama was chosen as the case study due to the following:

(i) It is one of the largest, unplanned settlements in Lusaka, both in terms of a real extent and population and has grown tremendously during the years.

(ii) It has been officially recognised as a squatter settlement and is currently still being upgraded.

(iii) Chawama has been recognised as one of the settlements in Lusaka, very vulnerable to health hazards such as cholera and yet no study has been done to assess the Socio-Economic and Environmental conditions prevailing in this settlement.

(iv) It is cheaper and less problematic for the researcher to undertake the survey as this is near her residence and is familiar with the area.

3.2 LOCATION OF THE STUDY AREA.

Chawama compound is located on the outskirts of Lusaka, to the south east of the city centre. Chawama is in the north of Chilanga area, but east of the Kafue road at a distance of 3 to 4 km from the city centre. (Figure 1).

Fig. 1. Location of Lusaka in Zambia

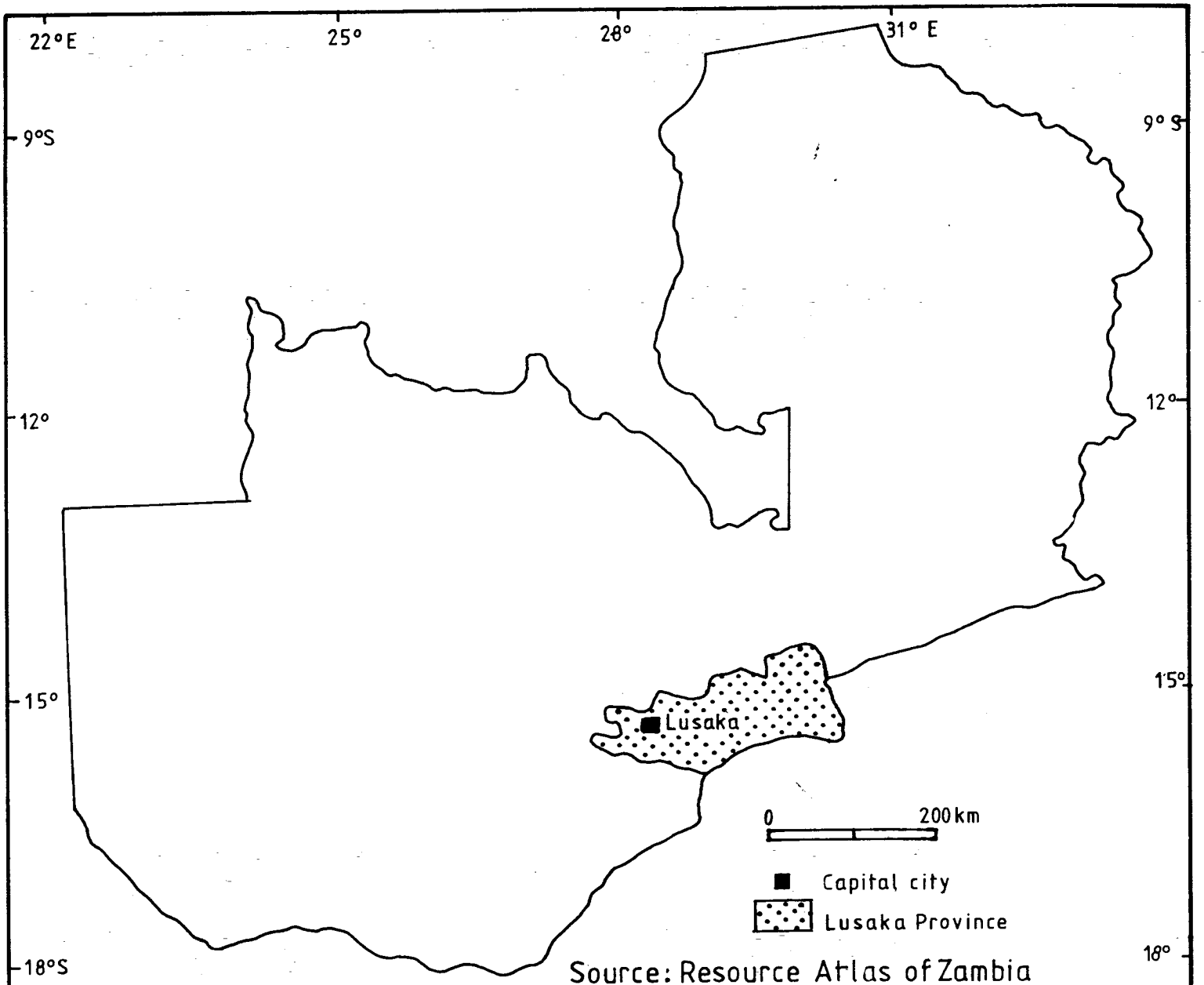
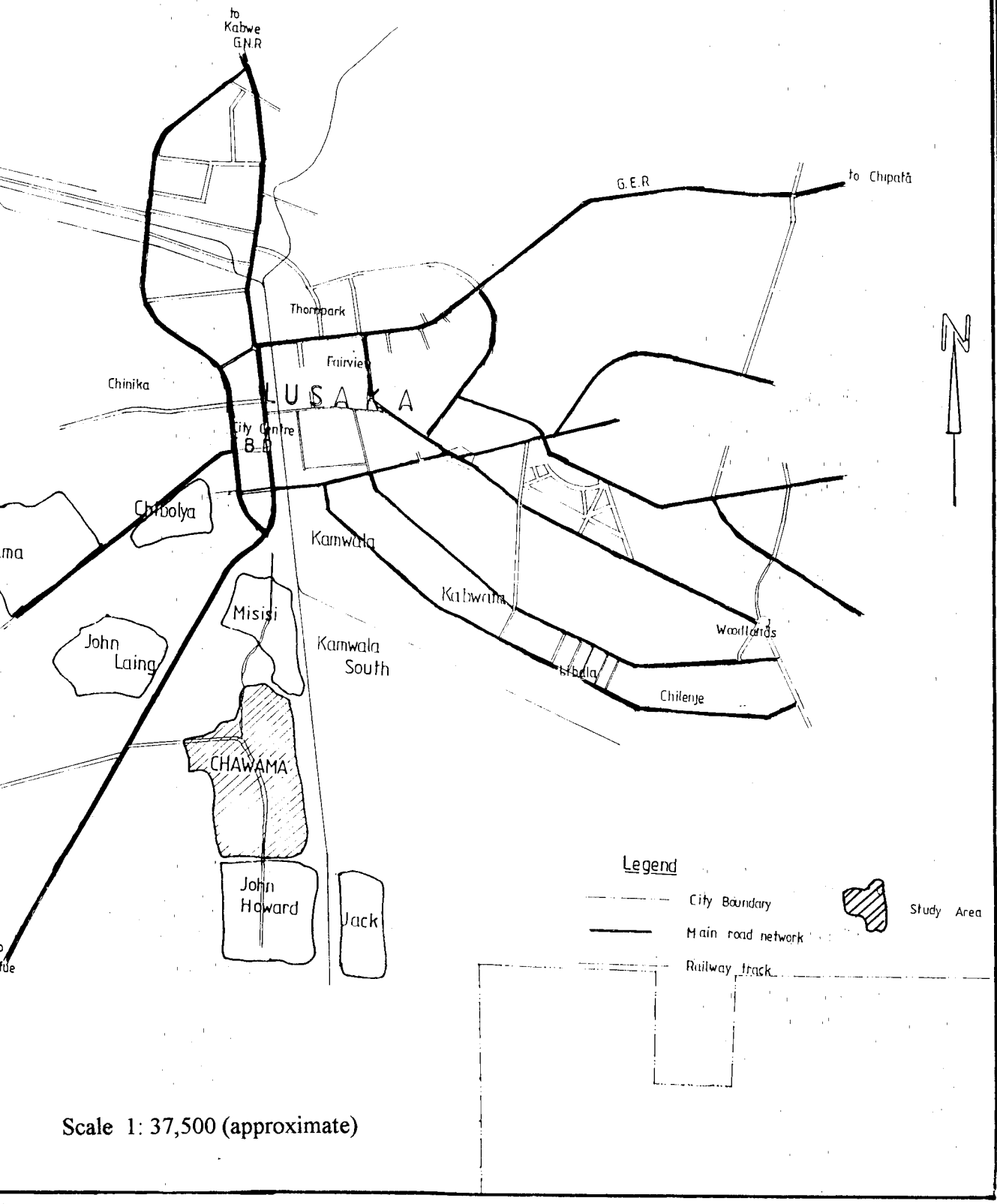


