

**URBAN POVERTY AND ENVIRONMENTAL HEALTH IN  
KISENYI SLUM; KAMPALA, UGANDA.**

**BY**

**BERTHA AMUGE**

**12/MMSPPM/27/007**

**A DISSERTATION SUBMITTED TO THE SCHOOL OF MANAGEMENT SCIENCE IN  
PARTIAL FULFILLMENT OF THE REQUIREMENT OF THE AWARD OF  
MASTER'S DEGREE IN MANAGEMENT STUDIES (PROJECT PLANNING AND  
MANAGEMENT) OF UGANDA MANAGEMENT INSTITUTE**

**December, 2013**

**APPROVAL**

This dissertation is submitted for examination with our approval as supervisors. We certify that **Bertha Amuge** carried out this study and wrote the dissertation under our supervision.

**Signed**.....

**Dr. Rose Namara**

**Signed** .....

**Dr. Sylvester Kugonza**

**DECLARATION**

I **Bertha Amuge** declare that this dissertation entitled urban poverty and environmental health in Kisenyi slum; Kampala, Uganda is a result of my own research efforts and investigations. It has never been submitted to any other institution of learning for the reward of any other degree.

**Signed** .....**Date** .....

**Bertha Amuge**

## **DEDICATION**

This dissertation is dedicated to my most beloved friend and mentor Mr.Okongo Matthew Erneo and his family for the endless financial support towards this entire course and project, May the almighty God continue to abundantly bless you.

It is also dedicated to my dear friend Rachel Kweera (RIP) for your word of encouragement especially at the start of this course when it all seemed so difficult and impossible, May you rest in Peace till we meet again, I will forever Love and Miss you.

## **ACKNOWLEDGEMENT**

In a special way, I wish to acknowledge my supervisors Dr. Rose Namara and Dr. Sylvester Kugonza for the proficient direction right from the start to the end of this study

Special thanks to all my friends and class mates who supported me morally, socially, psychologically, spiritually and academically especially during those trying times when I almost gave up. Special thanks go out to Pamela Nahurira, Lynette Mugerwa, Eve Mugomba, Edmund Tumwesiga, Wilbrod Milwen, Julius Byaruhanga, Ronald Sempembwa, Olive Wananda, Bibian Gonza, Silver, Joseph, Andrew Bamanya, Yvonne Natukunda, Bonny Asimwe and Joselyne Kobusinge.

The successful completion of this piece of work would not have been possible without the support and cooperation of my respondents. Special thanks to the Kisenyi community, members of Kisenyi Community Health Workers Association and Uganda Slum Dwellers Federation, not forgetting the KCCA officials most especially Ms Anita Kusiima for all the information and data you provided that formed the basis of this report.

Above all, I thank the almighty God and my saviour Jesus Christ for his unfailing love, faithfulness, Grace, strength, guidance, protection and provisions throughout my life, academic struggles and the production of this piece of work.

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

BCSD	Business Council for Sustainable Development
PEAP	Poverty Eradication Action Plan
UBOS	Uganda Bureau of Statistics
UNEP	United Nations Environment Programme
UNCED	United Nations Conference on Environment and Development
WCED	World Commission on Environment and Development
WRI	World Resources Institute
KCCA	Kampala Capital City Authority
MOH	Ministry of Health
USAID	United States Agency for International Development
WASH	Water and Sanitation for Health
WB	World Bank
WHO	World Health Organization
MDGs	Millennium Development Goals
UNFCCC	United Nations Framework Convention on Climate Change
KICHWA	Kisenyi Community HealthWorkers Association
USDF	Uganda Slum Dwellers Federation
ILO	International Labor Organization

