ENVIRONMENTAL PROBLEMS FACED BY KAMANGA UNPLANNED SETTLEMENT OF ZAMBIA AND THE ROLE OF ENVIRONMENTAL EDUCATION

BY

CHERRY MONGA

A dissertation submitted to the University of Zambia in partial fulfillment of the requirements for the award of the Master of Education (Environmental Education) degree.

THE UNIVERSITY OF ZAMBIA

LUSAKA

2011

DECLARATION

I **CHERRY MONGA,** declare that this dissertation hereby submitted is my own work and it has not previously been submitted for any degree, diploma other qualification at the University of Zambia or any other University.

Signed……

Date………

CERTIFICATION OF APPROVAL

This dissertation by Cherry Monga is approved as a partial fulfillment of the requirements for the award of the Master of Education (Environmental Education) degree of the University of Zambia.

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DEDICATION

This dissertation is dedicated to my parents, Eugene J H Monga and Julia H Monga who encouraged me to enroll for a master's programme. I dedicate all my efforts to produce this work to them

ACKNOWLEDGEMENTS

I would like to thank the residents of Kamanga who were the respondents in the research, who without their help this report would not have been possible. These respondents gave up their time to share their knowledge with me.

The success of this report is also as a result of my family- my Father, Mother, Cindy, Garry and Glen for encouraging me and being there for me throughout the course of my masters' programme. For the financial, moral, emotional and material support they gave me.

I would to thank my Supervisor Dr C. M Namafe for guiding me when writing my proposal and finally my dissertation.

The Principal planner Mr Chiengi at the Ministry of Local Government and Housing for answering all the questions I had. The planning department and the research unit at the Lusaka City Council for helping me with material that they had on unplanned settlements

The Chairperson at the Resident Development Association (RDA) office in Kamanga settlement, who gave me a brief background to Kamanga settlement.

My friends, course mates and colleagues for encouraging me during the course of my programme, when it seemed too much to bear, they were My place of work, for giving me a flexible timetable so that I could manage to attend classes and do my research work. May the Almighty God richly bless them all.

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CSO	Central Statistical Office
DTF	Devolution Trust Fund
ECZ	Environmental Council of Zambia
EE	Environmental Education
HIV	Human Immune Virus
LDHMT	Lusaka District Health Management Team
MOH	The Ministry of Health
NGO	Non Governmental Organization
MLGH	The Ministry of Local Government and Housing
NWASCO	National Water and Sanitation Council
RDA	Resident Development Association
TB	Tuberculosis
UNCHS	United Nations Centre for Human Settlements
UNDP	United Nations Development Programme
UNEP	United Nations Environment Program
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Or ation
UNIP	United National Independence Party
WHO	World Health Organization
ZDHS	Zambia Development Health Survey
ZESCO	Zambia Electricity Supply Corporation

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ABSTRACT

Kamanga settlement is located about 14km east of Lusaka town. It is an upgraded settlement, meaning that it has been accorded legal status with basic services like water, schools and improved sanitation. This study investigated Environmental problems which were faced by residents of Kamanga settlement after being upgraded and the role that Environmental Education could play in addressing the identified problems. The aim of the study was to find out Environmental problems faced by the Kamanga unplanned and the role of environmental education in addressing such problems. To achieve this aim, the objectives were to find out environmental problems faced by residents of Kamanga after upgrading it. To investigate if Environmental Education (EE) is addressing the problems faced by the residents of Kamanga settlement. To find out whether or not there is EE in Kamanga and to find out if EE has brought improvements in Kamanga.

A case study was used so that Kamanga could be described in detail and bring about deeper insights and better understanding of the problems faced by the residents of Kamanga.

Even if Kamanga had been upgraded, it still faced a number of problems. Most housing structures presented danger to the lives of the people there due to overcrowding and poor ventilation which exposes residents to a number of respiratory diseases. The houses were made of low quality materials which sometimes easily collapse during heavy rains. Most of the residents of Kamanga rely on pit latrines. There were few houses which had individual flush toilets connected to individual septic tanks. Due to lack of space between houses, the pit latrines were constructed close to the houses. In some cases two to four households used one pit latrine.

To reduce on unplanned settlements, there was need to some form of regulations on rentals so that people were not exploited. People could not afford to rent good houses in good residential areas because the rent was usually high, therefore they ended up in unplanned settlements.

Houses were not made from laid down plans from architecture and they were generally built by residents themselves. In the old Kamanga, a lot of houses were made out of mud bricks with unconventional building materials. There was need to streamline building standards, regulations and other controls in unplanned settlements once they are upgraded.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

Chapter one provides a historical outline of unplanned settlements in Zambia. The Chapter also looks at Environmental Education and its role in finding solutions to problems faced by Kamanga settlements. The location and description of the study area is also given including the population and physical characteristics of Kamanga.

1.1 Background

Cities are focal points of opportunity. Hence, there is always a movement of population to cities. This movement of people increases the pressure on existing facilities of housing, schools and health centres leading to congestion and mushrooming of unplanned settlements. The adverse impact of urbanization on ecological balance is mainly reflected through deforestation. An increase in urban population increases the demand for fire wood partly because the rise in prices of oil based fuels like kerosene, (Karpagam, 1999). In the tropics, 80% of all wood harvested is simply burnt as fuel. The consumption of firewood in many cities is high because of poverty and the proliferation of unplanned settlements resulting from urbanization, (Karpagam, 1999). The growth of unplanned settlements in cities is a consequence of several complex factors, one of them being the lack of planning and inability to rehabilitate the labour, which moves to the urban areas. (Kapoor, 2001). The influx of people into urban areas (before and after independence) created a problem of human settlement. During the colonial times, the shortage of housing in the urban areas led the African population to turn to settlements on

privately owned land in the vicinity of the major towns. These settlements evolved into permanent communities and became known as unauthorized compounds.

Despite having a long history of physical planning, Zambia has been experiencing increasing problems associated with unplanned settlements. A rapid increase in the urban population the limited capacity of the government to meet the high demand for building plots has led to the mushrooming of unplanned settlements (The World Bank, 2002). The land administration and planning policies which have often been seen as rigid inadequate to meet the ever increasing demand for housing for the poor majority have also been associated with the mushrooming of the unplanned settlements. The growth of the unplanned settlements has resulted in many socio-economic and environmental consequences of pollution, deforestation, flooding and waste of agricultural land.

The phenomenon of informal settlements in Zambia cannot be fully understood without looking at Zambia's population growth, trends and its characteristics, (The World Bank, 2002). The discovery of copper on the Copperbelt in the early 1900s and the subsequent mining activities and construction of a rail-line cutting right across the country, were the economic factors that prompted many people to migrate from their villages to urban areas in what was called the rural-urban drift, (The World Bank, 2002). This may have started happening several decades before and yet its effects were only beginning to mature in the 21st century.

Politicians could not duck the blame for the problem of unplanned settlements as it had been documented over the years that community political leaders had been in the forefront in issuing illegal plots in undesignated areas. (www.daily-mail.co.uk)

Lusaka, the Capital City of Zambia, had a population of 1,743,843, (2010 census). It had a growth rate of 2.5 percent per annum (LDHMT, 2007). Of this population at least one third lived in unplanned settlements. Although the unplanned settlements existed in Lusaka more than 50 years before, their growth was particularly rapid from 1964 when Zambia attained her independence. The economy of Zambia expanded rapidly and attracted large numbers of rural-urban migrants. The majority of the people who came to Lusaka ended up building in unplanned settlements. These unplanned settlements were treated as a threat and there were periodic attempts to destroy them and repeated verbal denigration. Later a new government policy towards unplanned settlements was passed which stated hat, unplanned settlements had to be upgraded instead of demolishing them.

Kamanga was one such settlement. It was one of the unplanned settlements in Lusaka City of Zambia. The name Kamanga is a Chewa word which means 'to tie'. The settlement was named after Mr. Reuben Kamanga, the then Vice President of the Republic of Zambia in the UNIP government in 1967. The settlement was named after him to honour him for his contributions to the development of the country. It was also a way to discourage the Council from demolishing the settlement, (Yasini, 2007). The settlement was on a farmland belonging to a white commercial farmer called Mr. Spar Olomosi. After Zambia gained independence in 1964, the white farmer left the country and a farm labourer assumed responsibility of the land, (Yasini, 2007). With time people started living there. This is how Kamanga came about.

In 1974 there were about 650 housing units. In 1980, a community school was built by the residents in an old dilapidated beer hall, (Lusaka City Council, 2008). Kamanga started as an

unplanned settlement, but was later upgraded to an improved settlement in 1992 with the help of Irish Aid. The community school was upgraded to Primary School, then later to a Basic School. In 1999 Kamanga was legalized by the government under statutory and improvement Areas Act of 1999. This meant the residents were now able to obtain occupancy Licenses which were renewable after 30 years.

Kamanga Settlement consisted of two areas, an old part (popularly referred to as the old Kamanga) and a new one (popularly referred to as the Overspills). The houses in the old part were mainly made of mud bricks and were built very close to each other. The roofs were either made of iron roofing sheets or cast- off metals. Heavy objects are placed on roofs to prevent the sheets from being blown off by wind. In the new area called 'Over- spill', the houses were a bit planned and were of medium cost. The word 'Over spill' means extensions of the existing settlements to provide sites for those who had to be removed in order to make way for roads or water pipes, (Yasini, 2007).

During the expansion of Lusaka, many contractors simply let land to their own construction workers on which they could build their own houses the rge housing areas in the city of Lusaka grew from this kind of compound and people continued to call them compounds. A compound is a term originally applied to fenced areas where workers were allowed to build their houses. It was later used for all kinds of houses supplied by the employer and for self- built houses outside the planned areas, (Schlyter and schlyter 1979). In 2000 there were 37 informal settlements in and around Lusaka- Zambia made up of 9 old sites and services

settlements and 28 squatter settlements, of which 13 have not been legalized, (The World Bank, 2002).

1.2 Definitions of 'unplanned settlements.'

Problems exist both in defining 'unplanned settlements' and in obtaining reliable data on the number of people who live within them. The definition of unplanned settlements is context-specific therefore various definitions have thus been proposed, but the one suggested by the UN Habitat Programme is probably the most widely applicable. UNCHS (1995) defines unplanned settlements as areas where housing is not in compliance with current planning and building regulations (unauthorized housing).

Many other terms and definitions have also been devised for unplanned human settlements. For example, informal settlements, squatter settlements, marginal settlements, unconventional dwellings, non-permanent structures, inadequate housing and slums. Other problems occur in measuring the extent or defining the boundaries of such settlements. By definition, officially recognized boundaries to these settlements rarely exist, and the settlements themselves often merge almost imperceptibly into formal areas of housing, industrial or rural areas. (UNCHS, 1995).

According to Srinivas, (1991), there are essentially three defining characteristics that help us understand unplanned settlements, the physical, the social and the legal characteristics with the reasons behind them being interrelated.

a. Physical Characteristics:

"Due to its inherent "non-legal" status, an unplanned settlement has services and infrastructure below the "adequate" or minimum levels. Such services are both network and social infrastructure, like water supply, sanitation, electricity, roads and drainage; schools, health centres, market places etc. Water supply, to individual households for example, may be absent, or a few public or community stand pipes may have been provided, using either the city networks, or a pump itself. Informal networks for the supply of water may also be place. Similar arrangements may be made for electricity, drainage, toilet facilities. This is sometimes done with little dependence on public authorities or formal channels" (Srinivas, 1991:1)

b. **Social Characteristics:**

"Households in most unplanned settlements mainly belong to the lower income group, either working as wage labour or in various informal sector enterprises. On average, most earn wages at or near the minimum wage level. But household income levels can also be high due to low income earners and part-time jobs. A number of people found in unplanned settlements are predominantly migrants, either rural-urban (people who move from rural to urban areas) or urban-urban (people who move within urban areas). But many are also second or third generation squatters" (Srinivas, 1991:2).

c. Legal Characteristics:

"The key characteristic that delineates an unplanned settlement is its lack of ownership of the land parcel on which they have built their house. These could be vacant government or public land, or marginal land parcels like railway setbacks or

"undesirable" marshy land. Thus when the land is not under "productive" use by the owner, it is appropriated by a squatter for building a house. It has to be noted here that in many parts of Asia, a land owner may "rent" out his land for a nominal fee to a family or families, with an informal or quasi-legal arrangement, which is not however valid under law" (Srinivas, 1991:2)

The population of unplanned settlements is usually very high compared to the conventional areas. The population is growing very fast due to high birth rates and immigration of people from rural areas. The housing infrastructure is without laid out plans and this presents a danger to the lives of the people because the houses are overcrowded and there is poor ventilation. The houses are also made of poor quality materials such as mud bricks which can easily collapse during the rainy season.

