

**IMPACTS OF SLUM DEVELOPMENT ON THE
ENVIRONMENT. A CASE STUDY OF KIANDA VILLAGE
IN KIBERA SLUM-NAIROBI DISTRICT**


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**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT FOR THE
AWARD OF A DEGREE IN BACHELOR OF SCIENCE IN ENVIRONMENTAL
MANAGEMENT OF KAMPALA INTERNATIONAL UNIVERSITY**

JULY 2006.

DECLARATION

I Judith Mailu declare that the content of this report is original and its findings have never been submitted to any University for the award of any kind.

Signed 

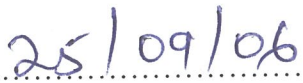
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Date.....

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Date..... 

DEDICATION

To my parents Mr. and Mrs. Mailu and my dear daughter Sharon Buhilya.

ACKNOWLEDGEMENT

Completion of this project would not have been possible without guidance, cooperation, help and encouragement received from a number of people and institutions.

First and foremost I am grateful to My Almighty God for maintaining my health throughout the period of my study in a foreign country.

Secondly, I am thankful to my wonderful, loving father and mother for their struggle to put me through my undergraduate degree and my sister olive and brother victor for their support in my studies and this project.

Thirdly I am indebted to my supervisor miss Ann Tumushabe who tirelessly read my work and similarly offered constructive criticism and guidance that went a long way in moulding and the successful completion of this work.

Lastly, I wish to thank my family and all the experts in the institutions that I visited for their assistance, which they offered one way or another.

ACRONYMS

UN	-	United Nations
NGO	-	Non-Governmental Organizations
BUPP	-	Bungalow Urban Poverty Alleviation Program
FAO	-	Food and Agriculture Organization
SAPs	-	Structural Adjustments program
UNEP	-	United Nations Environmental Programme
CBOs	-	Community Based Organization
KICOSHEP-		Kibera Community Self Help Program.
UMMK-		Ushirika wa Maisha na Maendeleo, Kianda
MRAMMA	-	Mradi waAfya ya Msingi na`Mandeleo
AMREF	-	Air Medical Rescue Emergency Foundation
CCP	-	Chinese Community Party

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ABSTRACT

Slum development has been a major problem in the world especially in developing countries and Africa at large. According to UN-Habitat publication sub Saharan Africa hosts the largest proportion (71.9%) of urban population reside in slums. this study was carried out in kibera Nairobi district.

The objective of the study included identifying the causes of slum development, the implication of these slum on the environment and what measures are have been put in place to protect the environment.

The research design was descriptive and used quantitative research methods of data collection observation interviews and questionnaires were administered to the total number of 50 respondents.

The research finding showed that the cause of slum development were poverty, rural urban migration poor physical planning and population growth also the investigation showed the implication of slum development was poor sanitation, chocking of river, waste disposal and over utilization of water. the measures being put in place were community cleaning, improved drainages, provision of water and toilets.

In conclusion the respondents indicated that, poverty was the prime problem and cause of slum development while the respondents also indicated the implication of slum to be poor sanitation. Some of the measures being put in place include community cleaning and provision of toilets.

From the findings I recommended that environmental laws should be put in place and be followed, upgrading of slums and poverty alleviation programs such as giving small loans with low interest rate to start business should be implemented so that slum become safe heaven for us and for the future generation.

CHAPTER ONE

1.0: INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 INTRODUCTION

By the year 2015, 59 % of the world's population will live in urban centers this is according to United Nations Environment Programme (UNEP, 2005). Developing cities will need to absorb over 2 billion new residents in the next three decades and half will be born into poverty. While aggregate health statistics paint a rosier picture of the health of urban dwellers compared to those living in rural areas, there is a large and growing gap between the health status of upper/middle class urban residents and those living at the margin. 837 million urbanites currently reside in densely populated, overcrowded unsanitary conditions often lacking access to basic health, water and sanitation services (WHO, 2005).

United Nations-Habitat defines a slum as a group of individual living under the same roof that lack one or more of the following conditions, access to safe water, sanitation, secure tenure, durability of housing and sufficient living.

According to the latest UN-Habitat publication, sub-Saharan Africa hosts the largest proportion – 71.9 % – of urban population resident in slums. In terms of sheer numbers, Africa also has the second largest number of slum dwellers in the world (187 million or 20 per cent of the world's total) after Asia, which in 2001 hosted a total of 554 million slum dwellers (about 60 % of the world's total slum population). Latin America and the Caribbean, despite being one of the most urbanized regions in the world, were in third place with 128 million slum dwellers. Europe and the rest of the developed world is host to some 54 million-slum dwellers, or 6 percent of the world's total. Globally, UN-Habitat estimates that in 924 million people, or 31.6 % of the world's total urban population lived in slums in 2001. In the next 30 years, this figure is projected to double to almost 2 billion, unless substantial policy changes are put in place to significantly alter this projection.

Kibera slum is one of the oldest and largest slums in Kenya and Africa. Kibera is ranked the largest slum in Eastern and Central Africa (Yunus, 2003). The name kibera was driven from Nubian word (Kibra), which means forest. During those days the place was covered with a large forest, hence the name-Kibra.

Kibera is situated about 10 kilometers to the West of the city center of Nairobi, Kenya. It has an estimated population of about 1,000,000 residents. The population comprises of the entire ethnic group in Kenya and one addition tribe that is the Nubians.

It's believed that the first people to settle in Kibera were the Nubians from the Nuba Mountains in Sudan. Kibera initially grew as a village housing the Nubian soldiers of the demobilized arms of British East Africa at the end of the Second World War, in 1947.

Subsequently, as rural-to-urban migration increased, many people moved to the areas where they put up temporary structures to live in. Gradually, the initial inhabitants gained various forms of rights to the land and began building mud-and-wattle structures for renting. The slum is largely made of these structures today.

There is tendency of people to live in sections of the slum in ethnic grouping, sometimes called villages although there are no identifiable boundaries. At the moment there are a total of 17 villages.

The Kisumu railway line passes through the long axis of the slum in an approximately southeast to Northwest direction and to the south is the Nairobi dam.

As in other slum areas, poverty is widespread in Kibera. Most residents are employed either in the informal sector or in low paying jobs in the industrial areas and in the city. The informal sector predominates, including petty business, open-air garages, hawking of various wares, and the informal manufacturing of small articles by artesian known as jua kali (Swahili for 'under the hot sun', because most of the work is in the open air).

Out of the 17 villages, Kibera has only two health centers that are, Kicoshep health center and Air Medical Rescue Emergency Foundation (AMREF) Kibera community health center. These two health centers are not able to cater for all the residents of Kibera forcing some to seek services outside Kibera.

1.2 STATEMENT OF THE PROBLEM

Slum development in Nairobi started as far back as the colonial period (Yunas, 2003)

During the colonial period, urban planning in Nairobi was based on government-sanctioned population segregation, which created separate enclaves for Africans, Asians and Europeans. The slums mainly developed in African enclaves because of unbalanced allocation of resources to housing and infrastructural needs of the separate sections.