FIG. 2 – MAP OF LUSAKA SHOWING SAMPLE AREA



Scale 1: 37,500 (approximate)

Source map sheet 1528 A4 1986 Surveyor General, Lusaka.

It lies approximately between latitudes 15° 25'S and 15° 30'S and longitude 28° 15' E and 28° 20'E. (Figure 2).

3.3 CLIMATE

The area experiences four distinct but equal seasons namely:

(i) the winter season (June to August).

(ii) the pre-rainy season (September to October).

(iii) a long rainy season. (November to March).

(iv) the post-rainy season (April to May).

The average temperature is about 20°c, with a mean minimum of 15°c and a mean maximum of 26°c. Rainfall is heaviest in December with an average of 220mm for the month. Lusaka enjoys a relatively humidity rise, significantly over the monthly average of 62.8% to about 84% in January. (Agyemang et. al 1997).

3.4 GEOLOGICAL SETTING AND DRAINAGE.

The Geological setting comprises of a very ancient pre-Cambrian basement complex overlain by the more recent Limestones and Dolomites. The basement complex consists of Granites, Geniuses and Quartzites outcrops. This provides the area with a valuable source of construction materials and they also form a minor acquifer for the water supply system.

The terrain is flat and limestone acquifer makes the area prone to flooding of varying degrees of severity whenever it rains. (Agyemang, et. al 1997).

3.5 VEGETATION AND SOILS

The dominant vegetation type found in the Lusaka area is the open deciduous woodland known locally as 'miombo' accounting for about 80% of the forested area and providing valuable commercial species, while in the south and west, the Munga, a savannah woodland dominates. There are exotic species in some places, planted as ornaments.

The soils vary according to the underlying geology. Those developed over the limestone and Dolomite outcrops are generally varied in texture and depth from deep red brown class to dark loamy soils. These soil tend also to be moistly acidic.

3.6 BACKGROUND OF THE STUDY AREA.

The history of Chawama, goes as far back as the 1950's before independence. The squatter settlement grew in size and number after independence, when freedom of movement was granted to every Zambian and brighter employment prospects encouraged people to move to major urban areas. The rapid urbanisation and the growth of spontaneous settlements were taking place on such a large scale that National as well as local government could not cope with the demand for decent living conditions such as effective solid waste management, sanitation and the supply of clean water to the residents. (L.C.C, 1999).

The squatter settlement's problem reached such dimension that something had to be done. The council quickly controlled the situation in Chawama by legalising this settlement. Legalising the settlement was the feasible approach for the local authority as it was less strenuous physically, emotionally and economically on the council and the squatters unlike relocation which is more expensive.

Chawama became a recognised squatter settlement, meaning that the structures could not be razed without compensation. The council also allowed donors to upgrade it. The upgrading initiative was part of the Housing Project Unit (HPU) implemented in 1974-1980 and funded by the World Bank. Within a time space of 5 years i.e between 1975 and 1980, the following services were provided; water connections, street lights, schools, a clinic and road frontages. (Rakodi 1987).

Whilst there was initial success in the project from the point of view of the provision of services, problems of maintenance cropped up at a later state, storm drains needed cleaning regularly and road surfaces need maintenance. Moser and Holland, 1996, content that access to services increased during the 1978-1992 period, but quality of provision deteriorated

significantly. This was caused by the refusal of people to pay for the services they were getting., making it very difficult for the Lusaka City Council to maintain the services provided.

Since then the population in Chawama has been increasing steadily. In 1990, the population was 45,977 and in 1997, it increased to 69,174. The latest population of chawama as of November, 1998 was 72,893. (C.S.O 1998).

The settlement's infrastructure comprises of one main tarred road, several gravel roads; one police post, two basic schools, two secondary schools; one health centre, one post office, council site office, three big markets, several private nursery schools, ZESCO and lines (electricity) and piped water supply.

CHAPTER FOUR

4.0 METHODOLOGY

This chapter on methodology discusses the methods of Data collection used, sampling procedures, Data analysis and problems encountered by the researcher during the research period.

4.1 SOURCES OF DATA

The Data used was collected form both primary and secondary sources.

4.2 METHODS OF DATA COLLECTION

Data collection methods simply shows how both primary and secondary data was collected by the researcher.

4.2.1 Secondary Data

Secondary data was obtained from documented literature. It was collected from the University of Zambia (UNZA); the University Institute for Social and Economic research, Environmental Council of Zambia (E.C.Z), Central Statistical Office (C.S.O) and the Research Unit at Lusaka City Council. Information obtained from these sources helped the researcher to come up with literature review and maps. These sources also provided information on the unplanned or squatter settlements in the world with special reference to Zambia.

4.2.2 Primary Data

Primary data was obtained from both scheduled structured interviews and non-scheduled structured interview. Field observation was also used as a source of primary data.

This kind of data was very useful because the researcher got first hand information which was actually up to date because it reviewed the current situation at the time of data collection.

4.2.2. Scheduled structured interviews

Scheduled structured interview involved the use of questionnaires which were administered to residents in Chawama compound, the study area.

The questions included were to provide basic information that could be used in compiling the Environmental profile of the squatter settlement by looking at the Socio-economic and Environmental conditions. (Refer to Appendix I).

The questionnaire was researcher administered because questions had to be translated from English to the local languages, Nyanja and Bemba, which the researcher was conversant with.) This is because most people interviewed in the study area had a very poor education background.

Although it was more expensive and time consuming, Researcher administered method was preferred because it also allowed the respondents to express their views clearly and in depth using their local language and also because this ensured that all the questions in the questionnaire were answers.

4.2.2.2. Non-Scheduled Structured interviews

Non-scheduled structured questionnaires were prepared and administered among government officials at the Ministry of health; Ministry of housing, E.C.Z, officials from the council and officials from Chawama. (Refer to Appendix II).

4.2.2.3 Field observation

The researcher whilst in the field carried out simple field observation by simply checking the surroundings of the settlement.

The whole idea was to enable the researcher to get a general scenario on the Environmental aspects of the squatter settlement.

4.3 SAMPLING METHOD AND SAMPLE SIZE

The sampling procedure which was used in this study was systematic or/interval sampling. This method is simple and quicker. It is most convenient when undertaking research that involves sampling houses.

This method was resorted to due to non-availability of aerial photos on which other procedures could be used. Other techniques were ruled out because of such factors as chaotic house numbering and irregular spatial pattern of houses and Chawama lacked a comprehensive and systematic list of household units due to the haphazard and unsystematic way in which the houses were built.