At independence in 1964, Zambia experienced an unprecedented rural-urban migration. This migration increased the urban population to proportions beyond the absorptive capacities of urban areas and created a severe shortage of housing and urban services. The shortage of housing and urban services has persisted to this day, (UNCHS, 1995). Rapid urbanization and inadequate capability to cope with the housing needs of people in urban areas have contributed to the development of informal settlements. Living in these settlements often poses significant health risks. Sanitation, food storage facilities and drinking water quality are often poor, with the result that inhabitants are exposed to a wide range of pathogens and houses may act as breeding grounds for insect vectors, (WHO, 1999). Cooking and heating facilities are often basic, with the

consequence that levels of excessive exposures to indoor pollution may occur and access to health and other services may be limited and overcrowding can contribute to stress.

1.3 The role of Environmental Education in finding solutions to problems faced by Kamanga unplanned settlement.

Environmental Education is all about learning to care the earth, other people and ourselves. The well being of each of these three parts of our total environment is inextricably connected with the others. Environmental Education is an ongoing process which focuses on the whole picture and identifies connections between the parts. deals with values and seeks to develop within people a desire to care for their environment.

Learning how to care for our environment involves understanding concepts about the environment, developing sensitivities through the environment and fostering values that commit us to acting for the environment. Knowledge about and experience of the environment have limited value unless they are accompanied by a desire actively care for the earth, other people and ourselves, (5^{th} National development plan). This is the core of EE and the people of Kamanga are trying to care for their natural environment though the successes are minimal**.**

There is increasing environmental awareness among different stakeholders. These include the people of Kamanga, the Government of Zambia, donors, NGOs among others. This is in trying to come up with solutions to problems faced by people in unplanned settlements. This awareness can be seen in the participation of Nongovernmental Organizations, the Irish Aid and other community based organizations in Kamanga.

Environmental Education has been identified as an approach which can provide solutions to address environmental concerns. Environmental Education is multifaceted and deals with conflicts of interest in people's use of nature, environmental degradation, exploitation and division of resources with the aim of educating and having informed and active citizens. According to Panneerselvam and Ramakrishnan (2005), UNESCO drew up objectives towards environmentally responsible behavior among social groups and individuals. They include;

- **"Awareness -** to create an overall understanding of the impacts and effects of behaviours and lifestyles on both the local and global environments, and on the hort-term and long-term.
- **Knowledge -** to help individuals, groups and societies gain a variety of experiences in, and a basic understanding of, the knowledge and action competencies required for sustainable development
- **Values -** to help individuals, groups and societies acquire feelings of concern for issues of sustainability as well as a set of values upon which they can make judgements about appropriate ways of acting individually and with others to promote sustainable development
- **Skills -** to help individuals, groups and societies acquire the ion competence or skills of environmental citizenship in order to be able to identify and anticipate environmental problems and work with others to resolve, minimize and prevent environmental problems.
- **Participation** - to provide individuals, groups and societies with opportunities to be actively involved in exercising their skills of environmental citizenship and be actively

involved at all levels in working towards sustainable lopment".(Panneerselvam and Ramakrishnan, 2005:7)

1.4 Location of Study Area

According to the City Council measurements as seen on the billboards, Kamanga is located about 14 kilometers East from the city center. It lies opposite Chelstone Police Camp on the left hand side of the Galaunia Road off the Great East Road. It shares its boundary with Chamba Valley to the north, Kaunda Square to the west and Chelstone to the east. The settlement has a total surface area of about 526,211.98 square meters.

Kamanga consists of 2 parts an old part and a new part. There was no proper layout of houses and roads in the Old Kamanga. The houses were mainly built with mud bricks and were constructed close to each other. New Kamanga (overspill area) was planned; the houses are mainly medium-cost housing units

1.5 Population of study area.

As of 2000 census, Kamanga had a total population of about 9,139, the number of households was 1,751 and the average household size was 5.2. (CSO, 2003)

1.6 Physical characteristic

The area though originally covered by Miombo woodlands, it has currently been cleared for the creation of settlements situated on slightly higher ground; the area contains fersiallitic soils suitable for cultivation of a wide range of crops. This may explain why the area was previously a farm.

1.7 Statement of the Research Problem

Kamanga compound started as an unplanned settlement. ugh an upgraded settlement by 2011, it was still facing a number of problems. These problems were found in all the dimensions of the environment, that is, natural, social, economic and political. Is there any Environmental Education taking place in Kamanga? How is Environmental Education addressing such problems, if at all it is? There was no clear answer to this question and yet there was need to find out how the environment was negatively or positively affected by the people of Kamanga, and then to use Environmental Education to address such effects on the Environment. Environmental education was a lifelong learning process, therefore there was need to find out if EE was taking place in Kamanga?

1.8 Aim of study

This study aimed at finding out Environmental problems faced by Kamanga Unplanned settlement and how Environmental Education could address them

1.9 Objectives

To achieve the aim of this study, the objectives included:

1. To find out environmental problems faced by the residents of Kamanga after upgrading it.
2. To investigate if Environmental Education was addressing the problems of Kamanga settlement if any.
3. To find out whether or not there was Environmental awareness in Kamanga.
4. To find out if environmental awareness if any had brought improvements in Kamanga.

1.10 Research Questions

1. What Environmental problems were faced by residents of Kamanga compound after the upgrading of the settlement?
2. Is Environmental Education addressing problems found in Kamanga if any?
3. Was there any environmental education going on in Kamanga?
4. Had environmental education if any brought any improvement in Kamanga?

1.11 Significance of the Study

This study may increase knowledge and awareness on unplanned settlements and the problems that residents face. It may also provide information to the public to know the criteria used in upgrading unplanned settlements. The information may be of use to the council to know exactly what the people need in unplanned settlements and how hey can be helped. The study will provide readily available information on Kamanga that can be used as a base for similar projects in other unplanned settlements and may also help researchers fill in the gap and add to the existing bank of knowledge.

The study will also be an eye opener for what the residents can do for themselves in trying to make their lives better.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

Chapter two is divided into two parts, that is, unplanned settlements, Environmental Education. An overview of unplanned settlements from the global perspective is presented. This is then narrowed down to the Zambian situation. Environmental Education is also presented.

2.1 The World Situation

Cities in the third world continue to grow. Deteriorat urban living conditions were drawn to the attention of the world during the UN Conference for Human settlements in 1976. Since then it is recognized that shanty towns not only prevail but also that the larger part of the additional urban households have settled in such areas. Most additions to the housing stock are made outside any plan or officially approved housing projects, (Schlyter, 1984)

The ongoing urbanization trend was causing growth in u d settlements at a faster rate. (The World Bank, 2002). This was because most of the people who move from rural areas to urban areas ended up living in unplanned settlements because they could not afford to rent houses in low density areas.

Poverty levels were worse in unplanned settlements tha elsewhere in the city. This was because most people found in these settlements were either not working or had jobs which made it difficult to support their families. They were mainly ved in small businesses whereby the profit they made sometimes was not enough to sustain the business and to feed the family, (The World Bank, 2002).

Access to adequate housing is a fundamental human right which should be enjoyed by everyone. Yet, this right is far from being achieved and constitutes one of the universal problems as no single country has so far resolved the housing deficit. According to the United Nations (more than a billion people are living in poor conditions in terms of housing while millions are homeless. People living in unplanned settlements both contribute to and are victims of urban pollution. High population densities and unregulated urban growth combined with a lack of environmental services cause residents to further contribute to the poor environmental quality of informal settlements. The environmental risks of these settlements perpetuate the cycle of urban environmental degradation and contribute to greater economic and environmental vulnerability, both for low-income households and the urban area at large.

Unplanned settlements are a multi dimensional concept ing aspects of poor housing, overcrowding, lack or inadequate services and insecure tenure. All these are evident and are seen in practically all parts of the world but with higher in the developing world cities, (Ameyibor et al, 2003). It has been estimated that one third of the worlds' urban population today do not have access to adequate housing and lack access to safe water and sanitation. This is because these people live in overcrowded and unserviced areas often situated on marginal and dangerous land.

2.2 The African Situation

Lessons learned from developing countries show that the informal settlements with the least land security also harbor the greatest in-migration and population density. They face the greatest environmental risks and have the least coverage of urban services. Without effective property

rights and legal or de facto recognition of informal settlements, the urban poor have neither the incentives nor the proper legal channels to reinvest in improving their communities and to strengthen the social networks necessary for community environmental planning and upgrading. Cities in the third world countries have continued to grow leading to housing problems being very serious in most African, Latin American and Asian cities. General facts about urban housing problems are well known and were recorded for in connection with the United Nations conference on habitat in 1976, (Schlyter, 1979).

Human settlements in urban areas in Tanzania fall into two categories, that is, planned and unplanned settlements. The main concern for this study is unplanned settlements.

Some of the characteristics of unplanned settlements are lack of basic community infrastructure services such as water supply, proper sanitation facilities, access roads, drainage and proper waste management system. In Tanzania the urban centres are developing at an unprecedented rate, with corresponding increasing levels of urban dwellings and industrialization, hence subjecting them to high concentrations of-made pollution, (Azzan et al, 2005).

In Dar es Salaam, it is estimated that there are 55 major unplanned settlements accommodating about 70% of the city's population which is approximately 2-3million people, (Blinker et al 2006). Most urban areas do not have sewerage systems and therefore pollution from sewage is a problem as there is inadequate collection and treatment. 80% of Dar es Salaam's residents are served by on-site sanitation with severe problems of overflowing particularly during the rainy seasons. (Blinker et al, 2006). Only small percentages of the generated solid waste is collected and disposed of resulting into heaps of uncollected waste open spaces, streets, roadside and

drainages. This represents significant health hazards as well as a source of surface and under-groundwater pollution.

The increased population of unplanned settlements is as a result of migration. Rural migration to the urban centers usually originate in areas with low agricultural production where the use of land often exceeds its carrying capacity. Moreover rural- urban migration is accelerated by the lack of local opportunities for both formal and informal employment,(Cole,1995). Excessive migration combined with inadequate infrastructure faci ities in the urban centers causes significant environmental concerns. In general, due to absence of adequate physical planning in cities and towns of Tanzania, the current environmental problem issues are evident in cities and towns in Tanzania.

2.3 Situation in Lusaka- Zambia

The first towns or urban areas in Zambia were created by the British South African Company, (Knauder, 1982). In the towns there was separate development from the beginning for Europeans and the African urban populations. The houses for Euro were of substantial value and high architectural quality, sited on planned layout of individual large plots with spacious gardens and servants quarters within the plots and had the necessary community facilities.

The small portion of Africans who were provided with h sing were given low cost houses, with almost no facilities in locations segregated from Euro residential areas. These African compounds were usually far from the main places and sited in environmentally and aesthetically poor areas. (Knauder, 1982). Accordingly the housing conditions in the African compounds were

miserable. There was no provision for housing Africans. Building constructors for instance recruited labourers but expected them to build their own houses.

Lusaka was one such City created by the British African Company. It is the most populated city, yet it occupies one of the smallest districts in the country. It is one of the most rapidly urbanizing cities in Africa. Lusaka was planned to be a spacious garden city for the British and South African settlers. Africans were regarded only as temporary workers in town. Consequently they were supposed to need temporary houses,(Heisler, 1970). The employers arranged with land owners for workers to be allowed to build huts for themselves in the so called compounds. Such compounds were often the nuclei around which squatter later developed. A policy of stabilization of the working class was followed in the 1950s by the building and management of city council housing areas, (Heisler, 1970). These areas were and are still largely let to employers who sublet them to their employees. However the provis ient. After independence migration controls were abolished and the population of Lusaka grew very fast.