These slums have kept growing in various parts of Nairobi. Among them is Kibera slum. Kibera slum has been in existence since 1920 (Yunus, 2003). Poor drainages, squalid, poor waste disposal and management, scarcity of water and insecurity characterize it, and because of this the residents experience the following among other problems. Filthy narrow alleys, sludge and human waste from shallow latrines flowing into nearby streams and the situation that gets worse during the rainy seasons, scarcity of water, and insecurity. This has resulted in child mortality, outbreaks of cholera, diarrhea, murder cases and also respiratory diseases. This has necessitated a study to see how people can be saved from these dangers

1.3 OBJECTIVES

1. To identify the causes of slum development in Kibera slums.
2. To find out the implication of slum development on the environment.
3. To find out the measures being taken to protect the environment.

1.4 RESEARCH QUESTIONS

1. What are factors responsible for slum development?
2. What are the implications of slum development on the environment?
3. What are the measures being put in place to protect the environment?

1.5 SCOPE OF THE STUDY

The study was conducted in Kibera slums in the western part of the Nairobi city. The study covered different variables such as the causes of slum development; the implication slums have on the environment and finally the measures, which have been used to solve this problem.

1.6 SIGNIFICANCE OF THE STUDY

Slum development has been on the increase in various parts of Nairobi and other cities however not much has been done to solve this problem. This study will help provide useful data that will be used in improving the existing situation through the identification of strengths, weaknesses, and opportunities and threats that the slum people have been facing. It will also provide information of associated problems by the researcher and offer opportunities for participation of the local people in any project in the slum area.

The information will be available for use by policy makers, practitioners and academicians in policy development and implementation to minimize on the problem of slum development.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

In this chapter the researcher will look at studies carried out on slum development that is the causes of slums, the consequences they have on the environment and also the measures that have been put in place to protect the environment in various parts of the world.

2.2 CAUSES OF SLUM DEVELOPMENT

2.2.1 Heavy pricing for housing

Due to complex nature of informal settlement development in the city, attempts to upgrade slums have had mixed result. Lack of affordability and insecure tenure has been cited as the main constraint to improving housing for urban poor in the city. Research has shown that the poor cannot afford to pay for upgraded housing, even if it's available to them. This means that indirect cost recovery and subsidies have to be developed.

According to Winnie Mitullah 2001 a researcher at Nairobi University Institute for Development Studies, the cost of infrastructure itself prohibits the urban poor from developing or owning of land subsidized by the government. Some have even called for the lowering of building standards for low income houses, which would allow the use non-conventional building materials, which are cheaper and more access able to the poor.

In Ethiopia, the ever-increasing number of people who live in squatter settlement and slum indicate the existence of a significant mismatch between the increasing demand for and supply of housing to the booming urban natural growth and rural urban migration.

2.2.2 Expanding population

Over the past 20 years, Thailand has been transformed rapidly into a modern country, and large tracts of what used to be agricultural land has been eaten up by growing cities and become urban. As poor rural migrants have come into cities searching for jobs, informal urban communities have mushroomed without any planning where affordable housing is scarce. Problems of income disparities, critical poverty and lack of access to basic

services all contribute to the urban poor's inability to find secure and legal housing, so they are forced to live in densely-crowded and dilapidated settlements built in hazardous, undeveloped and insecure places in the city. Many poor families who own their dwellings have been forced to move frequently because they have no secure lease agreements for the land upon which that house is built. (Catherine 2002)

According to the latest National Family Health Survey, fertility in India continues to decline, though not as rapidly as anticipated. The total fertility rate is now below 3 children per woman (2.9). Despite significant variations between states, nearly half of currently married women are using modern contraceptives. The unmet need for contraceptives is now estimated at 16%, down from 20% in 1992. (Catherine 2002)

Still, India is beset by the needs of a burgeoning population. With a total population of over one billion and growing by 1.8% per year, India adds some 17 million people to the global population base every year. Infant mortality remains high, averaging 72 deaths for every 1,000 live births. In some of the poorer states, infant mortality is over 100 per 1,000 live births – one of every 10 children born does not live to see his or her first birthday. Maternal mortality is also high, averaging just over 400 deaths for every 100,000 live births. (Philips 1997)

An estimated 500 million people in India live in dismal conditions on less than one dollar a day. Many of the country's big cities must cope with a proliferation of squatter settlements and slums, while millions live on the streets. In Bombay, some three million people live in slums, squatter settlements or on the streets.

Globally, many experts are concerned that the earth carrying capacity is already overstrained and worry that the huge impending increase in the consumption of in the countries such as India, china will add enormously to the burden of green house gases with threaten to heat the planet not to mention although other demand which increase in both population growth have forced the people to move to urban centers often leading to dangerous, overcrowded and unplanned settlement that is slum.

For instance, there is the issue of the sheer burden of numbers. Over the past century, Nigeria has seen its population boom. While the total population for the regions that were to make up the Nigerian nation was put at 18.72 million in 1921, the figure rose within

three decades to 30.4 million in 1951, rising again to 55.67 just over a decade later in 1963.

2.2.3 Urbanization

Jeffrey D. Sachs special adviser to UN Secretary General Kofi Annan on the Millennium Development Goals and Director of the Earth Institute identified urbanization as one of the most powerful trends in the World today. Evidence pointed to the fact that cities were the core of economic growth in the long term, which was promising; he stressed that while that was promising from the aspect of determining how developing countries could grow and get integrated into the world economy.

He stressed that while that was promising, the problem lay in the fact that people were either not finding productive employment for income generation or having the necessary infrastructure or both.

India is also experiencing rapid and unplanned urban growth. Three of its major cities are already in the mega-category, having more than 10 million inhabitants -- New Delhi, Bombay and Calcutta. Municipal authorities cannot keep pace with the influx of migrants from the countryside and from smaller towns. Services in many urban areas are beginning to break down under the assault. (Wit, 1996).

In 2001, 924 million people of the world's urban population lived in slums (Un-habitat. 2003) The majority were in developing economies, accounting for 43% of the urban population with sub-Saharan Africa having the largest proportion of the urban population living in slums. 72% the expected growth rate of the urban labour force far outpaces the rate of creation of formal sector urban jobs, so in all likelihood the majority of new urban residents will be living in the informal economy and many will end up living in slums.

2.2.4 Communication gap (lack of community involvement/ participation)

Slum upgrading initiative in the city has demonstrated that lack of communication and dialogue between slum dwellers and the authorities has been one of the leading causes of misunderstanding and violence in slum communities. In the late 1990s for instance, a slum-upgrading project initiated by the catholic archdioceses of Nairobi went terribly

wrong when violent conflicts arose between the archdioceses and Kibera slum. Residents complained of not being involved in any of the decision-making processes and also of being misinformed of their tenure statutes in the upgraded houses. Odindo Opita a coordinator of legal services and community partnership at “Kituo cha sheria” a legal aid NGO says that lack of information and communication between slum dwellers and the authorities has been one of the most serious problem facing slum upgrading projects and is likely to be the cause of future conflicts in slums within the cities. (Jennifer 2004)

2.2.5 Poverty

Desperations, alter hopelessness of extreme condition of poverty continue to plague most of the world today and especially the under developed countries. Those who suffer under such unjust conditions are liable to and fight back often with violent and criminal acts. People in this condition will kill and risk death for something to eat or for a single material possession. Violence does not originate from poverty, it is poverty rather that is produced and sustained by direct and indirect violence. when poor children are abandoned by society in their most basic need of care and decent education, and this constitutes an extreme form of violence. (Phillips et al, 1997)

Poverty in India has been the focus of many debates and policies for decades. Most of this focus has been on rural poverty issues, but urban poverty being as prevalent as it is today, seeks equal attention. (Phillips et al, 1997)

The biggest cities are growing faster than smaller towns. India’s mega-cities have the highest percentage of slum-dwellers in the country. This indicates that as big cities grow even larger, their slums will swell. While slums have become an important place to reach the urban poor, even though the urban poor do not all live in slums. The urban poor population in India is estimated to be nearly 8 crores currently, while the slum population is only 4 crores.