The technique in this study was as follows:

The researcher starts with the first path in the Northern section of chawama, every fourth house is taken into the sample and a maximum of five (5) houses along one path. Then the third path is followed, omitting the second path in between, and the same method is repeated until the total number of the sample is reached.

The major drawback when it comes to applicability of the results to the whole settlement may be attributed to the sampling technique used. It was difficult to take a truly objective sample because of chaotic house number and pattern of houses.

The sample size composed of sixty (60) households. Only sixty (60) households were picked to be representative of the other households in the study area due to limited time and finances.

For the officials those picked were those from ministries, organisations and institutions who have an effect and are affected by the mushrooming of squatter settlements.

4.4 CODING AND ANALYSIS

Field data to the end of the Field work exercise was coded and analysed manually by the Researcher. Data analysis was done by qualitative and quantitative methods.

Data was analysed quantitatively using percentages and tables as has been presented in chapter five.

Qualitative was used by presenting the data obtained into categories or into the different parts of an Environmental profile.

4.5 LIMITATIONS

The study was constrained by a number of limitations in the field. The problems encountered by the researcher were as follows:

(i) Some respondents were not co-operative, insisting that a lot of people had interviewed them about their living conditions, promising them of better living conditions, but up till then they had not seen any changes. The researcher had to cut short the interviews and concentrate on explaining the importance of the research and that it was mainly for academic purposes.

(ii) The sudden change of the weather hindered progress of the targeted five questionnaires per day and certain roads or paths were impassable during this time.

(iii) The time available for the research was insufficient and this limited the number of people interviewed.

(iv) Resources, especially financial were also a limitation as the study required travelling to the study area and following up the people to be interviewed especially the officials.

(v) The chaotic house number and irregular house pattern was also a limitation.

(vi) Some key informants or officials for non-schedule structured interviews were rarely found in their offices and the interviews had to be conducted with alternative respondents.

CHAPTER FIVE

PRESENTATION AND DISCUSSION OF FINDINGS

5.0 INTRODUCTION

This chapter covers the presentation and discussion of the results obtained from the field. This will help in coming up with a more clear picture of the Environmental profile of an urban squatter settlement, Chawama compound in Lusaka. Issues discussed include the Socio-economic status and the Environmental conditions of Chawama compound. It will also provide contemporary information or data on Chawama that would be useful for municipal planning purposes. Tables of summarised data are displayed, with other methods highlighting the data obtained from the field.

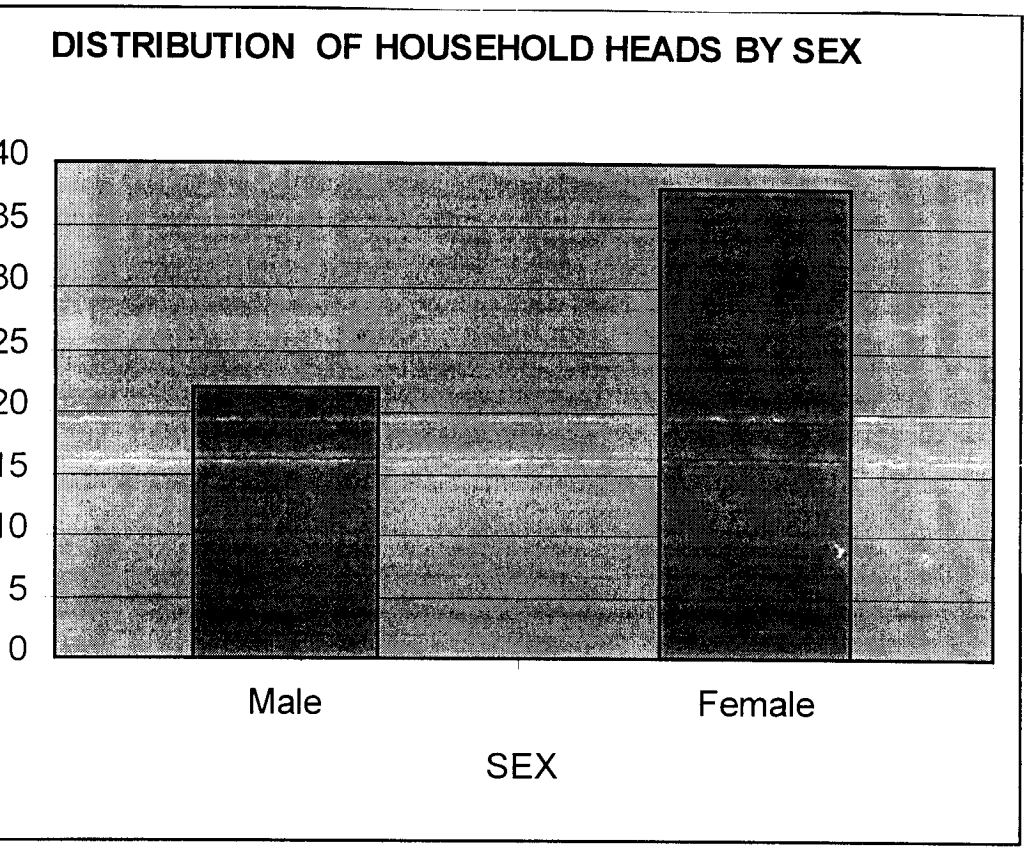
5.1 SOCIAL CHARACTERISTICS OF RESPONDENTS

Social characteristics are discussed according to sex of head of household, educational status and household sizes.

5.1.1 Sex of household head

From the total of sixty (60) respondents interviewed, the sample consisted of 22 males and 38 females representing 36.7% and 63.3% respectively. According to figure 3, the distribution shows that the majority of household heads in Chawama settlement are females.

igure 3: DISTRIBUTION OF SEX OF THE SAMPLE.



SOURCE: Field survey 1998/99

1.2 Educational Status

This study on Education, considers only the formal education that is the skills and nowledge acquired through the framework of an established schooling system.

The quantitative information showed that out of the sample size of sixty (60) spondents, the highest education attainment was senior secondary, i.e Grade 10-12.

TABLE 1: THE LEVEL OF EDUCATION COMPLETED BY THE RESPONDENTS.

LEVEL OF EDUCATION COMPLETED	NUMBER OF RESPONDENTS	PERCENTAGE
Lower primary (Grade 1-4)	2	3.3
Upper primary (Grades 5-7)	10	16.7
Junior Secondary (Grade 8-9)	29	48.3
Senior secondary (Grades 10-12)	17	28.4
Trade school	0	0.0
College	0	0.0
University	0	0.0.
Never been to school	2	3.3.
TOTAL	60	100.0

SOURCE - FIELD SURVEY 1998/9

Table 1 shows the level of Education completed by the residents. This data confirms that the residents are not highly educated. The majority 48.3%, of the respondents have completed junior secondary school and only 17% completed senior secondary school. These levels of education is quite low and not enough to provide entry ground to formal employment as many residents wished.

5.1.3. House-hold size

TABLE 2: HOUSEHOLD SIZE OF THE RESPONDENTS

SIZE OF HOUSEHOLD	NUMBER OF RESPONDENTS	PERCENTAGE
1-3 people	8	13.2
4-6 people	32	53.4
7-10 people	16	26.6
11+ people	4	6.7
Total	60	100.0

SOURCE: FIELD SURVEY 1998/9

From Table 2, the majority of the households live as a family of between 4-6 people (53.4%), followed by those who live as a family of 7-10 people (26.6%) and the least are those who live 1-3 people (13.3%) and 11+ people (6.7%). The mean household size was 6. Overcrowding is obvious if we take the approximate number of persons be room to be three (3).