About 70 percent of Lusaka's population lives in poor, unplanned settlements comprising 20 percent of the city's residential land, (The World Bank, 2002). In the official housing policy in Zambia during (1965- 1969), the policy was to build low cost houses and to provide serviced plots (Schytler, 1979). However funds allocated for this kind of housing were far from sufficient and the costs were too high for most workers. People started to build houses on crown or on private land outside town. With time large squatter settlements developed all around Lusaka during these years. A necessary condition for the fast growth of squatter settlements was that the land owners did not protect their land. This was the case concerning the land of absentee landlords who were mainly British citizens not living in Zambia (Schytler, 1979). This means

unplanned areas grew out of the control of the authorities. The growth of unplanned settlements on the outskirts of Lusaka, beyond industrial areas and their location far from the city centre was thus far a result of colonial town planning ideas.

In 1964 after independence, the rapid immigration into Lusaka caused severe housing problems leading to large squatter settlements developing all around Lusaka. The growth of the squatter settlements was completely beyond the control of the authorities,(The World bank, 2002). Initially squatters were treated as a threat, and there were sporadic attempts to destroy their houses, but gradually a government policy towards squatter settlements was presented in the 2nd National Development Plan, published in 1972. It said squatter settlements had to be upgraded instead of being demolished. The housing (statutory an improvements area) Act was approved in 1974 and made it possible to legally recognize the unplanned areas. The squatter house owners were to be given an occupancy license renewable over 30 years. The occupancy license provided title only to the land on which the house stands. All surrounding space belongs to the council and permission had to be sought whenever an occupant desired to extend his house. (Rakodi and Schlyter, 1981).

Most unplanned settlements were located near the city centre, in the proximity of industrial areas or in the outskirts of the city along major roads. They were located on areas meant for agriculture, housing development or flood prone areas which were categorized unsuitable for human habitation, (Yasini 2007). For example Chawama, Misisi, New Kuku, Kanyama, Ngombe among others were flooded during the 2009/2010 rainy season, (Mwelwa, 2010).

After heavy rainfall, the settlements experience flush floods which cause extensive damage to houses and property. Floods also form pools of stagnan water which become breeding ground for mosquitoes and other disease carrying bacteria.

2.4 Profile of Kamanga unplanned settlement.

Houses were mainly informal and not made from plans an were generally built by residents themselves. There were no laid down plans which people followed when they were building. This was why it was difficult to improve unplanned settlements because some houses were built over pipes.

Over 65% of the respondents said they owned their plot or house but only about 15% had title deeds to the land (The World Bank, 2002). Most residents had no proof that that they owned the land on which they had built their houses. This means the owners did not have security of tenure because there was no proof that they had bought the land on which the house was built.

Roads were of unpaved gravel and in poor condition with no drainages. This was usually sorted out through food for work involving the residents of Kamanga who had tried to make drainages. Some roads became impassable during the rainy season - (especially the road leading to Kamanga Basic School.

Water was supplied from Lusaka Water and Sewerage Company's pipes, boreholes or hand dug wells. The former was erratic, while many of the stand posts had been vandalized. The Irish Aid built boreholes for the people of Kamanga to use, but time people started stealing spare parts. This led to some taps being closed (The World Bank, 2002).

The majority of residents used basic unprotected pit latrines, which polluted the ground water drawn from the shallow wells. Sharing of pit latrines very common in unplanned settlements. Most people used pit latrines because they were cheaper to build and there was no need for running water to use it. There is also no nee for pipes to be used when people have a pit latrine.

It would be quite difficult where to dig the pipes in of a flush toilet and where they would pass because land in unplanned settlements is used to maximum. The people who built houses or rooms for rent just build one toilet to be shared by more than three to four families.

2.5 Tenure in Unplanned Settlements

The problem of unplanned settlements is not peculiar to Zambia but is common to all big cities of the third world. Almost two thirds of families entering the housing market were forced to choose between installing themselves precariously and in the most central urbanized areas or seeking to accommodate themselves in rustic houses, made with their own hands, in the distant periphery without urban services.

According to Mudenda (2007), the non-formalised tenure of land in unplanned settlements raises in some way a number of fundamental issues. Firstly, unplanned settlements had been built by illicit invasion of private or public land. The land was illegally occupied or illegally subdivided. The settlers built their houses and established their settlements where ever they could and often

resorted to illegal water supply, that is, tapping nearby water mains and illegal electricity connections which are not safe.

Secondly, people in unplanned settlements could not afford to build according to official building codes. Their houses ignored health codes, zoning and building standards, and master plans which were beloved of city planners. Thirdly, the grant of legal title to settlers in unplanned settlements was a basic consideration in obtaining community support and providing a stimulus to self-help improvement of these settlements.

Fourthly, since the people in unplanned settlements did not know whether they would be evicted, they did not invest much in improving their houses or community. The crucial issue is that investing in housing was directly proportional to the perception of security non removal. Because of their illegality, the squatters were more vulnerable to pressure from corrupt civic officials.

Fifthly, in their relationship with the government, people in unplanned settlements were from the outset acutely aware of the illegality of their settlements, the dangers and struggles that they may have to confront and the various means of maximizing their chances of successfully laying claim to the occupied area. This may include such attempts as the cultivation of sympathetic publicity, rapidity of the invasion process so as to confront the government with an effective fait accompli and overt demonstrations of nationalism and greater awareness of political processes.

Sixthly, unplanned settlements were one of the most serious obstacles to change in urba form, this is because sometimes, the settlers built on sites ill-suited to housing or dangerous to health. This type of city building by settlers overwhelms the efforts of city planners, administrators, tax collectors and building inspectors.

2.6 Upgrading of unplanned Settlements

Since the late 1970s, when the first major upgrading scheme was enacted, Zambia has had a long history of upgrading initiatives to improve infrastructure, socio services, the environment and the general quality of life in unplanned settlements. These programs were supported by various donors, NGOs as well as the government through the Ministry of Local Government and Housing and the local authorities.

Upgrading is when unplanned settlements are accorded legal title for occupation and provided with basic services by the local authorities, (Yasini, 2007). Upgrading of squatter settlements has dominated discussions on how to approach the problem of the growing squatter areas. Upgrading usually means legalization and provision of infrastructure within the existing settlement. It was introduced as a policy in several African countries during the early seventies. A steadily increasing rate of the population in the rapidly growing cities was living in squatter settlements. Site and service schemes as well as low cost housing projects had failed to contribute to the housing of the poor. The squatter settlements therefore reached great dimensions that the environmental problems had to be recognized, (Rakodi and Schlyter, 1981).

Upgrading of Kamanga settlement started in 1992 with the help of the Irish Aid. During this process, a number of community infrastructure were built. They included upgrading of a community school and construction of extra classrooms, installation of seven boreholes, the provision of technical and material support in the construction of improved pit latrines and improvement of the inner roads with a drainage system. (Yasini, 2007). The project also embarked on a more comprehensive upgrading approach by including a small business development through business training and provision of loans. There were also training programmes in literacy, gender issues, participation training and technical works targeted at different community members and leaders. (Mate, 1997).

2.7 Major Causes of Unplanned Settlements

Along with the high natural growth rate of the urban p ulation, the urbanization process has led to the rapid growth of population in urban areas. In Tanzania, the urban population grew from only 27000 (20%) in 1948 to 204,774 (32%) during 1988 and climbed further to reach 391,519 (40%) in 2002. The land authority was overwhelmed by the ever increasing number of urban dwellers who wanted land for shelter. After failing to obtain planned and serviced plots, individuals opted for buying pieces of urban fringe crop land and developing them (Cole, 1993). Many of the people did not even bother to look for planned plots as the open alternative existed. Many unplanned Settlements were hence established.

At the centre of the unplanned Settlement phenomenon lies the question of poverty. With an average annual per capita income of less than US$200, the majority of the population can be categorized as poor. To construct a house in a planned area one needs to enough money to

buy a plot and build a “decent house”. On average a plot of 400 square metres is sold between US$ 4,000 and 5,000 which is beyond reach for many residents. Therefore, for some people to build a house is a life time project. People start constructing houses by using mud and thatch and these are gradually replaced over time by cement bricks and corrugated iron sheets. This process can take years; there are houses that were built in the 1960s and 1970s which can still be regarded as unfinished, even though families have been living in them for all these years.

The only place that allows this common practice to take place is in an unplanned area where neither drawing nor building permits are required. Thus, a ious circle is created whereby poverty leads to unplanned settlements and unplanned settlements breed poverty.

There are still many urban dwellers that feel very comfortable living in unplanned Settlements and perceive it as the only place where you can ‘enjoy life’ which entails sharing and togetherness among neighbours. They consider the well planned and serviced areas (where residents build high fencing walls) to be places of people of high income brackets. Some of these areas have been dubbed as places which the ‘poor’ cannot afford to build. In the minds of the residents, there is no doubt about the “legality” of their houses. Recent surveys on unplanned settlements indicate that security of tenure is generally not considered to be an issue, as once you build a house no one can claim ownership of it (Azzan al 2005), and there is almost no possibility of being forcefully removed from the area.

2.8 Problems of unplanned settlements

Most cities’ problems cannot be addressed in isolation and residents must be part and parcel of any solution to make cities better places for human ha We have exploited the natural

environment to our will, and we are faced with a severe environmental crisis. This problem is not limited to any particular country or region, it is global. It is up to the national and local authorities together with residents to take up the initiative and leadership role to improve their cities in terms of unplanned settlements which are found everywhere and are a manifestation of poor policies.

Until now, town councils and politicians have been at loggerheads over the illegal issuance of plots, a situation that has led to the increase in the number of unplanned settlements across Zambia. The two have been, blaming each other for the mushrooming of unplanned settlements in many cities across the country. The sprawling of poorly controlled settlement developments has resulted in many environmental and health related problems. For example, lack of sewers and site drainage may lead to the formation of pools of contaminated water, flooding may cause pit-latrines to overflow and uncollected solid wastes are of in open spaces where they contribute to health problems.

Absence of building codes has led to unsafe building structures that have a greater risk of fire, collapse and electrocution, (WHO, 1992). Uncontrolled settlement development is causing physical disorder, uneconomical land utilization, and xcessive encroachment of settlements into good agricultural land, environmental degradation and ollution risks (Cole, 1995). It is usually very difficult for the government to send social and economic infrastructure/services to these areas due to the lack of space and accessibility. One of the reasons is that some roads found in unplanned settlements are narrow making it difficult to access these settlements.

As the population of Zambia continues to grow, especially in the urban areas, the lenge by Government to find long-term solutions for the planning of settlements becomes even more complex. The last three national censuses that were conducted in the country showed a substantial growth in population from the 9.5 million recorded in 1995 to 10.8 million in 2000. (CSO, 2003). It is estimated that Zambia's population will increase over 14 million by 2015.These estimates can only mean one thing, more unplanned settlements in the heart of many cities and towns where nearly half of Zambia's 10.5 million people live in unplanned settlements will increase. In Lusaka, 70 per cent of the population lives in unplanned sub-standard settlements. This status has led to the shoddy delivery of social services to the community by councils.

Many townships in Lusaka today are unable to access adequate water in their homes while their sewerage systems do not operate effectively as they should due to over-population. The water and sewerage systems in many residential areas are simply not designed to cope with big numbers. Sanitation is the collection, treatment and disposal of human excreta domestic waste, in a safe and hygienic manner, which is affordable and sustainable. (ECZ, 2001). It has been estimated that approximately 80 percent of preventable diseases in Zambia are related to poor sanitation, (MOH, 2001). While there are piped water supply systems that are operational in most parts of the country, this is not the case for sewerage systems. In general, households in Zambia do not consider improvements in sanitation as much a priority as access to safe drinking water. (NWASCO, 2005).