2.3 IMPLICATIONS OF SLUM DEVELOPMENT ON THE ENVIRONMENT

2.3.1 Children violence

Perhaps what are most tragic about the violence and poverty in slums are the effects on the lives of children. It has been estimated that about 30million children live in conditions that are subhuman and inadequate for their development. The violent indirect or more or less direct violence slum children can gauged through the infant and mortality and illiteracy rates, and in general the sub human living condition prevailing. The number of young children with arms or involved in guns and drug trafficking, or simply the way that they use violence to get food and clothing are concrete indications of the violence that breeds in such brutal social economic conditions. A recent study by the International Labour Organization (ILO) shows that crime by children related to drugs abuse and trafficking in Rio de Janeiro, Brazil has increased during the 1990s. Also, by the year 2000 the children age of entry into drug trafficking and other elated crimes fell from 14-16 to 12-13. Children involved in this type of violence share some characteristics. They show that they belong to the poorest families in the slum and those they have less than the country average of 6.4 years of schooling.

2.3.2 Urban poverty

In situations of poor economic performance of the national economy, the rising cost of living, high urban employment, and population growth in urban areas, among others have created a favorable environment for the mushrooming of extreme urban centers such as Addis Ababa, the cost of renting let alone the cost of building a house, has become unbearable even for few better-off section of the society thus building in illégel areas without construction or occupancy permit and restoring to slum remain the only cheap alternative option for the urban poor. (Phillips et al, 1997)

Urban poverty has led to sexual behaviors in return of money. Past research suggests that people in impoverished situations may be more susceptible, than otherwise, to engage in sexual behaviors detrimental even to their own health (Ulin et.al, 1992) It should not be surprising then that the inordinate poverty in large segments of Africa's cities, described by some as even worse than rural poverty (Zulu et.al, 2000), should coexist with rates of

HIV/AIDS infection much higher than in rural Africa. This is nowhere more evident than along the East/Central/South belt of Sub-Saharan Africa in which Kenya is located where the highest global levels of HIV infection prevail, and AIDS has become the leading cause of death among adults (Caldwell and Caldwell 1993). Because HIV spreads primarily through heterosexual means in sub-Saharan Africa (Nzioka 1992), and behavioral susceptibility are particularly acute for the most poor, women and children in slums have become extremely vulnerable (Zulu et.al, 2000). Here, marginal employment opportunities force many women and, indeed, girls into a survival strategy of exchanging sex for money to meet basic needs (e.g., food, rent, and clothing).

Given that sexual knowledge and behaviors are culturally and socially constructed (Gagnon et.al, 1973, Miller et.al, 1987), it should not be surprising that the environment or context in which children live can socialize them into risky sexual behaviors. At ages where they are still learning to construct their social world, children are easily influenced by what they see and hear. Where open communication about sexual matters is sparse and intergenerational discussion is virtually taboo, children and adolescents are left to glean their sexual knowledge from the social environment. Beyond being less prepared physically and psychologically for sex, young adolescents are less economically endowed, and more socially dependent. This will be particularly true in settings like the slums, where poverty has contributed to the fragmentation of family structures. The physical and social context of slums has also moved sex from a private activity to a publicly observed behavior, which has the effect of socializing very young children into seeing sexual activity as normal.

2.3.3 Poor sanitation

Sanitation coverage in the country of Bangladesh is estimated at around 40%, with wide differences between rural and urban areas. Bangladesh is significantly lower than the above-mentioned estimates. Especially, the rapidly growing urban centers need support aimed at developing sustainable water and sanitation systems.

Substantial further investment in water supply and sanitation infrastructure, and greater sector efficiency, are needed to achieve the Millennium Development Goals (MDG) for water supply and sanitation and other closely related MDGs for child mortality and other

health issues, and poverty alleviation.

The water supply coverage in Bangladesh stands at approximately 97 %. However, the safeties of water for human consumption is often suspect: a recent WHO study concluded that no Bangladesh country has an adequate national programme of drinking water quality and surveillance. In recent years the problem of arsenic contamination of ground water has further caused large sections of the population to risk exposure due to the absence of alternative safe water supply solutions. Also, large differences in quality of service occur between rural, peri-urban and urban areas, causing risk of substitution with sources of poor quality.

Effective water supply and Poor sanitation is another major problem in slums. This has led to cases of flying toilets; this is sinister habit of human waste disposal. It actually entails the putting of the waste in a plastic paper bag and then throwing it as far as possible. Alternatively, the waste is put in a covered plastic container then it is thrown far away from ones home. There is also the case of the Wandering toilets is a habit whereby those people without toilets get rid of the waste in no formula at all. Most villagers argue that this is more perilous than the former. It is more dreaded especially during rainy days. These problems owe their existence to the poor planning of the houses that leave no space for toilet construction or if a pit latrine fills then there's no space to construct a new one or for exhauster vehicles to access the latrine. This brings diseases to the dwellers like cholera.

2.3.4 Air pollution

According to the World Health Organization, 1.5 billion urban residents endure levels of outdoors air pollution that exceed maximum recommended levels. As many as half a million deaths can be attributed to particulate and sulphur dioxide air pollution alone, mostly from vehicle exhaust emissions. One study estimates that up to 1 in 5 lung cancer cases in the United States are due to vehicle emissions.

Burning refuse, especially plastics and other hazardous waste, also affects air quality. The global health costs of air pollution are estimated at US \$1 billion. In developed countries

air pollution costs are close to 2 % of GDP in developing countries the figure is between 5% and 20 %.

2.3.5 Crime

In the Warkick Junction district of Durban, South Africa, so traders from the community voluntarily patrol around the clock. The group was trained by metropolitan police on citizens' arrest, constitutional rights of individuals and court procedures to ensure successful prosecution. Their effects have contributed to a reduction in crime, and new trust between the community and police has improved the rate of successful police investigation and prosecution. This was by Durban Metro.

2.4 MEASURES TAKEN TO PROTECT THE ENVIRONMENT

2.4.1 Housing

Although plans for slum upgrading initiative have been under discussion for over a year, progress on the project has been slow. Lack of clarity about what the project will entail has complicated matters further. Initially residents of Kibera were told some of them would be relocated to AthiRiver outskirts of the city to make room for the upgrading project. However this proposal was vehemently opposed by the resident who thought their federation, Muungano wanavijiji, pleaded with the authority not to move them as it would mean traveling longer distances to their places of work.