## ABSTRACT

This study sought to assess the influence of urban poverty on Environmental health in Kisenyi slum. The objectives to the study were; to assess the extent to which the income status of residents affect environmental health, to find out the effect of the education status of slum dwellers on Environmental health and to examine the relationship between tenure security and Environmental health. The study used a cross sectional research design to understand the relationship between the two variables at that point in time. A triangulation method was adapted where a questionnaire, an interview guide and observation guide were employed to collect both quantitative and qualitative data. Respondents were systematically and purposively selected from the three parishes of Kisenyi. Content analysis was used to edit qualitative data while quantitative data was analyzed using SPSS. The study revealed that the incomes/consumption levels had a greater influence on the state of the environmental health. There was also magnificent evidence that the low education levels and the lack of adherence to existing land tenure laws greatly threatened environmental health. It was concluded that; the low incomes/ consumption levels of the slum dwellers had a great influence on the state of environmental health, the Education and awareness levels amongst the slum dwellers were generally low hence highly affected the health of the environment and Tenure insecurity was identified as a key predictor on the state of environmental health. The study recommended among other things; urgent need for government to regulate and support the informal sector, extend more financial support to the small community projects implemented by the slum dwellers like the briquettes project aimed at improving on their incomes at the same time protecting the environment and more programs be introduced during the awareness campaigns to address the problem of sanitation in the area as well as implementing the land use master plans and zoning of the area.

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Introduction**

This study assessed the influence of urban poverty on Environmental health in Kisenyi slum; Kampala, Uganda. In the study, Urban Poverty was the independent variable while Environmental health was the dependent variable. Urban poverty was operationalized through Income status, Education status and Tenure security. Environmental health was looked at through sanitation, burden of disease and waste disposal and management as shown in the conceptual framework below. This chapter presents background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, the hypothesis, scope of the study, significance, justification and operational definitions of terms and concept.

### **1.2 Background to the study**

#### **1.2.1 Historical background**

As the world population grew, the need for more resources also increased. In order to meet the increasing demand for these resources, more industrial activities also grew around the world. In the 20 years 1972-92, between the UN Conference on the Environment in Stockholm and that on Environment and Development (UNCED) in Rio de Janeiro, the scientific consensus gradually hardened that the damage being inflicted by human activities on the natural environment rendered those activities on the environment unhealthy. It became clear that the activities could not be projected to continue into the future because their environmental effects would cause massive, unacceptable damage to human health and disruption of human ways of life (Elkins & Jacobs, 1998). The perceived seriousness of the problem could be illustrated by a number of quotations of the conclusions of reputable bodies which conducted such reviews. Thus the Business Council for



Sustainable Development (BCSD) stated in its report to UNCED: *We cannot continue in our present methods of using energy, managing forests, farming, protecting plant and animal species, managing urban growth and producing industrial goods.* (Schmidheiny, 1992:5)

The World Resources Institute (WRI) in collaboration with both the Development and Environment Programs of the United Nations (UNDP and UNEP), concluded on the basis of one of the world's most extensive environmental databases that the world was not headed toward a sustainable future, but rather toward a variety of potential human and environmental disasters (WRI, 1992:2). The World Bank, envisaging a 3.5 times increase in world economic output by 2030, acknowledged that if environmental pollution and degradation were to rise in step with such a rise in output, the result would be appalling environmental pollution and damage. (World Bank, 1992:9).

The Fifth Action Programs of the European Community also acknowledged that the many current forms of activity and development were not environmentally healthy. As indicated by 'a slow but relentless deterioration of the environment of the Community, notwithstanding the measures taken over the last two decades' (CEC, 1992b:3). In its annual *State of the World* reports, the World Watch Institute documented the environmental damage then, concluding in 1993 that the environmentally destructive activities of preceding decades were then showing up in reduced productivity of croplands, forests, grasslands and fisheries; in the mounting cleanup costs of toxic waste sites; in rising health care costs for cancer, birth defects, allergies, emphysema, asthma and other respiratory diseases; and in the spread of hunger. (Brown *et al*, 1993). These trends meant that failure to convert our self-destructing economies into one that was environmentally healthy, future generations would be overwhelmed by environmental degradation and social disintegration.' (ibid: 21). Little wonder therefore that in 1992, two of the world's most prestigious scientific institutions

saw fit to issue a joint statement of warning: Unrestrained resource consumption for energy production and other uses could lead to catastrophic outcomes for the global environment. Some of the environmental changes may produce irreversible damage to the earth's capacity to sustain life.... The future of our planet is in the balance. (RS & NAS, 1992).