Many off site sanitation systems are either in poor condition or non-functional. The Zambia Demographic and Health Survey (ZDHS) report of 2002 revealed that most households in Zambia (53 percent) use traditional pit latrines. The residents of Kamanga rely on ordinary unprotected pit- latrines. There are few houses which have individual f toilets connected to individual septic tanks. Due to lack of space between houses, the pit- latrines are built close to the houses. About 16% of the residents do not have toilets facilities, (DTF, 2005). The effect of unprotected pit- latrines on health and the environment include contamination of soil and water and outbreak of diarrhea diseases.

It is wrong if an impression is given to suggest that Government did ot and has not tried to adequately address the problem at hand. On the contrary, the different governments of the day have tried to address the problem of accommodation by a number of low-cost housing settlements. In more recent times, Government embarked on a programme of building more mass housing units to arrest the mushrooming of unplanned settlements in Lusaka and other cities and towns in Zambia. The attempt by the previous government(under President Chiluba) to construct mass housing at the Bennie Mwiinga site in Lusaka and Ndola were genuine efforts to tackle the urban housing crisis. (Mwelwa, 2008). The only problem is that most Zambians cannot afford t rent or buy these houses.

The phenomena of unplanned townships in Lusaka and other towns of Zambia has clearly brought to light the lack of responsiveness and lack of preparedness of the local authority to anticipate and plan ahead of the people. The influx of people from the rural areas to the towns could have been turned into a positive phenomenon. It is important to note that the provision of

the services to a concentrated population is cheaper than providing infrastructure and services to a scattered rural population. But due to the nature of unplanned settlements in many urban towns throughout the country, it has been difficult for the to provide the much-needed basic services. (Times Reporter, 2010).

During the 2009/2010 rainy season, due to the heavy rains experienced in Zambia, a number of unplanned settlements were flooded, namely Chawama, Kanyama, Mis i, Ngombe, and Mandevu among others. The houses were submerged in water forcing the residents to wade through filthy water ponds when leaving their homes. This is one of the problems some unplanned settlements face every year during the rainy season because their houses were built in flood prone areas. About one thousand flood victims in Lusaka had to be relocated to the temporary site near the Independence Stadium. (Times Reporter, 2010). The shifting of the residents was not a lasting solution. It was the only option the government had in trying to prevent people from contracting diseases from the dirty water which surrounded the houses. At the temporary site at Independence stadium, the people were using mobile toilets. This was not very conducive because the toilets were not enough for the people living there. Initially the young children suffered because they were not going to school hence they missed out on a number of things. Later temporally shelter was put for school going children to start attending school there in makeshift tents.

The Town and Country Planning Ordinance (CAP 283) provides the legal framework for urban planners and managers to execute their responsibilities without any hindrances. The trend in most unplanned urban settlements is that the office responsible for Town and

Country Planning has failed to enforce standards and as a result, the urban habitat has continued to degenerate as days roll by. The evolution and growth of these unplanned settlements in urban areas generate political interests such that their demolition becomes difficult even though the planning is backed by planning legislation to ensure that there is discontinuation of such negative development. There is need for both parties to find a solution to the mushrooming of unplanned settlements which is slowly but surely damaging the face of our urban areas.

2.9 Major effects of the Unplanned Settlements

The sprawling of poorly controlled settlement developments has resulted in many environmental and health related problems. Uncontrolled settlement development is causing physical disorder, uneconomical land utilization, and excessive encroachment of settlements into good agricultural land, environmental degradation and pollution risks (Cole, 1995). It has become very difficult for the government to send social and economic infrastructure/services to these areas due to the lack of space and accessibility. The most common consequences of the expanding unplanned settlements include the following.

Expansion of the unplanned human settlements has been the major cause for pollution of ground water sources. Loss of vegetation around water sources reduces water while poor disposal of liquid and solid wastes cause water pollution (Cole 1995). There have been frequent outbreaks of water born diseases like cholera and dysentery, particularly during high rainfall seasons, due to contamination of the drinking water.

One of the fundamental problems faced by unplanned settlements is the lack of a proper system for waste management. Due to the lack of established collection points, piles of garbage are scattered in and around residential areas which leads environmental and health problems. Few residents opt to bury or burn their wastes close to their residences (Ameyibor et al 2003). As there is no centralized sewage system, liquid waste which includes water from washing, laundry, kitchen, bath and other domestic uses is haphazardly discharged onsite. This disposal practice which pollutes the groundwater is a major cause of water born diseases.

Natural forests and catchment areas are being invaded by the expanding human settlements. The ongoing shrinkage of the *Masingini* forest on the outskirts of Zanzibar Town due to the expansion of settlements. This practice has reduced the amount of ground water and resulted in environmental degradation

Haphazard construction of houses has blocked many natural water ways and has led to frequent floods during the rainy seasons particularly in the months of February, March and April of every year. Soil erosion and landslides are strongly related to flooding which destroys houses as well as footpaths and unpaved roads (Ameyibor et al 2003). Houses and other properties are washed away by floods forcing the inhabitants to vacate the areas. A high housing density, which most of the unplanned settlements are characterized by, makes natural seepage of storm water more difficult due to a high share of sealed land. Flooding which results in the overflow of pit latrines and septic tanks is also a major cause for pollution of water sources and marine environments. Due to the non-existence of drainage systems, storm water creates big puddles that become breeding places for mosquitoes which is the cause of malaria.

Despite being small in geographical size, Zanzibar in Tanzania is still an agricultural economy with over 70 per cent of its population dependant directly on the agricultural sector for their livelihood. The uncontrolled expansion of human settlements has led to conversion of the best agricultural land into settlements, (Cole, 1995). There have been genuine complaints and warnings by the Ministry of Agriculture that the agricultural land is consistently decreasing due to over expansion of human settlements. The loss of agricultural land means a decrease of crop production and income of poor agricultural families.

Lack of access to unplanned settlements is one of the most common problems caused by and experienced by residents in these settlements. Because there are neither the layout plans nor the regulatory machinery, residents tend to build to almost 100 per cent of their plot size. It has become impossible to provide access roads to these areas as there is no space for this. Likewise, no area is left open for social services like schools, hospitals and children's play grounds. Consequently, people and service movement in these areas is very restricted.

2.10 Governments' Past Performance in terms of housing

The Government of Zambia for a long time has not addressed the problems facing housing sector adequately. During the First Republic, the Government could only provide few institutional houses for government employees as well a limited number of conventional rental housing under the control of local authorities. Most institutional houses were sold to sitting tenants, this means new government workers have to look for other accommodation. The majority end up living in low cost houses and unplanned settlements.

Although site and service programmes were introduced, hese were inadequately funded. Consequently, the proliferation of unplanned settlements in almost all the urban centres continued unchecked while civic authorities failed to provide them with such social amenities as water, roads and sanitation facilities.

Unplanned settlements and urban poverty are not just a manifestation of population explosion and demographics, but are as a result of failure of housing policies, laws and delivery systems as well as of national and urban policies (Ameyibor et al, 2003). The most important factor that limits progress in improving housing and living conditions of low income groups in unplanned settlements is the lack of genuine political will to address the issue in a fundamentally structured, sustainable and large scale manner, (Ameyibor et al, 2003). Unplanned settlements result from a combination of poverty or low incomes with inadequacies in the housing provision systems so that poor people are forced to look for affordable accommodation and land that becomes increasingly inadequate. The numbers of urban people in poverty are to a large extent outside the control of governments and are swelled by a combination of economic stagnation, increasing inequality and population growth especially growth through in-migration. In the long term, as more people pour into the urban areas, the land available for unplanned settlements is constantly shrinking, thus causing more congestion and heightened social tension. The fundamental need is to stem the tide of migration to urban areas by reducing rural- urban disparities.

In 1991, the total national housing stock was estimated at 1,501,898. This increased to 2,311,988 in 2001 (Table 1). This dismal performance is reflected in the current distribution of

the total national housing stock which shows that about 80 percent of the houses are unplanned and poorly serviced or not serviced at all.

Table 1: National Housing Stock

	1991		2001
Housing Type	No. of Houses	% of total stock	No. of Houses
Traditional	988,249	65.8	1,527,301
Squatter	160,703	10.7	242,771
Site and Service	58,574	3.9	87,743
Low cost	241,806	16.1	381,498
Medium cost	24,532	1.7	32,369
High cost	26,034	1.8	39,306
Total	1,501,898	100	2,311,988

Source: NHA 2001 Annual Report

Adequate and decent housing plays a fundamental role in health promotion and the quality of life of humans. The shortage of housing and urban services has persisted as the country continues facing the effects of urbanization. Out of the total housing stock in only 31 percent meet the minimum development and health standards, 69 percent is non compliant to housing standards and are poorly serviced.(MOH,2001). The prevailing levels of poverty in the country have not enabled many to afford decent housing structures. The insufficiency in the housing stock has resulted in residents renting out rooms on a large scale which has led to the mushrooming of informal structures, often built on reserved space between premises. (ECZ, 2008).

The manner in which land is occupied in unplanned settlements contravenes land, health and town planning laws, (Mudenda, 2007). For example in Lusaka, the area where John Laing and Msisi compounds are situated is zoned for commercial and Industrial use. In 1975 the then President of Zambia gave a speech were he alluded to the problem of unplanned townships. The President observed and commented that, "Townships have sprung up virtually from nowhere in many cities and towns as well as in the country side. In future, this will create immense social problems of which we already have enough. Therefore from now onwards, local authorities must see to it that no unauthorized buildings are erected within their areas of jurisdiction. You have the powers, use them".

Local authorities have powers under the local government Act, Public health Act (Building regulations) and town and country planning Act to inter alia demolish unauthorized buildings. If these laws were vigorously enforced, the squatter problems could have been under control. This was not done, with the result that today, local authorities and town planners are faced with immense problems of unplanned settlements.

2.11 Environmental Education

Environmental Education is a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivat and commitments to make informed decisions and take responsible action, (UNESCO, Tbilisi Declaration, 1978). In order to address environmental challenges, we need people in the unplanned settlements to think broadly and understand systems, connections, patterns and causes of problems found there. The challenges

the people themselves frequently have in terms of social, cultura economic and ethical aspects, all of which must be considered for their effective living in unplanned settlements.

Environmental education is an ongoing life long process which focuses on the whole picture and identifies connections between parts. It deals with values and seeks to develop within people a desire to care for their environment. Environmental Education provides the knowledge, concepts and skills necessary for people to make informed decisions and take responsible actions that will result in the greater well being of the earth, other people and the planet as a whole (Environment Australia, 1999). Environmental education often aims to change people's perceptions about the value of the natural world and to teach how to change behaviors, such as getting people to recycle or how to build eco-friendly dwellings, (Neill,2000). Environmental Education must start early preferably at Pre-school and continue through primary and secondary school. The adult population is usually taught through the use of NGOs, community based organizations, government Ministries and parastatals.

Environmental education can therefore be taught as a separate subject or incorporated into one or more particular subject areas. The right answer may vary from situation to situation, depending on what is most practical, suffice to say, a much stronger re-orientation of all relevant areas of formal education towards issues of sustainability is required.

Equally important is the need to establish better comm links between the people working on and those learning about environmental issues. Better grounds for communication and partnerships are also required between formal and non formal education settings, and

between various groups with competing interests on environmental issues working in the same area.

One of the most fundamental defining characteristics of effective environmental education is that it must lead to actions which result in better environmental outcomes, not simply the accumulation of inert knowledge or impractical skills. For example, the food for work project in Kamanga of digging and clearing the drainage along the main road is putting environmental education into practice. This is ultimately the yardstick by we are able to measure the effectiveness of our efforts in environmental education, (Environment Australia, 1999).

A whole range of organizations in the public and private sectors are involved, using different messages to target different audiences. Examples include - local and national governments, private sector, academia, NGOs, professional bodies, research organizations, donor agencies, UN and international organizations, community, citizens groups, and media. The target groups for Environmental education should be the man on the street, the people in unplanned settlements, the policy and decision makers, business and industry. The scale of Environmental education starts with an individual, household and a community all the way to the nation, region and the globe.