In Ethiopia, the successive government has been taking measures aimed at addressing the problem of housing for urban dwellers. When the erg was in power, one of the major actions taken by the government as part of its socialist economic philosophy was of course, the nationalization of extra-houses and land in urban areas. This was followed by the allocation of extra-houses for urban dwellers at very low monthly rents. These administratively set very low rents, though they appear beneficial to the poor urban dwellers, had left its negative impact on housing sector growth in the country. This is, as occupants are mostly poor, the maintenance of the age-old houses has been facing serious problem to date. As the houses are publicly held, it has not also been easy to pass minor or major maintenance by the occupants themselves.

UN Conference on Human Settlements Executive Director Anna Kajumulo Tibaijuka expresses sentiments about governments and community involvement in the provision of housing. "The poor are not just passive objects," she says. "Most often they are solving their own problems, but governments are failing to recognize their efforts. Instead of harnessing their energy they are discouraging the poor from participating in the improvement of their own living conditions."

There are many well-documented examples of communities taking charge of their housing needs despite little or no government assistance. For example, in South Africa a popular movement known as the South African Homeless Peoples Federation has been encouraging local communities to organize themselves into informal savings groups to build their own houses. Since its establishment in the early 1990s, the federation has seen 14,000 low-cost houses built across South Africa by former slum-dwellers, the majority of them women. The federation is currently supporting similar savings groups in Ghana, Kenya, Madagascar, Namibia, Swaziland, Uganda, Zambia and Zimbabwe

2.4.2 Poverty alleviation programs

Bungalow Urban Poverty Alleviation Program (BUPP) was implemented between 1993 and 1999 in the south India metropolis of bangalore. BUPP was more effective in its poverty reduction strategies at the slum level than in institutional development. By the time it was completed in 1999, the program worked in 14 slums and directly or indirectly touched the lives of about 13000 slum inhabitants. Seven (illegal and /or privately owned) slum were legalized through the program, contributing to increased security and assets among the poor. BUPP had a good impact in terms of providing basic infrastructure (drinking water, toilet blocks, roads paving, and electricity) also community halls were constructed-mostly by slum inhabitants themselves which were subsequently used for community and social development team meetings, pre school and churches, and as venues for health and immunization programs and training. BUPP was also responsible for setting up and managing savings and credit scheme.

BUPP was less effective in terms of bulding a new institution structure. Attempts to create enabling condition under which governmental, NGOs and community

organizations would jointly work towards poverty reduction were not successful, and have not proven sustainable (Phillips et.al.,1997).

CHAPTER THREE

3.0 STUDY AREA AND METHODOLOGY

3.1 Study area

Location

Kibera is situated about 10 kilometers to the west of the city center of Nairobi, Kenya. (Figure 1)

Population

According to (Yunus 2003) report it estimated that the population of Kibera is one million people

We have a number of tribes represented in Kibera, majority of whom are **Nubians**: The first inhabitants of the area who migrated mainly from Sudan. They are predominantly a Muslim community.

Luhya: This is one of the biggest tribes in the country predominantly from the Western part of the country.

Luo: It is also one of the largest tribes within the country from Nyanza province, and with greatest political influence in the local politics.

Kikuyu: A part from being among the largest tribes in the country from central Kenya, it is influential and currently commanding most of the big businesses in the country. They are said to be business people with a love for money.

Kamba: It is a small tribe from Eastern part of the country that is predominantly affected by drought.

Kisii: It is a fairly large tribe from the Western part of the country famous for growing Bananas.

Kibera is a fascinating place with people from different walks of life coming from different parts of the country.

It harbors many ethnic groupings that are living together in a peaceful manner. Christianity and Muslim are the major religions of this region's.

Economic activities

From the 1987 and the 1994 surveys it is clear that relatively few people in the farming households in Nairobi were employed in the formal sector. A high percentage of them is either unemployed or performs some casual labour. In Kibera, informal trade and food selling is the most mentioned source of income (Mwangi, 1995). Among the Kibera-farming households, casual labour ranked second, followed by urban agriculture, indicating that the latter activity constituted a fairly important source of income for them. Interestingly, among the non-farming households in Kibera illegal trade and practices like manufacturing and selling of alcoholic brews, prostitution, street begging and stealing scored high (24%) in comparison with the farmers' group (10%).

Education

In Kenya primary education is for free therefore, there are some who study up to class eight while others decide to be street children and also other children are forced to drop out of school or fail to go to school to help in economic activities such as brewing of local beer. Few can afford to go to high school and college level due to low incomes and lack of employment.