5.2 ECONOMIC STATUS OF RESIDENTS OF CHAWAMA

5.2.1 Income levels

Results from the study have shown that within the settlement, household head monthly incomes are unevenly distributed, only an insignificant number earned above K200,000 and the majority earned between K50,000 and K100,000. Table 3 shows the ranges in household head monthly incomes in the settlement, the lowest income was K35,000 while the highest was K450,000 by a businessman.

TABLE: HOUSEHOLD MONTHLY INCOMES

MONTHLY INCOME (RANGE)	NUMBER OF RESPONDENTS	PERCENTAGE
K20,000 - K50,000	13	21.7
K500,000 - K100,000	36	60.0
K100,00 - K250,000	5	8.3
K150,000 - K200,000	2	3.3
Above K200,000	4	6.7
TOTAL	60	100.0

SOURCE: Field survey 1998/9

5.2.2. Sources of income

The sources of income for households vary. They include formal employment, petty trading, beer brewing, tailoring and house rentals.

5.2.2.1 Formal employment

The Researcher discovered that they were very few, less than 50% of the respondents were in any form of employment. The majority of those in formal employment were in low paying jobs such as drivers, clerks, security guards, secretaries and health workers. The main reasons behind the low formal employment is due to the fact that most the residents have not attained high levels in education to enable them to get employed.

5.2.2.2 Economic activities/livelihood analysis

Zambia's per capita income and the economy in general has deteriorated considerably since the 1970's. The decline in per capita income has pushed more people below the poverty line and the most affected are the unplanned settlement dwellers, prompting them to adopt various coping strategies.

In Chawama, according to research findings the majority are involved in Economic activities such as carpentry, welding, salaula (second hand clothes) trading, stone crushing,

kachasu/beer brewing, block making, brick laying and the majority are in petty trading (Nthembas).

The majority of those involved in petting trading are into basic commodities. The Traders repackage the commodities such as sugar, salt, soap, cooking oil, mealie meal etc in smaller quantities to make them affordable to low income residents. For some a stand or space is available at the market whilst others turn every available space including back yards of their houses as selling places.

5.2.3. Poverty assessment

According to the findings, over 80% of the population are living in adjacent poverty. Many are not able to even afford the basic needs such as shelter, food and clothing. As mentioned earlier, most households are coming up with coping strategies such as petty trading, brewing of illicit brews like kachasu and mbamba which have health effects on those who drink it, for survival. These coping strategies however are far from meeting the basic things needed for survival and the majority are struggling at the edge of subsistance.

Generally the poverty assessment of the residents of Chawama at household level is that they lack a steady income, lack employment, have low levels of education, lack investment capital, they have large household sizes, poor housing structures, are over crowded and have no access to basic social services. The majority do not own any property of value that can be made to cushion the effects of poverty.

Due to the adjacent poverty, survival has become the priority of the residents rather than the broader and longer term issues like the environment. One good example is the brewing of illicit drinks like kachasu, as the wastes are toxic but are thrown any where destroying vegetation like grass.

5.3 HOUSING CHARACTERISTICS

The type of housing in Chawama is basically informal without layout plans and authorisation from the council. Over all the main characteristics of the houses in this settlement is that they do not conform to standard design except for a few.

5.3.1 Ownership

From the quantitative data, it was established that slightly over half (52%) of the respondents were renting. This most likely points to the fact that a considerable number of house owners use their houses primarily for rental purposes as a form of earning income.

5.3.2. Number of rooms in the houses.

TABLE 4: THE NUMBER OF ROOMS IN THE HOUSES

NUMBER OF ROOMS	NUMBER OF RESPONDENTS	PERCENTAGE
1-2	43	71.7
3-4	10	16.7
5-6	5	8.3
7+	2	6.7
TOTAL	60	100

SOURCE - Field survey 1998/9

Most of the respondents, according to the findings in Table 4 live in 1-2 roomed houses (71.7%) and the least 6.7% live in 7 or more roomed houses.

From the findings on the household sizes and the number of rooms, it is apparent that overcrowding is inevitable in the households in this settlement. Overcrowding in terms of high room occupancy rates coupled with poor ventilation in the makeshift housing of the peri-urban areas, results in exposing the residents to many respiratory diseases.

5.3.3. Materials used for construction

Chawama being an unplanned settlement, there is no standard in the construction materials used as there is no need for authorisation from the council when building.

5.3.3.1 Type of construction materials of walls.

Quantitative information showed that the majority of the housing units in Chawama were constructed of concrete blocks. According to Table 5, from the sample 90% of the houses were constructed of concrete blocks,; 8.3% of burnt bricks while only 1.7% were constructed of mud bricks.

Although 90% (54)) of the housing stock is made of concrete blocks, these are largely of poor quality.

TABLE 5: SHOWING CONSTRUCTION MATERIALS OF THE WALLS.

CONSTRUCTION MATERIALS OF WALLS	NUMBER OF RESPONDENTS	PERCENTAGE
Burnt bricks	5	8.3
Mud bricks	1	1.7
Concrete blocks	54	90.0
TOTAL	60	100

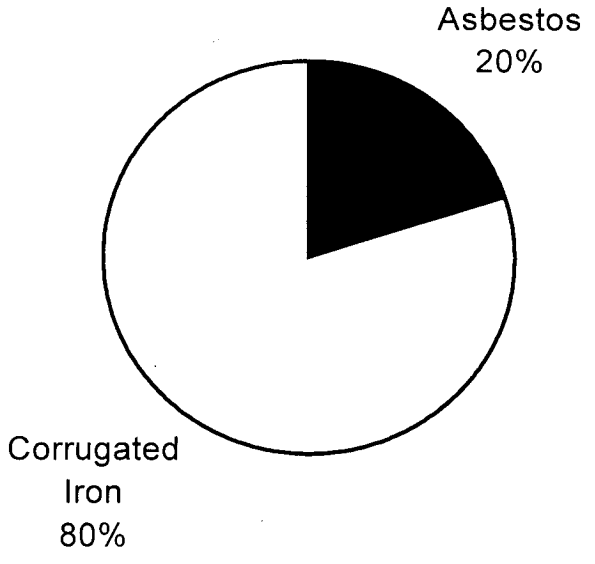
SOURCE: Field survey 1998/9

5.3.3.2 Type of construction materials of roofs.

There are only two commonly used roofing materials in the settlement, these are asbestos and corrugated iron. Asbestos accounts for 20% (12) and corrugated iron 80%(48). Corrugated iron is relatively cheaper compared to asbestos and that may explain why it is more widely used then asbestos.

The poor housing quality in Chawama was attributed to the low incomes. May residents said they did not have extra money to renovate their houses since all the money was spent on paying rent and food.

FIGURE 4: PIE-CHART SHOWING THE ROOFING MATERIAL DISTRIBUTION



SOURCE: Field survey 1998/99

5.3.4 Layout of the houses

The layout of Chawama compound is to a large extent determined by the environmental conditions surrounding the settlement. In the northern and western part of the settlement there are quarries from which some private companies had taken sand for construction purposes. the quarries have been abandoned and usually fill with water during the rainy season, becoming breeding ground for mosquitoes. These are quite prominent landmarks and are inhibiting the expansion of the compound in this direction.

On the western side of the settlement, the railway line is an important land mark that forms the boundary for the western extension of the compound. It seems the residents have

also consciously or unconsciously realised that the council cannot tolerate the northern expansion of the compound or across the railway line.