According to Asthana and Asthana, (1999), Environmental Education has a fundamental role to play in motivating people to adopt environment friendly practices. People cannot be expected to act in an appropriate way without awareness of the problems, its causes, the impact on their daily life and the long term consequences. Many problems concerning the environment are simply

there because so many people contribute little bits and pieces to it, all of which put together assumes enormous dimensions. A little effort, a little care by each individual in the community could eliminate the entire problem. Starting from the grass- root levels, Environmental Education should involve all sections of our society.

The rapid expansion of cities in both the developing and developed world has forced policy makers to re-think their approach to dealing with the problems of the urban poor and those who live in unplanned settlements. Innovative and robust policies are necessary for governments to protect the livelihood of each citizen. However, as globalization and international development speed along, the average citizen is increasing his/her own capacity to make change. Rather than waiting for government intervention, many communities are forcing the issue v organizations, education and action, (Puppin, 2003). This is good because if the initiative is from the people themselves they will try to see it through compared to if its brought in by people who do not live there.

Many policy makers and governments have come to realize that the most valuable resource available to improve the poorest communities is the manpower and motivation of those residing in the community. The community should be educated on the importance of a clean environment. In as much as this can help, there is no definitive answer to the questions posed by the challenges of making a city sustainable. Through environmental education some people are trying to bring change in the areas where they live, for example in Dhaka the government is seeking to minimize and eliminate the unplanned settlements by giving legal land title to poor dwellers, providing basic services, and the development of a credit scheme for building and renovating in

poor areas, (Puppin,2003). The poor lack political, economic and social power; however, the government's plan is clearly willing to rely on the creativity and strength of the people, which is its most valuable resource.

It is said that knowledge is power. Therefore, there is urgent need for all our leaders, (Members of Parliament, Councilors, Traditional leaders, Church leaders and other leaders of various institutions) to be well informed on the environment and other relevant issues which must be passed on to their communities. Members of the media and other key personnel in the area of communication need to focus their attention on health d other environmental issues and ensure that the public at large are kept informed of the benefits that a clean and healthy environment will bring for them, their families, and the community at large.

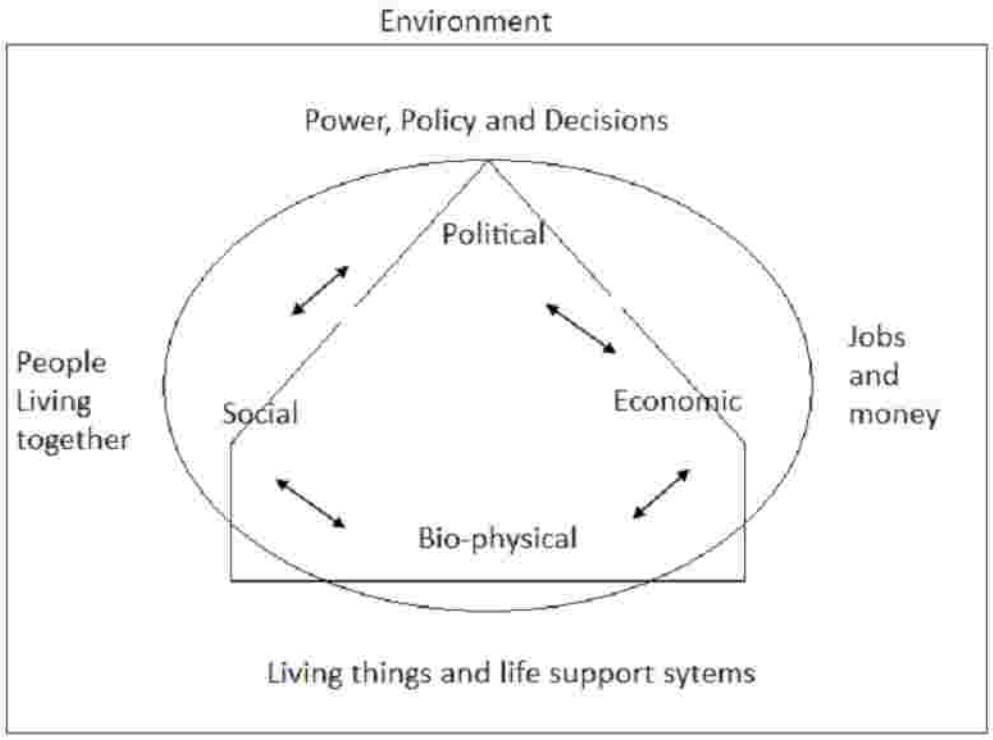
Government recognizes that achieving sustainable development in Zambia requires access to data and information so that those involved in decision making can reach the level of knowledge and understanding needed for successful programme planning and service delivery. For this reason, the country has been engaged in periodic production of State of the Environment Outlook reports in order to provide for an assessment of the environment so as to raise awareness and understanding of environmental trends, their causes and consequences among stakeholders. (ECZ,2008).The Government of Zambia is optimistic that through the environmental assessment and reporting process, there will be increasing responsibility for environmental planning and management at all levels. Government through the Environmental Council of Zambia is raising awareness levels on the nature and background of environmental challenges facing the city and attempts to show the linkages between society and the environment.

Environmental education of the public through presentations at schools and information sharing with the media and environmental NGOs can help in sensitizing people in unplanned settlements. During the 2009/2010 rainy season Zambia experienced high rainfall which led to a lot of unplanned settlements flooding. This resulted in most ool going children not being able to go to school because the roads were impassable. (Mwelwa, 2010). This led to learning being suspended in most unplanned settlements that were flooded. The media carried stories on the areas that were likely to be flooded and those that had flooded. This was in the hope of warning people and giving them enough time to start preparing early on where they could find refuge if the flooding got worse. Very few prepared and as a result a lot of people were stuck and they had nowhere to go and property was damaged. The vulnerability of people in unplanned settlements can be seen when such a situation happens because people have no other alternative of where they can go, hence seeking temporally shelter and then waiting for the rainy season to end before going back to the same flood prone area.

2.12 Essentials of Environmental Education

Environment is made up of different components, namely natural, economic, social (society) and political environments,(Kim le Roux, 2001)

Figure 1 Dimensions of the environment.



Source: Kim le Roux 2001

For people to have good quality life, all the dimensions of the environment need to be in a good condition. Unfortunately this is not the case, especially in unplanned settlements. There are a number of problems which usually stem from one dimension of the environment and spill over to the other dimension. For example, when you look at the economic dimension, some jobs that people get involved in, for example quarrying have a negative impact on the natural environment. The policies made by the government also have an effect on the people. For people to have a good quality life, the dimensions of the environment need to be in harmony with each other, that is, the natural, economic, social and political environments,(Kim le Roux, 2001)

Under natural environment;

- There is need to live in harmony with nature
- There is need for proper use of natural resources

- There should be Responsibility towards future generations

Under Economic environment;

- There is need for Integration of environmental protection into processes of development
- There should be Fair market conditions

Under Social environment;

- There is need for concern for human health and development
- There is need for the eradication of poverty and ensuring equity among people.
- Public participation is very important among people and should be encouraged.

Under Political (institutional) environment;

- There is need for cooperation among states regarding laws
- Information, science and capacity building need to be encouraged.
- Environmental Impact assessment to be done and adhered to.

These parts are interdependent and should not be seen s separate or competing. The quality of these interrelations defines the health and wellbeing the total environment. Problems arise in most unplanned settlements because one dimension of the environment is not functioning well. For example if the policies are not made for the good of the people, it means the effect will also be felt in the other dimensions.

2.13 Ministry of local government and housing and the Council

The majority of land on which unplanned settlements are situated is publicly owned. These settlements must be recognized by municipal administrat and declared by the national

government, through the Ministry of Local Government and Housing (MLGH), so that occupiers of plots within can obtain tenure. The department of Physical Planning and Housing in the MLGH considers regularizing an unplanned settlement if:

- Ø 60 percent or more of the land on which the settlement is located is publicly owned.
- Ø The settlement has been in existence since 1974
- Ø Development for which the land is zoned on the development plan is not imminent.
- Ø 50 percent or more of the dwelling structures in the settlement are constructed of conventional materials.

After a settlement is declared an "improved area", the city council is able to issue 30 year occupancy rights. Most occupants of houses in unplanned settlements deem this to be an acceptable form of tenure that gives them adequate security.

2.14 Legal frame work

Residential development is regulated by two separate pieces of legislation, namely:

1) The Town and Country Planning Act Cap. 283 of the Laws of Zambia; and
2) The Housing (Statutory and Improvement Areas) Act Cap. 194 Zambia.

2.14.1 Housing (Statutory and Improvement Areas) Act

The Housing Act Chapter 194 of the laws of Zambia was enacted especially to deal with squatter compounds. The act refers to two different kinds of areas, the Statutory housing Area which is the land of Site and Service schemes and of council housing estates. These areas are with demarcated plots and may be declared statutory housing areas.

The other is the Improvement Areas, which is the land of informal settlement, where plots are not officially demarcated, maybe declared by the Minister of local government as improvement areas. The Housing Act Chapter 194 of the laws of Zambia requires that an improvement area plan be established by the Council for each improvement area. The plan should contain the following details; the name and description by which the area is known or to be known, the existing roads if any. An improvement area plan has to show no plot borders, but the location of buildings.

2.14.2 The Town and Country Planning Act

The Town and Country Planning Act regulates development in formal or conventional residential areas whereas the Housing (Statutory and Improvement Areas) Act provides for the legislation of unplanned or informal housing areas and the subsequent upgrading of these areas.

The two Acts are mutually exclusive. In other words, what is permitted under the Housing (Statutory and Improvement Areas) Act is not permitted under the Town and Country Planning Act. The Housing (Statutory and Improvement Areas) Act provides the legal protection for unplanned settlements which otherwise would be illegal under the Town and Country Planning Act.

It is, therefore, important to note that any structure constructed in any town or in Zambia, must be covered by one of these two Acts mentioned or else such structures are illegal and liable for appropriate enforcement action. It should also be noted that as a nation, if we want to develop beautiful, clean and pleasant towns and cities, there is need to abide by the laws that have been put in place for that purpose.

The responsibility of having an unplanned settlement legalized and declared as an "Improvement Area" under the Housing (Statutory and Improvement Areas) Act lies with each local authority which has to be approved by the Minister of Local Government and Housing. To this effect, the Ministry of Local Government and Housing has given each council a set of criteria for determining which unplanned settlements would be favorably considered for legislation.

To control the construction of illegal structures in the council and avoid the situation of demolishing illegal structures without the provision of alternative land or houses to the victims of demolition, the Ministry has directed all the local authorities to take action immediately as follows:

1. identify unplanned settlement(s) for legalization and upgrading and submit the same to the Ministry for consideration with a view to declaring eligible ones as "Improvement Areas";
2. Urgently identify land on which to relocate people in the unplanned settlements not to be legalized;
3. Open up Squatter Upgrading Programme bank accounts, particularly for Lusaka, Ndola, Kitwe, Livingstone, Kabwe, Kasama and Kafue to enable the Government facilitate the funding of the upgrading programme;
4. Report any officer or councillor implicated in the illegal al ion of land to the police for possible prosecution and in the event of an officer, to terminate their services as well; and
5. Monitor the construction of structures in council areas to ensure that only legalized constructions are done.

2.15 Summary of Literature Review

Studies have shown that unplanned settlements are a common phenomenon all over the World. Most unplanned settlements lack basic infrastructure, roads, drainage and waste management systems. Unplanned settlements and urban poverty are as a result of failure of housing policies, laws and delivery systems as well as of national and urban policies. The most important factor that limits progress in improving housing and living conditions of people in unplanned settlements is the lack of genuine political ill.

Studies have also shown that Environmental Education is an ongoing lifelong learning process which focuses on the whole picture and identifies connections between parts. It deals with values and seeks to develop within people a desire to care for their environment. EE provides the knowledge, concepts and skills necessary for people to make informed decisions and responsible actions that will result in the greater well being of earth, other people and the planet as a whole.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter looks at the methods which were used in carrying out the research. A combination of both qualitative and quantitative research methods used in this study. This was so that there could be a comprehensive understanding and interpretation of the study of Environmental problems faced by kamanga unplanned settlement in Zambia and the role of Environmental Education.