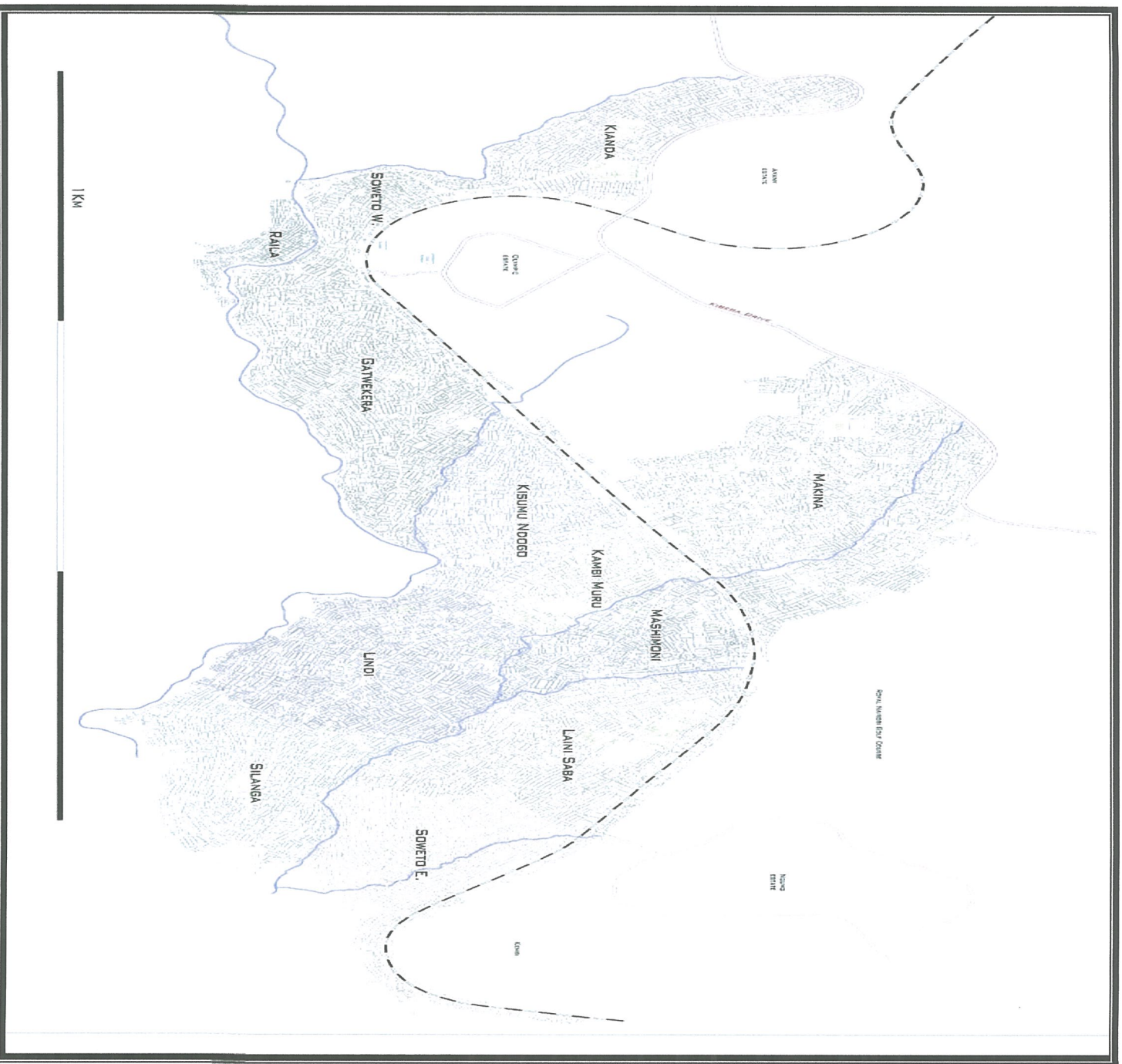


Figure 1: Map of Kibera Slum

3.2 Methodology

Research design

Research design will be descriptive studies, that is, will use qualitative research methods. The qualitative methods will be used because they are likely to reveal real experience necessary in providing a more profound understanding and analysis of all related aspects. Since qualitative methods are information driven, they provide a more holistic picture and analysis of this escalating problem that requires immediate attention to protect the environment. The qualitative methods will include in depth interviews and questionnaires.

Sampling framework and sample size

Sampling framework

Kibera district is made up several villages namely Kianda, Makina, Mashimoni, Raila, Kisumu Ndogo, Gatwekera Soweto Kambi muru, Laini samba. The study was in Kianda village; it was selected because it is convenient to my home area and the impacts are more evident in the area. More so, it was selected because it's the most affected village as compared to the other villages.

Sample size

A total of 50 respondents from Kianda village were interviewed. Simple random sampling was used whereby 5 members of CBO were selected, 5 local official from the different organization were selected and 40 households of Kianda village were selected. Both men and female were interviewed.

Data collection methods

Observation

Through this method of observation, systematic watching and recording was used to obtain information on the state of the environment for example the drainages they use, the toilets, and how they dispose their waste.

Interviews.

An interview schedule was used where by it represented different questions, which were used to capture oral responses on the historical background of the growth of Kianda village and Kibera as a whole, the development of slums and the environmental concerns. The interview method was mainly administered to the elders, local officials, young people and some of the CBO members.

Questionnaire

Here I directly administered the questionnaires to the elders, local officials, young people and some of the CBO members by supervising them in the process of filling in the answer. A sample is attached in the appendix 1. The questionnaire was translated from English to Kiswahili for the illiterates who did not understand, then translated back into English to ensure that they still carried the same meaning, while the rest of the people were able to answer the questions in English. This enabled asking direct, easily understood questions.

The questions were both open and closed ended in nature. They were designed on the following variables; causes of slum development, consequences, and control measures and the way forward. The questionnaire provided a face-to-face interview with the respondents.

Photographs

Photographs were taken to backup the study finding by providing a rich detail about the physical appearance of the slum drainage, waste disposal methods, and also how people cope with the situation also to supplement on the data got from questioners.

Literature review

Through literature review the use of related literature like environmental reports, newspapers, magazines, and housing reports was used. This enabled the reseacher to acquire data about the impact of slums on the environment and remedial measures of developing the areas obtained from Kianda Pilot Project, UN-Habitat, Kenya national library and National Environmental Management Authority library.

Data analysis

Data was presented in tables in percentages. Descriptive statistics was used to give summary result of respondents' answers to the questions posed in the questioner.

Anticipated problem in executing the study

People were not willing to give information especially the drunkards, small stole holders who said they were so busy they cant get time to be interviewed others said they are tired of the obvious questions, language barrier especially those people who did not know English.

Insecurity is a major problem in slums therefore with the help of assistance the research was carried out well without any fear.

Some questionnaires had sensitive questions to most people especially questions related to someone's income, age and type of job or profession raised the suspicions of a taxation motive. And some people deliberately hid their age. Others just suspected that the researcher was given money hence wanted to be paid first before answering while others just suspected that perhaps the government wanted to shift them from the area to another place. Therefore it needed a lot of conviction for those people to understand the motive of the research that it was solely research for study purposes and nothing else.

Lastly the timing was also another difficulty faced in the research process. The research was carried out during the rainy season whereby it was muddy and people were not easily available as they were shading themselves from rain. Therefore these activities seriously competed with the interview programs because it was inconveniencing for one to be interviewed while squeezing him or her self in shade. This also delayed the work. Thus to solve such a problem there was need to interview the respondents in their homes but also for the workers in their places of work such as shops, food stalls or even visit their homes.

CHAPTER FOUR

4.0: PRESENTATION OF RESEARCH FINDINGS AND DISCUSION.

4.1 Introduction

This chapter presents and interprets the findings of the study carried out on the topic in question. That is impact of slum development on the environment. The findings were put under the following sub headlines in accordance with the objectives of the study. That is causes of slum development, consequences, and measures being taken to protect the environment.

4.2 Causes of slum development on the environment.

In order to find out how slums develop, an investigation was done among the residents of Kianda and the findings are presented in table 1.

Table 1: causes of slum development.

Causes	Number of respondents	Percentage (%)
Rural urban migration	12	24
Population growth	8	16
Poverty	20	40
Poor physical planning	10	20
TOTAL	50	100

Source: by the researcher

From Table 1 results indicate that 40% of the respondents acknowledged poverty as the major factor causing slum development, 24 percent blamed rural urban migration, only 20 percent said it was poor physical planning while 16 percent said it was population growth.

4.2.1 Rural urban migration

Kianda village has often been the first stopping point for rural-to-urban migrants because it provides affordable housing that enables the new migrants to save enough money for their eventual absorption into urban society.

People in Kianda village have migrated to the area from rural areas to seek better employment opportunities such as working in industries other than digging and often people who leave the countryside find no better lives in the city but have no choice but to settle in slums where they lack access to decent housing and sanitation, health care and education-in effect, trading in rural poverty for urban poverty.

4.2.2 Population growth

Population growth in Kenya is growing at alarming rate. In Kianda village population is among the biggest problem; the population is growing too fast that the problem of scarcity of land has increased and forced people to live in these slum areas. From the discussions with the respondents about increase in population the following reasons were given as to why it is increasing. 12% of the people are not educated and the levels of income are low so they do not have the knowledge about birth control methods to reduce the growth rate while the educated and low-income earners said are aware of family planning method however they are expensive.

4.2.3 Poverty

With low or non-existent incomes, most residents in Kianda village earn an average income of less than US\$ 35 per month. They lack access to credit facilities since they do not possess quality assets as security against loans. And more often than not they work in the informal sector, which is rated at low market value. They are unable to afford even the basics in life such as education for their children, or food for their families.