Apart from the areas near the two physical characteristics the quarries and the railway line the housing units are on any little space available. As such the housing units are built very close to each other. The layout does not follow any planning regulations. The plots are small and poorly arranged. Dwellings take up a larger proportion of the land so that there is no extra space for constructing associated infrastructure i.e. pit latrines, garbage receptive etc. In most cases the swelling are constructed less than five(5) meters from a pit latrine.

5.4 ROAD AND INFRASTRUCTURE

Road infrastructure is important for the efficient function of any community. In Chawama, the main tarried road links the settlement with the Central Business District (CBD) and other settlements.

Apart from the main road which is tarred, the other road infrastructure in the settlement is in deplorable state. Most of them are impassable especially in the rainy season when it floods. The unrepaired gravel because of no drainage system and maintenance has formed gutters in some places.

Maintenance of the road network is the responsibility of the Lusaka city council. However L.C.C does not have the capacity to maintain these roads from its own resources and expertise.

5.5 WATER AND SANITATION

The urban poor need clean, safe, reliable and affordable water supplies. The institutional capacity in the water and sanitation sector however has collapsed. Urban housing without sanitation represents a major threat to health and survival because of the threat of diarrhoea, dysentery and cholera. (Gaisie, et. al, 1993)

5.5.1 Water

The results in Table 6 indicate that in Chawama 93% of the households get their water from communal taps, the other sources of water supply, boreholes and drug out wells only carter for a small portion of the population.

TABLE 6: SOURCES OF WATER SUPPLY IN CHAWAMA

SOURCES OF WATER SUPPLY	NUMBER OF RESPONDENTS	PERCENTAGE
Tap	56	93.3
Bore-hole	1	1.7
Dug-out well	2	3.3
Other (specified)	1	1.7
Total	60	100

SOURCE: Field survey 1998/9

Prolonged water shortages and overcrowding at communal water points is very common. It was established that this has a negative impact on women in particular. Some of the impacts cited were reduced domestic productivity, water borne related diseases and opportunity cost of time (spent drawing water). Some residents resort to purchasing water from individuals with private facilities at their premises. For this informal access they pay K1,500 - K2,000 per day. This is an added living cost on the poor of Chawama.

Access to communal taps is free and residents only contribute money when a tap breaks down and repairs have to be done.

5.5.2 Sanitation

The type of toilet facility predominant in the settlement is the ordinary unprotected pit latrine. Almost all the households 86.7% use pit latrines for toilets. The rest are insignificant being 6.7% for VIP., 3.3% use the nearby bush as their pit latrines were full and another 3.3% use Flush toilets. (Refer to Table 7).

TABLE 7: THE TYPE OF TOILET FACILITY USED BY THE RESIDENTS.

TYPE OF TOILET FACILITY	NUMBER OF RESPONDENTS	PERCENTAGE
Ordinary pit latrine	52	86.7
VIP	4	6.7
flush toilet	2	3.3
Bush	2	3.3
Total	60	100

SOURCE: Field findings 1998/99

Pit-latrines are if properly located and constructed, a satisfactory method of excreta disposal in small communities. The use of these on highly density areas like Chawama has contributed to polluting of the underground water sources particularly in the rainy season.

From the findings of the study, the majority of the residents' have no access to pit latrines and share their neighbours. The majority of this category are those who are resting. At times, those who do not have pit latrines of their own have to pay for using their neighbours.

Lack of space is one factor contributing to some residents failure to build themselves pit latrines. Where there is available space it is only enough to relocate the pit latrine a few times when it gets full. But as mentioned earlier, several households usually share one pit latrine

reducing its life span. The majority of the pit latrine cannot be emptied by the use of vacuum tankers because of their inaccessibility. The space between houses are too small to allow passage of big vehicles and where there is enough space, there are usually no proper roads. There was, also, no willingness to pay for the vacuum tanker service, in any case very few if any would afford to pay for this service.

Most pit latrines are very close to the homes, according to the research findings in Table 8, about 80% had toilets at a distance of between 1-5m from the house. When pit latrines are generally standing too close to the house, air borne pollution is serious especially in dense areas.

TABLE 8: SHOWING THE DISTANCE OF TOILETS FROM THE HOUSE IN CHAWAMA

DISTANCE OF TOILET FROM HOUSING UNIT	NUMBER OF RESPONDENTS	PERCENTAGE
Within 1 meter	2	3.3
Between 1-5m	48	80.0
Between 5-10m	7	11.7
Above 10m	3	5.0
TOTAL	60	100.0

SOURCE: Field survey 1998/99

5.2.2 Water waste

In Chawama, waste from washing and bathing was normally thrown, just outside the house. From the point of view of hygiene and health, this is of course an insufficient way of disposal since such water may contain infectious bacteria.

5 SOLID WASTE GENERATION AND DISPOSAL

Solid waste may be defined as waste materials emanating from Domestic, Commercial, Industrial, agriculture and other human activities. (L.C.C. 1996).

reducing its life span. The majority of the pit latrine cannot be emptied by the use of vacuum tankers because of their inaccessibility. The space between houses are too small to allow passage of big vehicles and where there is enough space, there are usually no proper roads. There was, also, no willingness to pay for the vacuum tanker service, in any case very few if any would afford to pay for this service.

Most pit latrines are very close to the homes, according to the research findings in Table 8, about 80% had toilets at a distance of between 1-5m from the house. When pit latrines are generally standing too close to the house, air borne pollution is serious especially in dense areas.

TABLE 8: SHOWING THE DISTANCE OF TOILETS FROM THE HOUSE IN CHAWAMA

DISTANCE OF TOILET FROM HOUSING UNIT	NUMBER OF RESPONDENTS	PERCENTAGE
Within 1 meter	2	3.3
Between 1-5m	48	80.0
Between 5-10m	7	11.7
Above 10m	3	5.0
TOTAL	60	100.0

SOURCE: Field survey 1998/99

5.5.2.2 Water waste

In Chawama, waste from washing and bathing was normally thrown, just outside the house. From the point of view of hygiene and health, this is of course an insufficient way of disposal since such water may contain infectious bacteria.

5.6 SOLID WASTE GENERATION AND DISPOSAL

Solid waste may be defined as waste materials emanating from Domestic, Commercial, Industrial, agriculture and other human activities. (L.C.C. 1996).

5.6.1 Type of solid waste generated

Chawama like most unplanned settlements lacks an established institutional solid waste management system. The methods of garbage disposal include dumping, burning or simply letting the garbage rot on its own. There is no form of any regulatory, over this dumping. As such uncontrolled dumping of domestic solid and liquid waste is not uncommon in the settlement.

The researcher observed that solid waste is dumped in heaps (dumps) in and at the road sides and almost any open space and pits. Along with solid, is liquid waste from kachasu and mbamba brewing. This is potentially toxic on the vegetation such as grass. Most open spaces are open stinking dumps that both degrade the qesthetic life of the settlement and act as a reservoir for deadly diseases.

The Environmental consequences of this can be measured in the number of residents suffering from diseases such as diarrhoea, coughing and dysentery.

5.7 SOURCES OF HOUSEHOLD ENERGY

As a result of the upgrading programme, Chawama unlike most squatter settlements has access to electricity. However, according to the research findings, though electricity is easily accessible, many of the residents of Chawama are not connected as they cannot afford connection fees and would find it difficult to pay for it because of their low and irregular incomes.

The majority of the households in Chawama including many of those with electricity use the unclean but relatively affordable bio-fuels such as charcoal, coal, wood and kerosene for cooking purposes and lighting.