3.1 Research design

A case study was used so that Kamanga settlement could be studied in detail. According to Kombo and Tromp (2006), a case study seeks to describe a unit in detail, in context and holistically. It is a way of organizing educational data and studying it as a whole.

This study allowed for an in depth investigation of the problem at hand. It also brought about a deeper and better understanding of the problems faced by the residents of Kamanga.

The study of Kamanga settlement was both qualitative and quantitative type of study.

3.2 Data collection

Both secondary and primary sources of data were used.

3.2.1 Secondary Sources

This involved the collection of relevant literature useful to the research. This included books and news papers from national archives, books from the University of Zambia main library and the internet.

3.2.2 Primary Sources

Field surveys and observations were used to find out the spatial pattern of the houses and other buildings found in Kamanga area. It was also important to see how people disposed off their garbage and what they did in order to have a clean environment. Questionnaires were used for the residents to find out information in order to meet the objectives of the study. Interview schedule was used for the Principal Planner at the Min of Local Government and Housing and the Lusaka City Council.

3.3 Sample size and sampling method

The sample consisted of 60 respondents. These were determined using quota sampling. Kamanga is divided into 4 overspills plus the original Kamanga. This made the quotas five. Therefore 12 respondents were interviewed from each overspill including the old Kamanga, (the first area people lived in Kamanga). Therefore 12 respondents x 5= 60 respondents.

The respondents included;

- Residents of Kamanga
- Ministry of local government representative
- The council representative

3.4 Data collection instruments

Questionnaires were used for the people of Kamanga settlement.

Interview guide was used for the officials from the Lusaka City Council and Ministry of Local Government and Housing.

Observation also played an important role in seeing how the houses were arranged, how the drainage was, how they disposed waste among others.

3.5 Data Collection Procedure

Data collection started in August 2010 and ended in October 2010. I went to the office of the Resident Development Association (RDA) where I spoke to the chairperson who gave me background information on Kamanga compound. I was given the go ahead to carry out my research. Data collection was done with the help of a of Kamanga, who knew exactly where different overspills started from. The research was done in the morning and afternoon. Those who could read would answer the questionnaires on their own, for those who could not read, the questions were read for them.

At Lusaka City Council, I was directed to the Planning Office, who gave me some documents on unplanned settlements. At the Ministry of Local Government and Housing, I was directed to the principal planner, who gave me the history of unplanned settlements in and what the Ministry is doing in unplanned settlements. The two officers gave me information on unplanned settlements.

3.6 Data Analysis

Excel was used in the analysis and tabulation of the collected quantitative data. For qualitative data, thematic analysis was used. The major subjects that came up during the interviews were identified and categorized into related topics.

3.7 Limitations to the study.

The findings from the study may not be generalized to other unplanned settlements.

Data collection will need a lot of money for easy movement and since the finances were inadequate, movement was not very easy. There was also language barriers depending on where the respondents came from.

CHAPTER FOUR

DATA PRESENTATION

4.0 Introduction

This chapter presents the key findings of the problems of unplanned settlements and role of Environmental Education.

4.1 Characteristics of Respondents

The characteristics of respondents include age, level of education and employment status.

Table 2 Age range of respondents.

Age group	**Number of Respondents**	**Percentage**
15 -19	7	12
20 -24	15	25
25 -29	12	25
30 -34	8	13
35 -39	10	17
Over 40 years	8	13
TOTAL	**60**	**100**

Source; field data (2010)

Age was used as a variable so as to find out what the young and old people knew about environmental education since it is a lifelong learning process. Some of the respondents were born in Kamanga hence they knew the problems that the residents experienced, therefore it was important to hear what problems the younger and older people would come up with.

The next variable examined by this study was level of ion. This was important because there was need to know how far the respondents had gone with their education so that it could be established what they knew about environmental education and if it was there in Kamanga.

Table 3 Level of education attained by respondents.

Educational level	**Number of Respondents**	**Percentage**
Primary	6	10
Secondary	30	50
Tertiary	24	40
Total	**60**	**100**

Source: field data (2010)

All the respondents have received some form of education. This means that they are able to explain in their own words what they understand about environmental education and also be able to answer questions on the problems of unplanned settlements in Zambia and the role of environmental education.

From table 3, 50% of respondents have gone as far as secondary education, while the lowest (10%) of the respondents have gone as far as primary education.

The next variable that was looked at was employment status. This was considered because it was important to find out where people were employed and establish the type of impact that they had on the environment.

Figure 2 Employment status of Respondents

From figure 2, the employment status of the respondents is such that 53% were in the formal sector, 30% were in the informal sector and 17% were unemployed. The effect of the people in the formal sector on the environment was minimal compared to those in the informal sector and the unemployed. The effect of those in the informal sector was direct and usually affected the environment negatively, for example quarrying.

The other variable examined by this study related to the length of stay by respondents in Kamanga. Length of stay was deemed to be important for this study because the respondents gave different problems which they had faced from the time they moved to Kamanga. The problems given varied between those who had lived there for a short period of time and those who had lived in Kamanga for a longer period.

Table 4 Length of Stay in Kamanga

NUMBER OF YEARS	NUMBER OF RESPONDENTS	PERCENTAGE
1 year	6	10
2 -6 years	22	36
7 -11 years	6	10
12 -16 years	13	22
15 years and above	13	22
Total	**60**	**100**

Source: field data (2010)

According to table 4, 36% of the respondents, stated that they had lived in Kamanga for 2-6 years. The smallest number of respondents (10%) stated that they had lived in Kamanga for 1 year as well between 7-11 years. A number of respondents had lived in Kamanga for a good number of years hence they knew exactly the problems the residents faced on a daily basis. These respondents were also able to say exactly the improvement that they had seen after Kamanga was upgraded.

The next variable examined by this study was where the respondents lived before they moved to Kamanga. This was deemed to be important for this study so that it could be established where people who lived in unplanned settlements (Kamanga) came from.

Figure 3 where Respondents came from

Source field data 2010

According to figure 3, thirty percent (30%) of the respondents came from outside Lusaka, 70% moved to Kamanga from other residential areas within Lusaka. There was a lot of movement within Lusaka. Ownership of houses was another variable looked at. It was necessary to find out how many respondents owned the houses they lived in and to find out from those who are renting how much they paid and for what type of house.

Table 5 Ownership of houses

	Number of Respondents	Percentage
Rent the House	**38**	**63**
Own the House	**19**	**32**
Institutional House	**3**	**5**
Total	**60**	**100**

According to table 5, most residents (63%) in Kamanga were renting the houses they lived in, while (32%) lived in their own houses and 5% lived in Institutional houses. Even if people lived in their own houses, they had no title deeds. (The World Bank, 2002).

The rentals in Kamanga start from as low as K60, 000, ($12.5) to as high as 2 million kwacha ($416.67). These rentals were for a single room to a complete house.

Figure 4 Type of Energy used by respondents

Source field data 2010

Wood fuel remains the principal source of energy for most households in Kamanga. In Kamanga, 47 percent had electricity, 35 percent used charcoal, 5 percent used wood and 13 percent used both charcoal and electricity. Not all the people who had electricity were legally connected. Others were illegally connected; this was very dangerous because people could be electrocuted because there were so many naked wires in the houses, no sockets and plugs. This was extremely dangerous in homes where there were young children.

4.2 Housing

Kamanga is made up of the old Kamanga and 4 overspills. In the old Kamanga a lot of houses were made out of mud bricks with unconventional building materials. The Overspills on the other hand had houses which were bigger and had more space and there was some form of plan.

4.3 Educational facilities

Kamanga only had one government school and a number of private schools and a community school in the area. The key constraints that the government school faced were inadequate material for use and inadequate room for learning. Those who could not manage to go to school within Kamanga go to neighbouring schools. These include; Chainda, Chakunkula, Chelstone, Kapwelyomba, Tunduya, Mumana and many others.

4.4 Income Generating Activities

Residents of Kamanga were involved in a number of economic activities in order to survive. The majority of residents in Kamanga were involved in small businesses of selling at the market, or along the road, house servants, and bricklayers. Other activities were brewing illicit beer; this was a very common feature in unplanned settlements. Other people were surviving from charging residents of Kamanga who drew water from their taps.

Human induced activities as a result of construction and quarrying were common and contributed to land degradation. Quarrying of building stones was on the increase because a lot of people were building. In as much as quarrying is a money making venture, it was quite dangerous as people got hurt. The majority of people who were involved were women and children. Some of the school going children missed out on learning so that they could make money for the family.

4.5 Social Service Providers

4.5.1 Samalila Ukhondo

Samalila Ukhondo is a Non-Governmental Organization which operated from Kamanga. It offered garbage collection services. Their aim was to keep the surroundings clean and disease free. The main key constraints was that very few pew people knew the advantage of keeping the surrounding areas garbage free and few people were able to pay the disposal fee.

4.5.2 Drive away Vulnerability in domestic Youth Empowerment Practical Skills Project.

This is a Non-Governmental Organization which dealt with Youths in schools, out of school children, women, men and children. They provided services such as skills training, recreation facilities, sanitation, HIV and AIDS intervention and awareness. They also provided adult education, nursery, consultancy and other community activities based on NGO networking.

The organization participated in road network protection, worked with the waste management unit and have trained youths in welding and catering.

4.6 Problems found in Kamanga

4.6.1 Lack of Access to Kamanga

Lack of access to Kamanga was one of the most common problems caused by and experienced by the residents of unplanned settlements. This is because there were neither the layout plans nor regulatory machinery; residents tended to build to almost 100 percent of their plot size. It had become impossible to provide access roads to Kamanga as there was no space for this. Likewise no area was left open for social services like schools, hospitals, children's play grounds.

4.6.2 Waste Management

Kamanga has started facing the problem of waste management. This was attributed to the rapid increase in population growth. The municipal authorities lacked financial capacity and human-power to collect and dispose of the waste at designated places. The uncollected waste had become a major concern for the authorities responsible for public health. This was because uncollected waste which made the environment dirty could lead to outbreaks of cholera and other diseases. There was also a general deterioration of the environment.

4.6.3 Garbage

There was careless dumping of garbage in Kamanga. In the original Kamanga houses were made out of mud and there was little space between the houses, this led to people throwing garbage anyhow because they had no room to dig rubbish pits. Others disposed garbage along the road, drainages and others burnt it. Community based enterprises also disposed of garbage at a fee. Many people would rather pay for water than disposal of garbage.

4.6.4 Water

When Kamanga was formed, there was erratic supply of water but now there is an improvement in water supply. Water is provided by the Lusaka Water and Sewerage Company in cooperation with the ward development committee. Water comes from four boreholes and is supplied through individual connections and communal taps, others get water from wells. The charge for communal taps is K38, 000 ($7.92) and K68, 000 ($14.17) for individual taps per month. Others pay K500 (10 US cents) for a 20 litre container from the community well, and still others pay K20, 000 ($4.17) from the Kamanga borehole.

Some of the challenges faced by Lusaka Water and Sewerage Company were that, the people had constructed houses over water pipes. This made it difficult to carry out maintenance works. Vandalism made it hard to meet the demand for water supply. Some scrupulous people destroyed and stole parts of taps and pipes. This was a draw back because instead of increasing the number of taps in an area, they would be busy replacing the damaged ones. Increase in population led to an increase in demand for water and this was not supported by the investment that was there. The resources that were used by a few people were still being used even as the population increases. There was no investment in new water sources. There was unwillingness in the people to pay for water as they did not take it as an economic good.

4.6.5 Toilets

The residents of Kamanga mainly used ordinary pit latrines. From field data, 58% used pit latrines, while 42% used flush toilets. There were a few houses which had individual flush toilets connected to individual septic tanks. Due to lack of space between houses, the pit latrines were constructed very close to the houses. In many instances the toilets were shared by more than three households. Pit latrines that were not properly constructed usually ended up contaminating the soil, water and could lead to outbreak of diseases.