Kianda village also house middle-income residents in cities where formal provision of infrastructure and housing markets are very weak. Some of the people I interviewed said

poverty was the main problem that led them to stay in these places. Some of the people gave reasons like *“the job I do pays me as low as Ksh 1500 per month, with this kind of money I pay house rent of about Ksh500, buy water, buy food, and transport to job and buy books for the children”* others said they have no choice but stay in this shanty area because they cant afford the money to rent good houses.

4.2.4 Poor physical planning

Perhaps the most obvious drain on development potential through urbanization and especially through urbanization and excessive industrialization is the increased requirement for housing, and the complication of the physical planning. When people move from village to the city they do not bring their houses with them, and in urban environment the construction of satisfactory housing through tradition ‘mutual help’ methods becomes difficult. In some basic sense housing is less far below acceptable standards in the villages of many developing countries that it is for the lowest income group in the cities. Housing cost are very high more than the income of the slum dwellers in Kianda village, as I interviewed some of the people one had to say that *‘I cannot live in any other place apart from this area because the income I earn cannot be half of the cheap houses and good in the nearby estate’*.

4.3 Implication of slum on the environment

In order to find the impact of slum on the environment, an investigation was done and the findings are presented in table 2.

Implication	Number of respondents	Percentage (%)
Poor sanitation	20	40
Chocking of river	5	10
Waste disposal	10	20
Drunkenness	5	10
Air pollution	5	10
Over utilization of water	5	10
TOTAL	50	100

Table 2: implication of slum on the environment.

Table 2 shows that 40 % of the respondents said that there was poor sanitation, 20 % said there was waste disposal, 10 % said there was chocking of river, 10 % said there was drunkendness, 10 % said there was over utilization of water while 10 % said there was air pollution.

4.3.1 Poor sanitation

There are no sewerred toilets in Kianda village and most of the households have tradition pit latrines this can be seen from the number of the respondents in table 6. These are few and fill up quickly because the population that uses them is much higher than the number of pit latrines. The shortage of pit latrines is brought about by lack of space for new construction and landlords who are unwilling to incur the extra expense. Most of the people indicated that up to almost 150 people share a pit latrine.

Lack of adequate latrines forces residents to use alternative means of excreta disposal, such as polythene bags referred to as ‘flying toilets’ these are commonly used at night when residents consider it insecure to use latrines outside.

One Lucy Akinyi of Kianda Gatwekera is a victim of flying toilets. She says that the phenomenon is not a new thing to her. She has lived with it for quite some time now. Many times she hears something fall on her roof with a loud thud, or maybe near her door but she has to clean to avoid foul smell and diseases.

Children defecate in small plastic buckets, which are emptied by the mothers both at the backyards or drainage channels, rivers and also on roofs of the houses.

For those who have flashing toilets efforts to empty them have been complicated by lack of access roads because of congestion.

The poor sanitation coupled with proliferation of roadside food stalls has often led to serious disease out breaks among them is diohorea, cholera, dysentery and coughing to small children and child mortality.

4.3.2 Chocking of river

There is lack of facilities for draining waste and storm water in kianda village. Most of the streams running through the settlement carry polluted water from all kind of sources,

including sewage from bathing, washing clothes and utensils, pit latrine overflow and all other liquid sources. Nairobi dam, which lies at the foot of the settlement, receives most of this; hence the dam gets polluted people fall sick when they consume that water.

According to Mumo a resident of Kianda, lack of latrines and poor drainage leads to the swamping of entire neighborhoods with dirty water and draining the lowing water to the river. As a result, she added, there was a high incidence of diseases like typhoid, malaria and diarrhea in the area.



Picture showing dirty drifting to the river

4.3.3 Drainage

Drainage is poor and limited to major roads and paths. The drainage system in the settlement comprises of shallow open natural drains, man made drains and combination of both. Drains are often used as dumping points of solid waste and sludge and in few cases open channels are used for emptying sewage from latrines. These drains are easily blocked by solid waste and are health hazard. Blocked drains are source of conflict between neighbors



Source.From the field by the reseacher

4.3.4 Waste disposal

There is no regular solid waste collection within the settlement. Most residents dispose off solid waste by dumping it in open drains, along the railway line, rivers, and in pit latrines. The closest collection point is on the main road outside the settlement.

During the wet seasons, solid waste is washed into compounds in low-lying areas and blocks the drains.

One woman, standing at her vegetable stall on the side of a mud road in the slum, tells me she has no running water that rubbish goes uncollected on the side of the road and there is no plumbing for sewage.

I don't have to look far to see the huge piles of rubbish – in many places you have no choice but to walk over them as they obscure the way. The smell is horrendous, but children play alongside because they have no choice, and people walk to work across them.



Picture of waste disposal

4.3.5 Drunkenness.

The most common form [OPIUM OF THE MASSES] is the illicit brew like chang'aa [a mixture of wasted sugar, yeast, wheat and water] kumikumi, busaa and other illegal brews. I interviewed one woman on why she brews chang'aa. One of the reasons that make her sell chang'aa is because she is the sole breadwinner of her family. Many illicit brews in the slums contain chemicals that cause blindness and at times death. Most youths in the slums take these illicit brews and so they have become hopeless unproductive to the society.

4.3.6 Insecurity.

Another major problem is insecurity. In order to make the slums a safe haven we need security. I interviewed a police officer as to why there is so much crime in the slums. *“Insecurity in the slums is high because most youths are idle and since most slums are*

congested it's hard for the police to get criminals, since they hide". Another factor that causes insecurity is lack of co-operation between the police and the residents, most residents protect criminals and thus hindering the police from making arrests. Most criminals hide and sell guns in the slums and since most residents do not co-operate with the police, criminal getaway with it

.4.3.7 Over utilization of water

Access and availability of water is limited. Up to 85% of the households draw water from kiosks (private and community owned) at an average of Ksh2/= per 20 litre jerrican. The average distance to the nearest kiosk is 40 meters and consumption ranges from 16-20 liters per person per day which is exceeding the clean water. Frequent shortages contribute to an increase in prices, distance walked and time spent. This problem has led the people into bursting the pipes to get water, which is polluted, by the drainages and wastes. Individuals own the majority of water kiosks, although KWAHO has established some that are owned by the community-based organization.

4.3.8 Air pollution

Slum dwellers generally also have to contend with poor air quality. Approximately 2 million children under five die each year from acute respiratory infections. The largest global killers of young children, these infections are aggravated by environmental factors such as indoor and outdoor air pollution.

In Kianda village some of the household burns their waste. Burning of garbage during dry season is risky especially due to congestion of houses and also any other day. This also contributes to respiratory ailment. Children also contract other diseases by playing in these disposing sites.

4.4 Measures taken to protect the environment

Measures being taken to protect the environment were investigated and the results are presented in table 3.

Measures taken to protect the environment.

Measure	Number of the respondents	Percentage (%)
Community cleaning	15	30
Improved drainages	10	20
Provision of clean water	10	20
Provision of toilets	5	10
Poverty alleviation	5	10
Crime reduction	5	10
TOTAL	50	100

Table3: measures being taken to protect the environment.

Table 3 shows that 30 % respondents gave cleaning as a measure being taken, 20 % said improved drainage, 20 % said provision of water 10 % said poverty alleviation 10 % said there was crime reduction.