These negative consequences on our environment have drawn a lot of attention on a global scale. Several nations have gathered over the years to deliberate on immediate solutions about environmental problems around world. One of such conventions is the recent December 2009 summit that was held in Copenhagen, Denmark. The United Nations Framework Convention on Climate Change (UNFCCC) is the international environmental treaty produced at the United Nations Conference on Environment and Development (UNCED), informally known as the “Earth Summit”, held in Rio de Janeiro from 3rd to 14th June 1992. The objective of the treaty was to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate. Subsequently, other conventions followed such as the Kyoto, Japan in 1997 and then the Copenhagen, Denmark in 2009. The issue of climate change was extensively discussed which has become a growing concern around the world due to carbon emissions from fossil fuels. Several countries such as Finland, Sweden and Norway to mention a few, have adopted some environmental policies to help reduce environmental degradation. Some of these policies have been challenged as detrimental to economic growth while others argued for more stringent environmental protection policies. Considering every country’s need to strive towards economic growth while sustaining the environment, there is the growing concern to adopt policies that give the right balance on both.

### **1.2.2 Theoretical background**

This study adopted the concept of Sustainable Development as an operational framework that embodies the principles, ideals and values of the environment. This is seen as desirable and necessary if the world is to deal effectively with current global problems of the environment and development process. The concept express environment as the aggregate of the physical and biological entities outside of man that support the existence of human whether on land, in water or air (Osoko, 2000; Adedeji & Owoeye, 2008; Oriye & Owoeye, 2009). This study was guided by the framework of the system's theory where a biologist Von Bertalanffy (1952), is considered to be the author. This theory is further discussed in detail in section 2.2 below.

### **1.2.3 Conceptual background**

Environment is anything around us, it refers to the living and non-living components of the natural world and the interaction between them that supports life on Earth (UNEP, 2000). In another words it is the sum total of water, air and land interrelationships among themselves and also with the human being, other living organisms and property.

A widely accepted definition of health comes from the 1948 constitution of the World Health Organization (2005), a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. Environmental health has been defined in many ways, some definitions make reference to the people and the environment, evoking an ecosystem concept and others focus more narrowly on addressing particular environmental conditions. Environmental Health is a branch of public health that is concerned with all aspects of the natural and built environment that might affect human health. It comprises those aspects of human health, including quality of life, that are determined by physical, biological, social, and psychosocial factors in the

environment. It also refers to the theory and practice of assessing, correcting, controlling, and preventing those factors in the environment that can potentially affect adversely the health of present and future generations (WHO, 1997).

Cobett (2009), defines poverty as a condition of insufficient resources on income. Ravallion and Badani (1994), identify poverty as a condition which is identified by lack of control over basic needs with an inadequate level of consumption. Urban poverty is a multi-dimensional phenomenon, and the poor suffer from various deprivations like lack of access to employment; adequate housing and services; social protection; and lack of access to health, education and personal security (World Bank,2001).

#### **1.2.4 Contextual background**

Kisenyi is within Kampala the capital city of Uganda. It is a large informal settlement in the south western part of Kampala. This western division is situated among the key productive areas of down town Kampala; East of Mengo, South of old Kampala and adjoining the central business district. Kisenyi is comprised of three parishes, namely: Kisenyi 1, Kisenyi 11, and Kisenyi 111. Kampala besides being the economic and political capital of Uganda, it serves as a seat to the Buganda throne having been established by KabakaMutesa1 in 1885. The exact spot of the throne was Mengo hill where most of the area's inhabitants processed millet with large grinding stones called "Mengo". This explains the name given to Buganda capital; Mengo. As the Buganda capital grew, many of the Mengoinhabitants moved to nearby areas, including the nearby wet land known as Kisenyi. It grew rapidly with the influx of new settlers. In 1912 the first planning scheme of Kampala was implemented and commissioned the reclamation of the wetland around Kampala Township to remedy the problem of rodents in and around Kisenyi.

Realities of life in Kisenyi today, vary from parish to parish and home to home but many of the communities share the challenges for example residents live in extremely close quarters, with substandard services and pronounced threats to human health. Many of these threats result from pervasive flooding and poor sanitation which touches lives of virtually all Kisenyi residents. Tenure security is also a collective concern owing to the settlements proximity to central business district and resultant high values leading to stiff competition for land and dwellings. The vast majority of Kisenyi residents are tenants who work and live in rented premises. Enumeration carried by Uganda slum dwellers federation suggests 84% of residents are tenants; 5% are sub tenants; 7% are structural owners; and 4% own both their land and structure.