4.6.6 Inadequate Recreational Facilities

There was a playing ground in Kamanga where people played football and other games. Unfortunately the football ground was being encroached in. There were some people who wanted to build houses in the playing ground. There were also some sport groupings being

formed like football teams and pool clubs. There were also cultural dance groups. These groups maybe there but the problem that arose was room where to train and practice from.

For most people bars served as places for recreation. They were found almost everywhere. There was also an increase in places where they brewed illicit beer.

4.7 How Environmental Education is being done

The majority of the people in Kamanga agree that Environmental awareness was there. From field data 73% agreed Environmental Education is there, while 27% id nothing. One of the ways through which Environmental Education was being done was through food for work. The roads were being repaired by the community. This was mainly done before the rainy season so that the drainage could be dug to reduce on flooding along the road. Sometimes the council workers went round the community with mega phones to talk to the people about the importance of a clean environment and not to throw garbage anyhow. The waste management unit had been introduced. They collected garbage when the council bins were full.

People were taught how to take care of and keep their toilets clean. They were also advised on the proper way of making a pit-latrine. Health workers from Chelstone clinic held talks with the people and shared information about health and how to keep their environment clean. This was very important especially during rainy season when people were sensitized on how to prevent cholera.

4.8 Improvement after Upgrading

There had been an Improvement of roads and creation of the drainage along some roads in Kamanga. This was done by the residents of Kamanga themselves and with the extension of the compound into overspills, it led to better and bigger houses being built.

Opening of the Irish community centre was good for the people of Kamanga. The community offers skills training programmes in catering, tailoring, welding and bricklaying. The centre also houses offices for the council.

There was an Improvement in water supply and putting of individual taps and communal around Kamanga. Initially the people used to go very early in the morning and had to stand in queues for a long time, but now there is an improvement in water supply.

CHAPTER FIVE
DATA INTERPRETATION

5.0 Introduction

This chapter presents an understanding of the results the problems of unplanned settlement and the role of environmental education. Quantitative data was analyzed using excel. The information was presented in form of tables, percentages and figures (pie charts).

5.1 Characteristics of Respondents

The respondents were well represented because there were teenagers as well as those who were in the twenties, thirties and forties. This was good in that it gave the researcher an idea of what people of all ages knew about Environmental education since it was a lifelong process which was not limited to a specific age group of people.

All the respondents had received some form of education. This means they were able to read and understand questions. The respondents who had gone as far as secondary education were (50%), followed by tertiary (40%) and a few have only gone as far as primary level (10%). More than half (54%) of the people had lived in Kamanga for more than seven years which means they knew the settlement well. This was good because they were able to explain the problems that they faced and were still facing in Kamanga. They went further to bring out the improvements that they had seen taking place in Kamanga settlement

The respondents who lived in Kamanga came from different parts of Zambia. Seventy percent (70%) of the people had shifted from within Lusaka that is; they had shifted from other

compounds to Kamanga, while 30 percent moved from outside Lusaka. People moved from other settlements to Kamanga. A number of reasons were attributed to this movement, for example, they could not afford the rentals in their previous place of residence, or it could be that it was close to their place of work. Others moved because their previous homes were not conducive for habitation.

The other reasons why people could have moved included, hope of improvement in social status or standard of living search for employment, educational and better medical nities. This is especially true of people who moved from outside Lusaka. People moved to Kamanga because the area was close to the road hence easy to transport goods and services. The area was not prone to heavy floods compared to other unplanned settlements like Ms , Kuku, and Kanyama.

Woodfuel is consumed in the form of fire wood and charcoal. According to Mwape (2006), it is estimated that about 700, 000 tons of charcoal were consumed annually and this was projected to increase by 2010 to over 1.2 million tonnes. Charcoal was mostly used in urban areas at 85 percent. The people of Kamanga used different sources of energy for cooking. Forty-seven percent of the respondents used electricity, 35% used charcoal while 13% used both, and 5% used wood for cooking. Those who used wood were few. This could be attributed to the fact that most of the forests had been cleared for settlements and agriculture, hence one had to walk too far just to find wood. When you look at Kamanga, areas where a person could find wood were very far and few. Firewood also causes air pollution hence the reduction in its use. Those whose houses were not electrified used charcoal. It was preferred because it was smokeless. Most of the

charcoal came from Chongwe and Kasisi. The people who sold charcoal had market in Kamanga. The negative part about using charcoal was that it led to deforestation of forests.

From field data it was established that there were more people who used electricity (sixty seven percent of the houses were electrified, while thirty three percent were not). This was because it was a clean source of energy which could easily be transported and divided over a vast area. Quite alright a lot of people used electricity, but not all of them were legally connected. Some people had made illegal connections of electricity to their houses. This was very dangerous as some connections were not safe and could lead to electrocution, or even the house catching fire. It also robbed Zambia Electricity Supply Company (ZESCO) of money which could be used for developmental projects in the country.

5.2 Housing

Adequate and decent housing plays a fundamental role in health promotion and the quality of life of humans. The shortage of housing and other services persisted as the country continues facing effects of urbanization. Out of the total housing stock in Zambia, only 31 percent met the minimum development and health standards. Sixty- nine percent (69%) was non compliant to housing standards and were poorly serviced. (MOH, 2001)

From the field data, it was established that about 63% of the people in Kamanga rented the houses they lived in. Only 32% owned the houses where they lived. The other 5% lived in

institutional houses (houses owned by Kamanga Basic School). The reason why most people rented houses was because the process of buying land was long and cumbersome and most people could not afford to buy land, let alone build a house of sub standard.

The rentals in Kamanga were from K60, 000 ($12.5) to K2, 000,000 ($416.67). The rate of rent was based on how many rooms were being rented, if the house was electrified, had water, what type of toilet the house had and many other factors, the rent maybe high. Some of the houses on rent were not worth the amount charged, but since people were in need of accommodation they ended up living there. For example, a one roomed electrified house was in the range of K350, 000 ($72.92) to K450, 000 ($93.75). Because people were usually desperate for accommodation, they sometimes paid a lot of money for shelter which was sometimes not good.

5.3 Educational facilities

There was only one government basic school in the area. The school was not enough to accommodate all the school going children. Therefore some school going children attended community schools while others went to private schools. At grade 10 the pupils had to look for school places in the surrounding areas, for example, Chelstone high school, Munali. This had resulted in classes being very full because anyone with a full certificate can be accepted at grade10. During the rainy season, there were times when children failed to go to school because the roads they used were flooded or their house was flooded. This resulted in them missing lessons.

5.4 Income Generating Activities

People had to find means and ways of surviving. They therefore engaged in a number of activities. They included, selling of items at markets, having a *kantemba,* brewing beer, some were house servants. Some income generating activities were not very safe; one such activity was quarrying building stones. This activity was mainly done by children and women. It was not very safe because people had lost fingers while crushing big stones into smaller pieces. Quarrying kept children away from school. Quarrying also spoiled the natural environment in that it left big and deep ditches on the ground. These were dangerous to people because one could have an accident and fall in it.

5.5 Social Service Providers

5.5.1 Samalila Ukhondo

This was a good initiative which was trying to keep Kamanga clean and disease free. Samalila ukhondo had not found it easy to carry out the job of garbage collection without funding. There was need therefore for the community to work together. The main hindrance was that people did not want to pay for some services provided in the community, but wanted things to be done for them because they thought it was the job of the council.

5.5.2 Drive away Vulnerability in domestic youth empowerment tical skills project.

Education was for life and environmental education was a lifelong learning process. This organization dealt with children from nursery up to when they are old. This was very good because learning was a continuous process and everyday there were new things that were

discovered. Apart from giving skills training to the people, they also held talks on various issues that affected the community, for example, sanitation, waste management and how to keep their environments clean.

5.6 Problems faced by Residents of Kamanga

There was lack of development in Kamanga because most roads were narrow and the area could not easily be accessed. This was because people built their houses without proper plans. This made it difficult for development to take place. For example if people wanted to improve on their toilets, it would be difficult because there was no room where to dig for pipes to pass. This was because some houses were built where the pipes would have to pass and they were also built close to each other. In terms of building social services, it was also difficult because there was no room for any buildings to be built. When people were building their houses, they tried by all means to use land to the maximum.

5.6.1 Waste Management

The rapid increase in population has contributed to the increase in waste generated. In the first place, due to inadequate space, people rarely dig pits. This means some people throw garbage anyhow. Samalila ukhondo is a good initiative which was trying to keep Kamanga clean by collecting garbage. The only problem was that most people could not afford to pay for the services.

5.6.2 Water

Although there was an improvement in water supply, it still tended to be erratic sometimes. Most people made sure they drew water in the morning. When Kamanga was upgraded, the Irish Aid

sank water tanks around Kamanga; there were 8 boreholes and at the Irish community there were five. This helped with water supply. With time people started stealing parts from taps and boreholes and some of them stopped working.

Lusaka Water and Sewerage Company also supplies water to the people of Kamanga. Those who had individual taps paid for their bills at the Residential Development Association offices. LWSC supplies water especially to the overspills.

Water comes from different sources such as wells, boreholes. The charges for water were different depending on where the water came from. People who drew water from communal taps paid between K38, 000 ($7.92) and K68, 000 ($14.17). Those who had individual taps paid up to K100, 000 ($20.83). This was so that pipes could be maintained. It had also become a money making venture because some homes charged for people to draw water from their taps. For example people were charged K500 (10 cents) for a 20 litre container.

People who drew water from wells were few. This was because sometimes the water was of poor quality. As of 2010, 70% of the respondents had their own taps, while 18% of the respondents got water from communal taps and about 12% got water from wells.

5.6.3 Toilets

When Kamanga started, a lot of people did not have good paying jobs. They therefore built houses which had pit latrines because there was inadequate space in most unplanned settlements, the pit latrines tended to be built close to the house or where they cooked from. Some toilets

were not very deep, meaning they could get full in a short time. If this happened it means there would be need to build another one, and with lack of space where to build one, it would be a problem. The toilets were not only used by a single family, most of them were shared between two families or among three or four families. This was not very hygienic because it was easy to catch diseases especially if there was no proper care and cleaning by the users.

From field data, fifty- eight percent (58%) of the respondents used pit latrines, while 42% used conventional toilets. Most people especially in the original Kamanga had pit latrines; one of the reasons was that they were cheaper to build. In the original Kamanga, the houses were close together with no room for expansion this means putting up conventional toilets would be difficult because there was no room to dig pipes since most of the land was already occupied. In some cases people did not have running water thus they ended up having pit latrines. The greatest disadvantage with pit latrines was the risk for pollution on the ground water. In densely populated areas where the water table was high, the wells became polluted and not usable for drinking purposes.

5.6.4 Garbage

The careless dumping of garbage in Kamanga was on the increase because of population increase. A lot of garbage is thrown in and around the council bin. The council bins were not emptied the minute they got full. This resulted in garbage overflowing. Such an environment was not conducive for people because diseases easily spread. The garbage was also thrown in drainages leading to them being blocked. Blocked drainages could cause flooding in the rainy

season and the negative impact of floods included loss of houses, property, life and pit latrines got flooded. When this happens it could be a health hazard.

The years of central planning created a significant problem, that is, the development of a culture of dependence on the state and the top down provision of services, which had resulted in people not expecting or wanting to pay for services enjoyed and consumed, but they wanted government to give them for free.

5.6.5 Inadequate Recreation facilities

Kamanga had inadequate recreation facilities. Therefore a lot of people frequent bars and night clubs as a way of recreation. There is a playing ground which is now being encroached in by some residents of Kamanga. They want to start building houses in the ground. This is not right as the ground belongs to the whole community and should be used by everyone. If people build in the ground, it will deprive youths the chance to play from there.

5.7 Environmental education in Kamanga

Environmental education is a learning process that increases peoples' knowledge and awareness about the environment and associated challenges. According to field data, there was Environmental education taking place in Kamanga according to 73% of the respondents, while 27% said there was nothing.

People in Kamanga were learning how to care for their environment. One way that this was being done was through the programme 'food for work'. Every year the people in the community

dug the drainage along the main road. This was usually done before the onset of rains to prevent the road from being flooded. Food for work was a good initiative because apart from taking care of the natural environment, people were helped financially and it brought the community together because people were able to work together.