4.4.1 Community cleaning.

An increasing important goal of development strategy is to enable people living in rural areas to survive and prosper without having to consider migration to cities as their only viable option. Promoting economic and infrastructure development in rural areas and supporting sustainable agriculture practices and sound environmental management can pay off in better lives people in both the countryside and city.

The Kianda community through the Kianda pilot project has been sensitized on the importance of clean environment, proper waste disposal and management systems. With the assistance from the project, UMMK purchased cleaning tools and implements including wheelbarrows, rakes, shovels for use during clean up activities. Each household ‘door’ now has a polythene bag staffed with household waste for disposal. This has helped manage garbage in the area.

The National Authority Council (NEMA) has provided the village with sacks to be disposing their waste in them.

Litter is being tackled in the same way. AMREF provide households with giant plastic bins and local youth groups collect them each week, charging Ksh20 (2.5 US dollars).

4.4.2 Improved drainage

During the project, UMMK constructed 2000 running feet drainage system, one of the major activities assigned to UMMK under the pilot project. The drainage system was completed successfully despite some setbacks encountered during its construction. Lack of access road to the site meant that material had to be transported in small quantities manually or in wheelbarrow. The once stagnant waters have started moving after the 2000ft of concrete drainage was constructed.



Picture showing improved drainages.

4.4.3 Provision of clean water

Collaborative methods with community have been used to deliver clean water to the residents of Kibera. CBOs select a site while AMREF provide the giant water tanker and piping to connect it to the City Council line. CBO members manage the water points and users pay two shillings (0.25 US dollars) per 20 litres of water. Some of the money goes to pay the City Council water bill, the rest they keep.



Improved water tanks *Source. From the field by the researcher*

4.4.4 Provision of good toilets

Toilets are the biggest problem in Kianda village. Some organizations have come up with good ideas to assist and help the people of this area. This improves the condition of diseases, child mortality and improves land and water pollution.

"About 50 to 60 percent of the problems we have here are related to poor hygiene conditions," says Muiya Albamas, a lab technologist in the AMREF-sponsored health center.

Poor sanitation encourages the spread of diseases like typhoid, worm infestations and skin diseases. The open sewers are a breeding ground for malarial mosquitoes.

Working with Local Community Based Organizations (CBO), like Mradi wa Afya ya Msingi na Maendeleo (MRAMMA), Kiswahili for Primary Health and Development Project, AMREF is campaigning to "stop flying toilets" in Kibera.

The CBOs select sites to build latrines and bathrooms and dig the pits. AMREF provide the materials. It is then up to the community to maintain the latrines. Every three months the local people have to pay the equivalent of over 30 US dollars for the latrine to be emptied. "It gives them some sense of ownership," says Murage a CBO member.

Most latrines are in people's compounds but some are in public places. CBOs choose people to manage and clean the latrines. The managers earn three shillings (0.40US dollars) from every user.

Although this helps generate income for some slum dwellers, Murage does not see it as the ultimate solution.

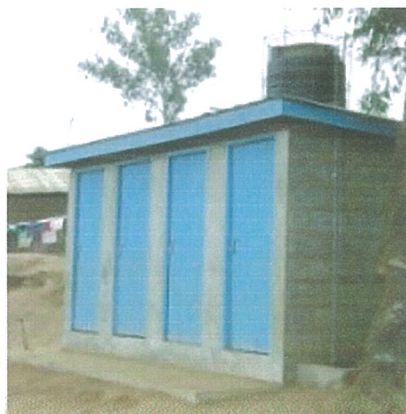
"Three shillings is a lot of money for this community. A good number of people do not generate any income. They opt to relieve themselves elsewhere, " he says.

The private latrines, like the one in 22-year-old Medina Abdul's compound, are also **noticeably cleaner than the public ones. The nine families living here installed a pit latrine two years ago.**

"Before we just went behind," Abdul says shyly, pointing up the hill. "Now things have changed. People are clean."

AMREF have so far built 62 latrines, with another 13 under construction.

"This is just a drop in the ocean," admits Murage. Ideally, he says, the people of Kianda need about 4,000 latrines.



Source. From the field by the reseacher

4.4.5 Poverty alleviation activities.

In the past year, KSh 4 million (US\$ 53,000) was disbursed to 27 organized women and youth groups living in Kianda village, one of the 11 villages of Kibera. The project's focus is to boost the socio economic status of the slum residents in order to help them escape from the biting poverty and improve the quality of their lives.

Eliud Mwashigadi, the AMREF Micro finance project assistant describes the project beneficiaries as very enterprising people: "These people are very eager to transform their lives. They only need a little support to realize their dreams. There is hope in Kibera," notes Mwashigadi.

From a loan of KSh 10 000 (US\$ 140), Pamela bought ten bags of charcoal, some cooking utensils and set up a makeshift food kiosk along a busy lane in the slum. She now earns up to KSh 500 (US\$ 7) a day, almost five times what she used to earn six months ago. Her ill health has improved as well: *"I feel much better now. I am not walking so much so my feet do not swell and I am happy knowing I earn some good money at last."* Kibera urban slum is home to more than 700,000 people who live below the poverty line. Kianda village alone hosts more than 30,000 and over half (50 per cent) are women.

4.4.6 Crime

The urban neighborhood have used internal social networks to create protective institutions to ensure local public safety, such as through community 'crime watch' activities but this also requires the close collaboration and support of formal institution, such as the police. In the Warkick Junction district of Durban, South Africa, so traders from the community voluntarily patrol around the clock. The group was trained by metropolitan police on citizens' arrest, constitutional rights of individuals and court procedures to ensure successful prosecution. Their effects have contributed to a reduction in crime, and new trust between the community and police has improved the rate of successful police investigation and prosecution. This was by Durban Metro.

In Kianda slums also the people have joined hand with the police to reduce crime, this by reporting any criminals in the area and also arresting the thugs. This has improved the situation though that is not enough police need to take a strong action in stopping slum crimes.

CHAPTER FIVE

5.0: CONCLUSION AND RECOMMENDATIONS.

5.1 conclusions

5.1.1 Causes of slum development

Slums growth and development has been persistent and fast growing in Nairobi. This problem has been aggravated by factors such as low income, inadequate land for expansion, urbanization, and increase in population, rural urban migration, lack of proper land use planning and poverty which was indicated by most respondents to be the prime problem. All these in combination have led to the growth of slums and the associated problems.

5.1.2 Consequences of slum development

Slum development has had effects on the environment in Kibera. According the respondents they indicated that 40 percent there was poor sanitation that is drainages, poor waste disposal and lack of pit latrine. The environment as a whole has been affected because of the persistence of slum growth and currently the situation is on the brink of crisis

5.1.3 Measures

To solve the problem more is required to be done like slum upgrading, environmental education and community participation in decision making. The people should be empowered with skills, which make them more of job makers than job seekers.

The generated waste should be re-cycled to manage waste accumulation. Programs such as family planning programs should be encouraged to reduce the growing population, which will in turn reduce pressure on land.

Hence the problems of slums is unchecked the environment in Kibera will continue to deteriorate with pollution of streams, poor disposal of waste, people will suffer from water bone diseases and other related diseases because of drinking dirty water.