However, the cost of this is widely seen in Environmental impacts on forests as a result of reliance on woodfuels. This impact, however, is not observable within the immediate environment of this settlement but in the source areas. Indoor Air pollution is a health hazard

at household level associated with cooking and lighting using bio-fuels. Women are the most vulnerable to these health hazards.

5.8 THE PHYSICAL ENVIRONMENT

The land in Chawama is almost exclusively used for construction, housing construction being the major one. Apart from construction the land is used for commercial purposes (bars/shops); road construction, electrification and installation of underground water pipes.

The study observed a number of environmentally unfriendly practices in the settlement such as:

(i) **Quarrying**

Quarrying has left large unfilled pits in the ground which become breeding grounds for mosquitoes, when filed with water during the rainy season, this water sips through the limestone rocks to contaminate drinking water. At some time, the residents of Chawama illegally used these quarry to dump solid waste.

(ii) The significant amount of waste generated daily due to increase in economic activity in the settlement is heaped and left to rot, posing health hazard. In some cases the waste is spread along and on the roads.

(iii) Air pollution is caused by the brazier (mbaula) which is commonly used for cooking in the settlement. The brazier uses charcoal which generates a significant amount of smoke which pollutes the air.

5.9 THE HEALTH STATUS OF THE RESIDENTS OF CHAWAMA

A visit to the Local clinic to review health records was made. As indicated in Table 9, malaria, diarrhoea and respiratory tract infections, bilharzia and tuberculosis (T.B) topped the list of illnesses reported at the Chawama health center. These are all environmental related illnesses. The causative agents for the spread of malaria are mosquitoes while flies contribute to the spread of diarrhoea disease. These disease agents are found at both refuse sites and the

homes, indicating that there is a link between pests found on refuse sites and homes with illnesses reported at Chawama health centre.

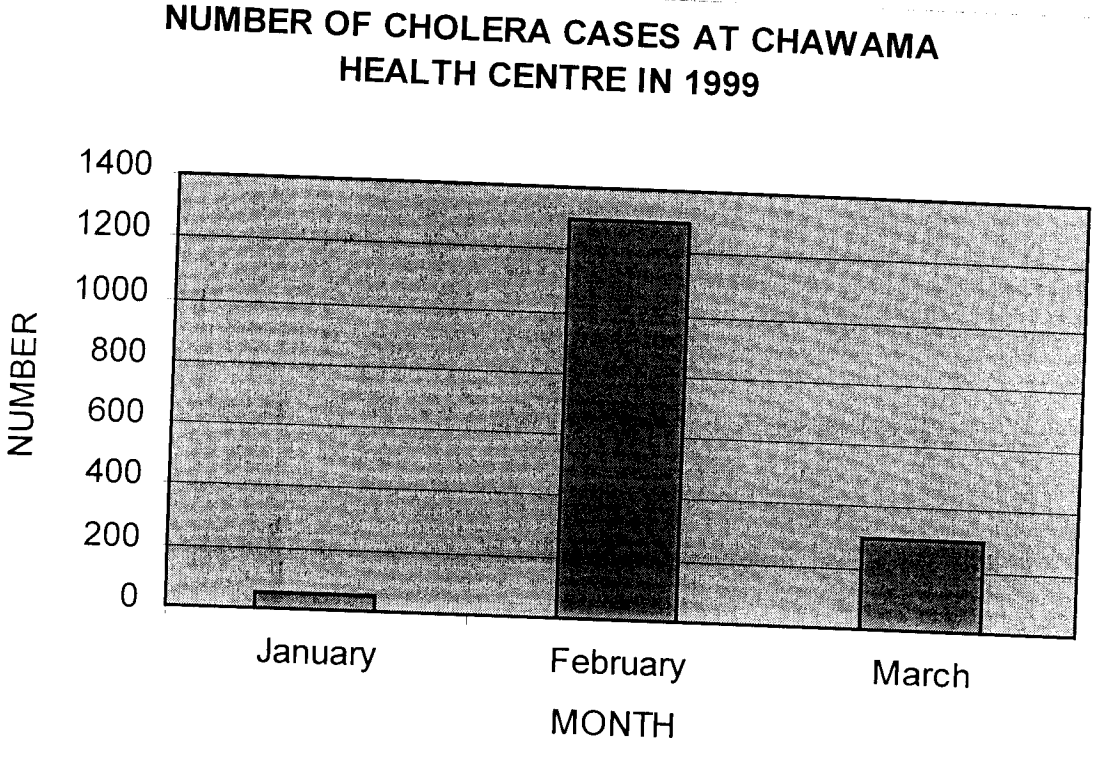
Respiratory tract infections could be attributed to the dusty nature of Chawama compound and the pollutants from burning bio-fuels like firewood, charcoal etc.

Tuberculosis (T.B) incidence in Chawama settlement is highly prevalent due to overcrowding and the close contact among the settlers as T.B is an air-borne disease.

Unsanitary living conditions present in the area present higher risks of infection in Chawama compound. As such it is justifiable to mention that cholera outbreaks which struck Chawama recently is a clearly related to the low levels of hygiene, necessitating an urgent need to redress the lack of basic urban refuse disposal services.

In fact, Cholera outbreak in chawama was so immerse that the clinic was turned into a cholera centre.

FIGURE 5: BAR GRAPH SHOWING THE NUMBER OF CHOLERA CASES AT CHAWAMA HEALTH CENTER IN 1999.



SOURCE: Chawama Health Center 1999.

The situation in health provision is that there is only one District Health centre to carter for the huge population of about 72,900 in Chawama. The health center is currently under-staffed has high patient to Doctor ratio and there is patient congestion due to inadequate space.

TABLE 9: DISEASE AGGREGATION FOR CHAWAMA HEALTH CENTER

1998 - 1999

DISEASE IN ORDER OF PREVALENCE	**NUMBER OF REPORTED CASES**						
	1998		**MONTHS**	**1999**	**1999**		
	OCT	1998 NOV	DEC	JAN	1999 APRIL	1999 MAY	JUNE
MALARIA	1427	1299	1527	280	586	1979	2493
DIARRHOEA	998	1216	908	265	410	1457	1700
RESPIRATORY INFECTIONS (PNEUMONIA AND NON-PNEUMONIA)	1031	553	860	259	340	220	2241
TUBERCULOSIS (T.B)	-	16	210	120	15	-	313
BILHARZIA (SCHISTOSOMASIS)	-	15	29	14	7	30	14
TOTAL OF ALL DISEASE CASES REGISTERED AT THE CLINIC	5,668	5,340	-	3,391	2,198	8,308	12,604

SOURCE: Chawama Health Center Monthly Statistics, 1998-1999.

NOTE - The statistics for February and March 199 not ecorded due to cholera outbreak, the centre was declared a cholera center hence no other diseases were attended to except cholera cases.

- The figure for January and April 199 appear low due to the fact that it was just before and after the cholera outbreak respectively.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

The purpose of this chapter is to summarise the major findings of the study and provides recommendations on what could be done to address the problems of chawama squatter settlement.

6.1 CONCLUSION

The study on the Environmental profile of the unplanned settlement of Chawama showed that the majority of the residents in the settlement lack access to basic infrastructure and services. This is inspite of the fact that the settlement has existed for more than twenty years.

The council although it has recognised and legalised the settlement, it does not provide certain essential services such as sanitation and sewerage system or maintain the already existing services which were a result of upgrading programme funded by the World Bank implemented in 1974-1980.

Quality and affordable housing to most of the residents is lacking with the likely impacts on their health as a result of overcrowding. Those who do not own housing of their own often pay high costs for rent.