### **1.3 Problem statement**

The environment in which we live greatly affects our health and ought to be free from contamination for good health experience. However, in slum communities like Kisenyi, the environmental health conditions are particularly poor, both in the natural and the built environment which is influenced by a number of factors, such as the overpopulation due to rural urban migration, the tenure system which does not favor the poor and the high levels of unemployment which has given birth to the informal sector (USDF report, 2011). A number of programs and interventions have been put in place to address the environmental health issues in Kisenyi by both the central government through KCCA, national and international NGOs such as ACTogether, Action Aid and Uganda slum dwellers Federation. For example, KCCA has tried to address the issue of waste / garbage disposal and management through provision of rubbish bins both at communal and household level as well as the sanitation issues through construction of public toilets and drainage systems. Action Aid has intervened in addressing the sanitation issues through construction of toilets and safe water points. Despite these efforts and other interventions by

various stakeholders, environmental health in Kisenyi has remained very poor as evidenced by the frequent outbreaks of waterborne diseases such as cholera, typhoid and diarrhea which are a great threat to public health (MOH report, 2009). It is not clear why environmental health has remained a challenge and this study attempted to provide an answer to this question. If this study, the influence of urban poverty on environmental health is not done, efforts will continue to be expended while not yielding the required changes on Environmental health in Kisenyi slum.

#### **1.4 General objective**

The main purpose of this study was to assess the influence of Urban Poverty on Environmental health in Kisenyi slum; Kampala, Uganda.

#### **1.5 Specific objectives**

- i. To assess the extent to which income status of the slum dwellers affect Environmental health in Kisenyi.
- ii. To find out the effect of education status of the slum dwellers on the Environmental health in Kisenyi
- iii. To examine the relationship between tenure security of the slum dwellers and Environmental health in Kisenyi