Councils go round the community with megaphones whenever there is an urgent issue to be addressed. This is a quickest way of addressing the people because even if people were busy they would still get the message that was being put across.

People were advised on the proper way of constructing pit latrines and how to take care of them. Some people did not take this seriously because they thought it was not important. On the contrary this was very important that was why there was even the commemoration of toilet day.
Waste disposal has also been discussed but the improvement cannot be seen. The waste management unit was therefore introduced in the hope of reducing garbage in Kamanga.
Unplanned settlements were prone to cholera outbreaks, the health workers therefore went round the community informing the people on what to do and not to do. Apart from going round, they also held talks with the community. The health workers also talked to the people of Kamanga about other diseases. For example there is a TB and HIV and AIDS centre right there in Kamanga so that people did not have to move long distance to get medicine.

The first houses built in Kamanga were crowded and too close to each other. There has now been an extension to the compound up to overspill 4. Some people were made relocate to the overspills in order to create room in the old Kamanga. In the overspills the houses were bigger

with some form of plan followed. For example, Foxdale had big houses and enough space around the houses.

Irish Aid helped in upgrading Kamanga. They sank boreholes in the area. Irish Aid built a community hall and offices. The hall is used for community meetings. In the beginning, they offered short courses in tailoring and welding to empower people and make them self reliant.
The Resident Development Association offices are found at the community. This is to ensure that if there is any problem, the people should be attended to in good time. The people of Kamanga pay for their water at the offices of the RDA.

Kamanga settlement has a government school and a number of private schools. This is very good because it means school going children can easily access school because it is right there in the community. It also means from grade seven children can continue with their secondary education right there at Kamanga basic school.
Although the water was a bit erratic, there was an improvement at least. This had ensured that people (women especially) did not stay for a long time in the queues waiting to draw water. From having a few communal taps around, as of 2005, the people had individual taps.

The main road from Great East Road leading to Kamanga has been worked on by the people in the community under the programme 'Food for Work'. The drainage was dug to make sure water during the rainy season did not flood the road.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This chapter looks at the conclusion which gives a summary of the whole research work carried out. The chapter ends by giving recommendations made.

6.1 Conclusions

The study revealed that though Kamanga settlement was legalized in 1999 by the government under the statutory and Improvement Areas Act of 1999, it is still facing a number of problems such as insecure land tenure, poor housing, overcrowding, lack or inadequate social services, inadequate recreational facilities, increase in waste generated and careless dumping of garbage.

It was also discovered that EE exists in Kamanga and it has tried to come up with solutions to the problems faced by the people of Kamanga. Some components of Environmental Education are being taught at school, sharing ideas during community meetings, sketches organized by NGOs who sometimes come for awareness in Kamanga. Some of the improvements are cleaning of the road and drainage.

With a deliberate awareness campaign to promote participation in environmental awareness, there can be high level of participation among residents. Environmental Education is there in Kamanga, but it needs to be enhanced so that more people become actively involved in community activities aimed at sensitizing people on how to have a clean environment.

6.2 RECOMMENDATIONS

1. This study found that houses in the study area were mainly informal, that is, not made from proper plans from architectures and were generally made by residents. In the old Kamanga, a lot of houses were made out of mud bricks with unconventional building materials. There was need therefore, to streamline building standards, regulations and other controls in unplanned settlements that had been legalized.

2. The study also established that rentals were usually high for the majority of Zambians and some houses were below standard and yet the rent was high. There was need to have some form of regulations on rentals so that people were not exploited. If this was done it could reduce the number of people living in unplanned settlements as they would be able to afford rentals.

3. Local authorities need to be vigilant in stopping the ushrooming of unplanned settlements in unstable zones. There was also need to increase awareness on the need for action in settlements already built in flood prone areas. Ways need to be sought to provide low income households which would be an alternative to unplanned settlements. This arises from the finding that unplanned settlements were mainly found in un suitable areas.

4. From Literature Review, the study established that, the bourgeoning of the informal settlements was a physical manifestation of the widespread urban poverty. Therefore, for

a practical and workable solution any policy or planning intervention would need to go hand in hand with the poverty reduction strategies.

5. There was need to put up strict measures to ensure children were not subjected to economic activities which were harmful to their health whereby they could easily get hurt. Therefore Ministry of youth, sport and child development needs to look into this matter. This was based on the finding that the people who were mainly involved in quarrying were women and children.

6. Kamanga settlement is facing a problem of encroachment of the football field. This is not good as it will deprive the community of an area for recreation. The relevant authorities, that is , the Ministry of Youth, Sports and Child development need to look into this matter to save the sports field for the settlement.

6.3 Future Research

There are certain aspects that this study did not look at which maybe of interest to other researchers. One such area is to find out if there are any advantages of unplanned settlements.

REFERENCE

Ameyibor, L. and Mohammed, H. A. (2003). **Informal Settlements Development on Zanzibar; A Study on the Community Based Provision of Storm Water Management**. University of Dortmund; Germany

Asthana, D. K. and Asthana, M. (1999). **Environment: Problems and Solutions.** S Chand and Company. New Delhi

Azzan, M. and Said, S. (2005). **Land Registration in the Informal Settlements of Zanzibar**; SMOLE Study Series, Zanzibar

Bartone, C. (2000). **"Environmental Strategies for Cities: A Framework for Urban Environmental Planning and Management**" Presented at the World Bank1s Course on Urban and City Management Goa, January 9-21, 2000

Blinker, L., Manongi, F. and Senkondo, E. (2006). **Country Environment Profile CEP**. **United Republic of Tanzania** April 2006.

Central Statistical Office. **2000 census of population and housing: Zambia. Analytical Report** (2003). Lusaka: central statistical office.

Cole, L. (1995). **National Land Use Plan; Planning Policies and Proposals** (NLUP_S.01) Zanzibar

Environment Australia (1999). **Today Shapes Tomorrow: Environmental Education for a Sustainable Future - A discussion paper,** Department of the environment, water, heritage and the Arts. Canberra

Environmental council of Zambia (2008). **Zambia Environment Outlook Report 3**. Environmental council of Zambia, Lusaka.

Heisler, H. (1970). **The Creation of a Stabilized Urban Society. A turning point in the development of Northern Rhodesia/ Zambia**. African affairs pp 125- 145

http//www.daily-mail.co.uk. **. Ugly face of Urbanization**- Times of Zambia, 2007

Kapala, C. (2005). "**Rains wreck havoc on Lusaka townships"** Daily mail

Kapoor, B. S. (2001). **Environmental Sanitation**. S.Chand and company Ltd, New Delhi

Karpagam, M. (1999). **Environmental Economics.** Sterling publishers, New Delhi.

Kim le Roux (2001). **Environmental Education Processes; Active learning in schools**

Knauder, S. (1982). **Shacks and Mansions: an analysis on the integrated housing policy in Zambia.** Multimedia publications, Lusaka.

Lusaka City Council (2008). **Community profile of Chakunkula ward 32.** Lusaka city council, Lusaka.

LDHMT (2007). **Water Quality Analysis: The case of Lusaka,** Workshop Presentation, Lusaka.

Mate, L. (1997). **Development of low income areas in Zambia: Issue of participation in infrastructure Management**, University of Dar es salaam, Port Hare.

Mbao, M.L.M. (1983). "Legal Aspects of uncontrolled and Unplanned Urban Settlements in Zambia: A comment on the housing(Statutory and Improvement Areas)Act,1974" in **Zambia Law Journal**, Vol 15.

MOH.(2001). **National Environmental Health Policy**. (Unpublished). Zambia.

Mudenda, F. S. (2007). **Land Law in Zambia: Cases and Materials.** UNZA press, Lusaka.

Mwape, W. (2006). **Status report on deforestation in Zambia.** Forest department, Lusaka Zambia.

Mwelwa, M. (2010). "**Flooding in Lusaka**" Times of Zambia, January.

Neill, J. (2000). **What is Environmental Education.** Melbourne: Australian International Press and Publication. Unpublished.

NWASCO, (2005). **Reaching the Millennium development goals for water supply and sanitation in Zambia.** The urban perspective.

Panneerselvam, A. and Ramakrishnan, M. (2005). **Environmental Science Education**. Sterling publishers,, New Delhi.

Puppin, D. (2003). **Opportunities for local governance**. ,Environmental Education research,

Rakodi, C. and Schlyter, A.(1981). **Upgrading in Lusaka. Participation and Physical changes.** Swedish council for building research, Stockholm.

Schlyter, A. (1984). **Upgrading reconsidered- The George studies in Retrospect.** The National Swedish Institute for building research.

Schlyter, A. and Schlyter, T. (1979). **George- the development of a squatter settlement in Lusaka, *Zambia***. Swedish Council for building research.

Scholz, et al (2005) **Collaborative Planning Rhetoric and Reality in Zanzibar, Tanzania**;

An unpublished paper; Zanzibar

Srinivas, H. (1991). **"Viability of Informal Credit to Finance Low-Income Housing: Case Study of Three Squatter Settlements in Bangalore, India"** Unpublished Master's Thesis Report. Bangkok: Division of Human Settlements Development, Asian Institute of Technology.

The World Bank (2002). **Upgrading of low income settlements**. World Bank, New York.

Times Reporter (2007). "**Ugly face of Urbanization**". Times of Zambia, November, 20th 2009.

UNCHS (Habitat) 1995 **monitoring the shelter sector. Housing Indicators review**. Nairobi: United Nations Centre for Human Settlements.

WHO (1999). **Environmental Health Indicators: Framework and Methodologies.** World health organization, Geneva.

WHO (1992). **Our Planet, Our Health**. Report of the WHO Commission Health and Environment. Geneva: World Health Organization

Yasini, M. (2007). **The status of unplanned settlements in Lusaka**. Lusaka city council, Lusaka.

Appendix 1

QUESTIONNAIRE

My name is Cherry Monga, I am a student at the Univers of Zambia conducting research on How Environmental Education could address the problem of unplanned settlements. You have been selected to answer the questions as honestly as possible. The information will be treated with the utmost confidentiality and is for academic purposes only.

Section A

1. Sex Female( ) Male( )
2. Age_____
3. Highest level of education attained
   Primary
   Secondary
   Tertiary
   Any other specify_____
4. Current employment status
   Formal
   Informal
   Any other specify……

SECTION B

5. How long have you lived in Kamanga?
   ……..
6. Where were you living before moving to kamanga?
   …….
7. Do you own the house that you live in or you rent it?
   …….
8. Is the house electrified?
   ……
9. What type of energy do you use for cooking?
   ……
10. How do you pay for the water that you use?
    ……..
11. Where do you get your water from/
    Own well
    Tap
    Neighbours' well
    Any other specify_____
12. What do you use for a toilet?
    ……
13. How many people do you use it with?
    ……
14. Are there any environmental problems that you are facing in Kamanga after upgrading?
    ……..……
    ……..……

15. If yes to (14) what are they?

……..

……..……

16. Is there any environmental awareness that is being done here?

……..……..

……

17. If yes to question (16) how is it being done?

……..……..

……..……

18. Do you think environmental awareness has brought any improvement to Kamanga?

……..

……..

19. How many schools are in kamanga?

……

20. Are they adequate for all the school going children?

.....

21. If no where do other children go for school?

……..……

22. What social amenities are found here?

……...……

……...……

23. From the time kamanga was up- graded, what improvement have you noticed?

……

……..

Appendix 2

THE COUNCIL

1. What do Councils look for when up-grading an unplanned settlement?
   …….
   ……
2. How long does it take before a settlement is up-graded?
   ……
   ……..
3. What type of services must be in place before a settlement is up-graded?
   ……
   ……
4. How many people should an unplanned settlement have before it is up-graded?
   ……
   ……
5. Is there any specific housing that should be in an unplanned settlement before it is considered for up- grading?
   ……
   ……
   ……..
6. Who gives plots in unplanned settlements?
   ……
   ……
   ……..
7. Are there any services that the council offers in un planned settlements?
   ……
   ……
   ……