The majority of the residents are poor and are struggling at the edge of subsistence levels of consumption. This is as a result of their low incomes. Sources of income for the households vary and include formal, informal employment and the majority of them are involved in petty trading in basic commodities, some of which are repackaged in smaller quantities which can be afforded by the residents.

The majority of the residents have attained a basic education level and this level is far from meeting the minimum level required for most formal employment.

In the settlement, there is no proper sewer system and the majority of the residents use unprotected pit latrines and others do not even have access to minimal sanitary toilets.

This lack of basic hygiene adds significantly to the spread of diseases.

The settlement is not served by public services such as solid waste removal. There is lack of storage, collection, transfer (transportation) and disposal facilities of the solid wastes which are environmentally acceptable. The study established that residents face high risks because solid waste dumps are located within the settlements. This is worsened by the inadequate protabe water and inadequate sanitation threatening public health and environmental sanitation.

The drainage and road infrastructure in the area is also poor. For the most part, the road infrastructure is bad and not maintained. The Drainage is poor leading to stagnation of water and floods especially in the rainy season. The floods and stagnant water harbours mosquitoes which causes malaria and also makes the area vulnerable to disease outbreaks like cholera.

The major source of energy among the residents is bio-fuels like charcoal and Firewood, although electricity is provided by ZESCO in the area. Residents suffer from indoor pollution and non-respiratory diseases due to burning of the unclean but relatively affordable bio-fuels.

The study area also has a number of environmentally unfriendly practices such as quarrying. It has left large unfilled pits in the ground which become breeding grounds for mosquitoes during the rainy season. this water sips through the limestone rocks to contaminate drinking water.

The residents when asked on which services were a priority need, 42.6% wanted connected sewer system; 18.52% opted for additional piped water supply and equal

percentages of 11.11% wanted refuse collection and surfaced roads respectively. the rest wanted improvement in the drainage system and a modern market.

However, the residents have realised that they themselves are the key resource to the development of their settlement and this is evidenced by the community initiated and sustained projects currently being introduced.

Therefore from the findings discussed above, we can conclude that the inadequate and non-provision of the urban services and infrastructure is linked to the decline in the environment as the poor exploit environmental resources. this in turn impacts negatively on the environment to support productivity and diverse urban needs. The costs of this degradation are evident in Chawama due to the acute environmental problems in the area.

6.2 RECOMMENDATIONS

Having examined the Environmental profile, that is the Socio-economic and Environmental conditions of Chawama, the following recommendations have been suggested:

(i) There is need to adopt approaches to development for the settlement that take into account the resident's input from indintification of the major problems in the settlement to planning, implementation and evaluation of projects. There will entrust the beneficiaries choice as well as responsibility, as only the involvement of the people can guarantee success of initiates at community level.

(ii) Since the Local Authorities, Lusaka City Council has failed to solve the problems of the settlement. There is need for self-help, the involvement of the residents in the construction of communal facilities. The community needs to organise themselves and contribute their labour force in activities, for instance trench digging to improve the drainage; dig pits in which to throw garbage and bury and even be mobilised to clean up their surroundings.

(iii) There is need for the involvement of the private sector in provision of social services. In view, that the council is overwhelmed financially and the expertise by the high population growth of the squatter settlement, there is need for the private sector to be able to provide quality and cost effective essential services. For instance the private sector such as Non-Governmental Organisations (NGO's) can assume some responsibilities like solid waste management, maintenance of roads etc.

(iv) In view of the magnitude of the outbreak of diseases such as cholera, it is important that Environmental education is provided to the dwellers through community set-ups. This will sensitise them on the need and importance of looking after the environment, like the sensitisation on the dangers of indiscriminate refuse disposal and on how the community can participate.

(v) There is need to encourage the residents to build flash toilets to enhance hygiene, although this will only be when the council can provide sewerage systems. There is also need to set regulations on the construction of pit latrines to avoid the building of improper, unprotected pit latrines.

(vi) There is need for the Government to introduce compound Electricitification programme in the area like in Matero. This will be able to encourage the use of electricity which is cheaper and environmentally friendly.

BIBLIOGRAPHY

Agyemang, A. et. al. (1997) An Environmental profile of the Greater Lusaka area. (UNDP: Lusaka).

Central Statistical Office (1990), Census of population, Housing and Agriculture Report, Lusaka.

Central Statistical Office (1995), Census of population, Housing and Agriculture Report, Lusaka.

Central Statistics Office (1998) Update on population statistics of Lusaka Urban District Townships, Lusaka.

Gaisie. et. al (1993), Prospectus for Sustainable Human Development in Zambia, Lusaka.

Johnston, R. J and Gregory D. (Ed). (1997), The Dictionary of Human Geography. (Blackwell publishers inc. Oxford).

Knauder, S. (1982), Shacks and Mansions.
An analysis of the integrated housing policy in Zambia.
(Multimedia Publications: Lusaka).

Lusaka City Council, (1995), Growth of unplanned settlements: an overview of housing situation in Lusaka, Lusaka.

Lusaka City Council (1997), Solid waste management situation analysis Report. Issues, constraints and possible options.
(UNDP: Lusaka).

Martin, R. "Urbanisation, squatter settlement and upgrading" In Human settlements in Zambia. pp67-68.
Report on the workshop held at the University of Zambia, 12-14 September, National Housing Authority: Lusaka.

Ministry of Health (1990), Health facilities in Lusaka.
(Ministry of Health information unit; Lusaka).

Moll, P.G. (1997), Preparations for ESAC II, December 1995; Land policy, Lusaka.

Moser, C and Holland, J. (1996). Confronting crisis: Household Responses to poverty and vulnerability in Chawama Lusaka, Zambia.
(World Bank: Washington D.C).

Muwowo, F. (1997) Summary Report on Lusaka Council Consultation workshop, Lusaka.

NCDP (1994). Social Sector Rehabilitation and Council consultation workshop, Lusaka.

Rakodi, C. (1987) 'Land layouts and infrastructure in squatter upgrading - the case of Lusaka', in cities. November, 1987.

Schlyster, A. and T. Schlyster, (1979), George - The Development of a squatter settlement in Lusaka, Zambia.
(National Swedish Institute for Housing Research)

Seymour, T. (1975) 'Squatter settlement and class relations in Zambia".
Review of African Political Economy 3, 71-7

Simwiinga, M. et. al (1997), Lusaka City Council community profiling survey of an unplanned settlement.
(Lusaka city council: Lusaka).

World Bank (1994), Zambia Poverty Assessment.
(World Bank: Lusaka).

APPENDIX 1

THE UNIVERSITY OF ZAMBIA
SCHOOL OF NATURAL SCIENCES
DEPARTMENT OF GEOGRAPHY

QUESTIONNAIRE SERIAL NO: ..... DATE: .....

TOPIC - AN ENVIRONMENTAL PROFILE OF AN URBAN SQUATTER SETTLEMENT, CHAWAMA COMPOUND, IN LUSAKA.

INSTRUCTIONS: Fill in the appropriate spaces provided by either ticking against the answer of your choice or indicating your opinion where necessary.

Do not indicate your name on the questionnaire sheet.