5.2 RECOMMENDATION

In order for our slums to become safe havens for us and for the future generations some measures have to be taken. These include:

5.2.1 Education and awareness

Residents should be educated on dangers of using the flying toilets. The government should also help in the construction of better pit latrines, which will reduce the congestion of sharing toilets among many people and disposing waste on the river hence polluting it

Most residents are ignorant to the fact that electricity can cause death especially when using naked wires therefore they should be made aware of the danger of this naked electricity wires.

The community should work together with the police so as to reduce crime rates. The youth should also be educated on the importance of working and staying away from crimes.

5.2.2 Guiding new settlement to prevent future slums

Cities and towns in developing countries will need to accommodate the projected doubling of urban population over the next generation. Even with institutional reforms to upgrade and integrate existing slums, new ones may form. Local government have often shield away from acknowledging the need to anticipate and facilitate the growth of low income settlement, instead letting fend for themselves providing infrastructure network after the dense settlement with layout or requiring resettlement in Bogotá the urban development agency estimates that installing drainage networks is about three times more expensive in informal settlement than in planned neighborhoods.

5.2.3 Upgrading of slums

The government should also upgrade all slums. This would help reduce a lot of problems like. If slums were upgraded then there would be no congestion. Many residents don't realize the importance of slum upgrading, they think that if slums are upgraded that

would mean higher prices but in the actual sense the government would set prices that all can afford. If slums are upgraded that would mean easier access to many resources for example electricity, better toilets, security and also health facilities. More community-based organization should help where they can to upgrade the slums.

5.2.4 Socio Economic Development

There should be actual administration as a starting process of opening up the discussion about the local socio economic development. Business entities and unions, research institutes and the interested community should participate in this debate on an equal basis. The process should be aimed at stimulating the local economic development, giving incentives to job creation and improving the quality of the existing jobs. In addition, bottlenecks on local economic development and potentials should be highlighted by this process.

5.2.5 Poverty alleviation programs

There is need to build on existing initiatives by strengthening ongoing process that take into consideration participatory planning and integration of environmental concerns into development planning and decision-making, while enhancing sustainable use of resources. Action which are directly relevant to the environment and which are imperative to the area is to reduce poverty.

5.2.6 Recycling of wastes

Lack of refuse management has caused environmental hazard in Kibera slum. Sometimes it is beyond the local authority's ability to provide the equipment labour and services necessary to alleviate this impending health crisis. The ministry of water, lands and environment should seek funding and technical advice on the development of locally based refuse removal schemes. A feasible study should be conducted on a project that would generate employment for the local people and would recycle refuse. For example one of doing this is by hiring people to collect this waste at a fee then collect them to a certain place where the waste can be collected. From there it can be transported to a composting site where it would be composted.

5.2.7 Population control (coercive family planning policies)

To minimize population we should adopt policies like those of China's. These are; *two children one family*. By 1970 the seriousness of China's population problem was clear to country's leaders, therefore the Chinese Communist Party (CCP) developed a family planning strategy aimed at limiting population growth. Its slogan was,

One child is not few'

Two children are just right

And three children are too many.

By the end of 1970 they thought that the population was increasing especially in rural area, therefore they changed the policy to be one child-one family in 1979. compliance was forced through a combination of rewards and punishment.

In order to reduce the population in our slums we should adopt this policy. This is by the government implementing such laws and policies in slums and in the country as a whole.

It is also important to delay marriage especially the small girls who get married because of poverty.

Pregnancies should be pre authorized by the governments' official, who if they approve, issue a birth coupon prior to each conception. Also the government should have run birth control clinics supply free contraceptives. By so doing the population will reduce and standard of living of slum people improve.

5.2.8 Environmental laws

All human settlement has an environmental impact indeed all development has an environmental impact. Research into this matter has demonstrated that the degradation of the environment a human cultural phenomenon. The decline in environmental quality which Kenya has been experienced for so long is due to the increasing rural and urban poverty. The strategies to be employed in Kenya for improved economic development for an enhanced quality of life which bears sound environmental protection requires a holistic approach and is every government ministry's responsibility. Kenya can't afford a scenario in which the various government ministries look after their narrowly defined

land use interest, compete for scarce resources and fail to co-operate with one another in development projects. Therefore it is recommended that the government of Kenya consider the option of forming an inter ministerial committee on environmental monitoring and protection chaired by the community and this will serve as a body to exchange developmental information and provide advice to the various ministries to promote development in environmentally sound ways.

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KAMPALA INTERNATIONAL UNIVERSITY

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

RESEARCH TOPIC

THE IMPACTS OF SLUM DEVELOPMENT ON THE ENVIRONMENT

RESEARCH QUESTIONNAIRE

SECTION A: PERSONAL INFORMATION

Gender

(a) Male ()

(b) Female ()

1.1 Age:

18-24	25-31	32-38	39-45	46-52	53+

1.2 Education status.....

1. None
2. Primary
3. Secondary
4. Tertiary
5. Others

1.3 Profession/ job title

- a) Civil servant
- b) Business person
- c) Farmer
- d) Student
- e) Others

SECTION B: CAUSES OF SLUM DEVELOPMENT

2.0 Why do people like living in this place?

.....

.....

.....

.....

2.1 What influenced you to live in this area?

.....

.....

2.3 Do you own this land?

YES ☐

NO ☐

2.4 How big is the land?.....

.....

.....

2.5 Is the population of the area increasing or decreasing?

If Yes how?

.....

.....

If No why?

.....

.....

2.6 What led to the growth of this population?.....

.....

.....

.....

2.7 What economic activities do you carry out on the land?.....

.....

.....

.....

SECTION C: IMPACTS OF SLUM DEVELOPMENT ON THE ENVIRONMENT

3.0 How has the population of this area affected the following resources?

a) Water.....
.....

b) Forests.....
.....

c) Land.....
.....

3.1 Are you affected by the following?

a) Polluted water.....
.....

b) Running drainages.....
.....

c) Wastes.....
.....

d) Sharing of toilets.....

3.2 Do you think waste disposal is done in the correct way?

Yes

No

If yes how?.....
.....

if no how?.....
.....

SECTION D: MEASURES

4.0 Has anything been done to solve the problems of this resources?

- (i) Water
- (ii) Land
- (iii) Forests
- (iv) Wetland

(i) YES

(i) NO

If yes explain what you as an individual has done?

.....

.....

.....

If no explain why.....

.....

.....

4.1 As a community what have you done?

.....

.....

.....

.....

4.2 Do you feel that these measures are effective?

(i) YES

(i) NO

If Yes How?.....

.....

.....

If No, why?.....

.....

.....

SECTION E: RECOMMENDATION

5.0 Despite the effort put in place to minimize or solve the consequences of slum development, the problem still exists. Do you think something can be done to further solve the problem?

- (a) Yes
- (b) No

If no, why?

.....

.....

.....

If yes, how can this be done?

.....

.....

.....

5.1 What do you think the government can do to alleviate the problems in this area?

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.....

.....

5.2 In your view what do you think could be done to replace this area?

.....

.....

.....

5.3 What do you think we can do to help solve these problems?

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