SECTION A: SOCIO-ECONOMIC BACKGROUND

1. (a) Gender(i) Male [ ] (ii) Female [ ]
   (b) Age [ ]

2. Marital status

   (I) Single [ ] (ii) Married [ ]
   (ii) separated [ ] (iv) Divorced [ ]
   (v) Widowed [ ]

3. Sex of Household head (i) Male (ii) Female

4. Level of Education attained

   (i) None [ ] (ii) Primary [ ]
   (ii) Secondary [ ] (iv) Tertiary [ ]

5. Household composition: Number, Age and sex of persons in the Household.

		MALE	FEMALE
(i)	over 21	_____	_____
(ii)	16-21	_____	_____
(iii)	0-15	_____	_____
	TOTAL	_____	_____

6. How many are working in your household? _____
7. How much is your income (on average) in the Household per month? _____
8. What do you do for your living? _____

SECTION B: HOUSING

9. What type of housing unit is it?
   (i) Conventional [ ] (ii) Unconventional [ ]

10. How many rooms are there? _____

11. Is the dwelling unit.
   (i) Owner occupied [ ] (ii) Rented [ ]
   (ii) or other (specify) _____

12. What municipal services do you receive in this area?

(i)	Water supply [ ]	(ii)	Sewerage	[ ]	
(iii)	Drainage [ ]	(iv)	Solid waste collection		[ ]
(v)	Street lighting [ ]	(vi)	Education	[ ]	
(vii)	Health care [ ]				

13. List down the facilities you feel should be provided by the council to your area?

14. What is the most important service that you feel should be provided in our area as first priority

15. What is the construction materials for roofs and walls?
   (a) For walls:

(i)	Burnt bricks	[ ]	(v)	Asbestos or wood	[ ]
(ii)	Unburnt bricks	[ ]	(vi)	Pole and Dagga	[ ]
(iii)	Concrete blocks	[ ]	(vii)	Other specify	[ ]
(vi)	Stone	[ ]			

   (b) For roofs:

(i)	Concrete or cement	[ ]	(v)	Tiles	[ ]
(ii)	Asbestos	[ ]	(vi)	Other (specify) ...	[ ]
(iii)	Corrugated Iron	[ ]			
(v)	Grass	[ ]			

SECTION C - SOLID WASTE GENERATION AND DISPOSAL

16. What sort of solid waste is generated in your household?

17. How do you dispose the waste generated in your household?

18. (a) Does the council provide any services in waste collection?
(i) Yes (ii) No

(b) If yes, what services are they?

(c) How often?

SECTION D: WATER AND SANITATION

(a) What is your source of water supply?

(i) piped (ii) Bore-hole/well [ ]
(iii) River/stream [ ] (iv) Other (specify) _____

20. How far is the nearest stand pipe provided by the council from your home?

(i) within the dwelling unit [ ] (ii) within 10m [ ]
(ii) within 20m [ ](iv) Beyond 20m [ ]

21. Is the water supply communal of private? ___

22. If communal, about how many households use it?

23. How much do you pay on average per month for water bills?

SECTION E: SANITATION

24. What type of toilet facility do you use?
(i) Flush [ ] (ii) Bucket [ ] (iii) Aqua-privy [ ]
(iv) Pit-latrine [ ] (v) Open-air defecation
(vi) Other (specify) _____

25. Who provided the service?

26. How many households use the facility?

27. If you use a pit-latrine, what is the distance between the toilet and the house?
(i) within 1m __ (ii) Between 1-5m __ (iv) Between 5-10m __
(iii) Above 10m

28. What sewerage system is used?

(i) septic tank __ (ii) cess pool (iii) soak pits __
(iv) VIP latrines __ (v) Other (specify) ____

29. How is the Drainage?

___ Good (only infrequent localised flooding)
___ Average (infrequent flooding with perhaps a major flood every year.
___ Poor (major flooding, every year).

SECTION F SOURCE OF ENERGY AND ENERGY USE

30. Does your house have Electricity?
(i) Yes ___ (ii) No ___

31. If your answer is No, why are you not connected?

32. Do you use charcoal in your home?
(a) Yes __ (b) No ___

33. If Yes, why do you use charcoal?

34. Where is the charcoal you use obtained?

35. How often do you use it?

(i) Daily __ (ii) Sometimes due to power failures or faults with the stove

36. What ways do you use your charcoal?

(i) Cooking (ii) Iron (iii) Both

FOR ELECTRICITY USERS

37. How much did you pay for the initial cost of installation?

38. What is your comment on cost of installation?

39. How much do you pay for electricity Bills on average per month?

40. What do you use for cooking and heating?
(i) Electric stove (ii) Charcoal burner __
(iii) Firewood (iv) Other (specify)

41. Why do you use the mentioned above?

42. What problems do you face in this compound?

43. Who do you blame for the problem that you face in Chawama?

Give reasons for your answer

THANK YOU FOR YOUR COOPERATION

APPENDIX II

INTERVIEW SCHEDULE FOR OFFICIALS

TOPIC: AN ENVIRONMENTAL PROFILE OF AN URBAN SQUATTER SETTLEMENT, CHAWAMA COMPOUND IN LUSAKA.

DATE:_____ HEALTH OFFICIAL

1. How many health services are in the area?

2. How are the fertility and mortality rates?

3. Which diseases are common in his area?

4. What are the likely causes of the diseases?

5. What is the occurrence rate of Diseases associated with sanitary conditions?

6. What efforts are being made to stabilise the occurrence of these diseases.

7. When do you have the most occurrence of diseases?

8. What problems is the clinic facing (tick the appropriate)

   (a) Poor supply of drugs [ ]
   (b) Declining quality service related to under staffing [ ]
   (c) Patient congestion due to inadequate space [ ]
   (d) Lack of medication [ ]
   (e) Other (Specify) _____

SECTION B: OFFICIAL AT ENVIRONMENTAL COUNCIL OF ZAMBIA (E.C.Z) DATE: _____

1. How is the drainage of Chawama compound?

2. What environmental hazards are common in the area?

3. How are you combating this hazards?

4. What environmental concerns are raised by the following:

   (a) Poor and inadequate solid waste management?

   (b) Inadequate and unsafe water supply and poor sanitation?

(c) Poor housing

5. What kind of information, would you need about the environment profile of a squatter settlement.

6. Who is responsible for the management of the wastes generated in Chawama?

7. How is the solid and liquid waste managed?

SECTION C: HOUSING OFFICIAL DATE: _____

1. How many houses are there approximately in Chawama?

2. What materials are used for most houses in Chawama compound?

3. (a) Are the houses serviced?

(i) Yes (ii) No

(b) If No, why not?

(c) If Yes, what services are offered?

(I) __ Water supply
(ii) __ sewerage
(iii) __ Drainage
(vi) __ Education
(iv) __ solid waste collection
(v) __ street lighting
(vi) __ Health care

4. What Environmental problems are raised by the poor housing quality?

5. (a) Is there any squatter settlement upgrading scheme in the area?

(i) Yes (ii) No.

(b) If yes what are its priority areas?

6. What information about squatter settlements would be useful in your work?

SECTION D: OFFICIAL FROM THE COUNCIL DATE: _____

(To be answered by local authorities in Lusaka District)

1. What is the official policy on squatter settlements?

2. What measures have been taken to control the growth of unplanned settlements in Lusaka.

3. Has there arose a situation in the District, whereby squatters have occupied land that the council planned for the uses.

   (i) Yes (ii) NO

4. If yes, name the settlement(s).

5. What does the council intend doing about this/these settlement(s)?

7. Are there any plans to improve Chawama?
   Yes [ ] No [ ]

8. If yes, what approaches will be used?

9. If No, what are the reasons?

10. What other problems are you facing as the local authorities as a result of Chawama compound?

11. Are there any services or utilities provided to the Chawama residents by the local authorities?

    (i) Yes [ ] (ii) No [ ]

12. If yes, list down the facilities and services

13. If No, what are the reasons?

14. What information about squatter settlements would be useful in your work?

THANK YOU VERY MUCH FOR YOUR COOPERATION.