## **1.6 Research questions**

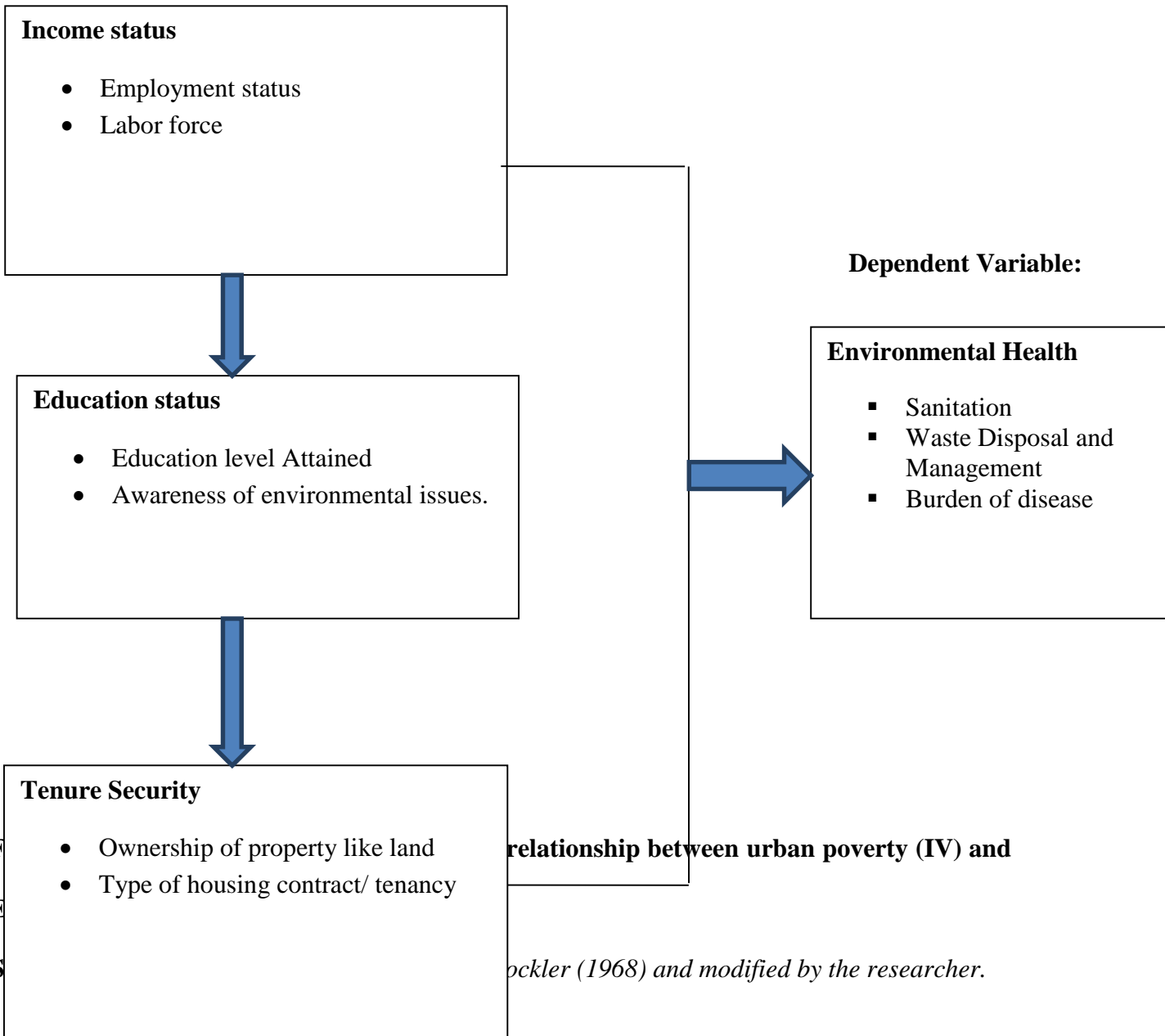
- i. To what extent does income thestatus of the slum dwellers affect the environmental health in Kisenyi?
- ii. What is the effect of education status of the slum dwellers on Environmental health in Kisenyi?
- iii. What is the relationship between tenure security of the slum dwellers and the environmental health in Kisenyi?

## **1.7 Hypothesis of the study**

- i. Income statushasa significant effect on the Environmental health in Kisenyi.
- ii. Education status significantly affects environment health in Kisenyi
- iii. Tenure security has a significant relationship with Environmental health in Kisenyi

**1.8 Conceptual framework showing the relationship between Urban Poverty and Environmental Health.**

**Independent Variable:** Urban Poverty



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relationship between urban poverty (IV) and

ockler (1968) and modified by the researcher.

The conceptual framework in figure 1 above portrayed urban poverty as the independent variable, mainly comprising of dimensions such as income status, education status and tenure security and



the dependent variable was environmental health composed of sanitation, Burden of disease and waste disposal and management as discussed in the literature review in chapter two below. It is conceptualized that the interaction between the income status of the slum dwellers, their education status and the tenure security, has got an influence on the health of the Environment in Kisenyi Slum.

### **1.9 Significance of the study**

The study would be of a great benefit to the policy makers and implementers such as humanitarian agencies, NGOs and the Government as they utilize the research findings to come up with policies aiming to address environmental health issues such as the poor sanitation, the burden of disease and waste disposal and management that areas a result of urban poverty.

It had been widely witnessed that environmental health was key in the future of almost all projects undertaken by Governments and donors around the world. This study would go a long way in helping Government to identify and develop strategies that are suitable and geared towards the promotion of good environmental health practices among urban informal settlements.

The study would help the Government in designing urban poverty management policies that are tailored towards achievement of a healthy environment in urban informal settlements.

Additionally, the findings also would help in raising awareness especially among the slum dwellers on Environmental conservation issues so as to protect their Environment even amidst the economic challenges.

To the academic world, the study would work as a basis of identifying areas of environmental concern especially in poor communities that need further research such as the relationship between urban poverty and the informal sector development.

### **1.10 Justification of the study**

The importance of environmental health especially for the urban poor cannot be underestimated, on many occasions question as to why projects with all the funding done in terms of infrastructure, fail to sustain themselves with all the revenue collected from the services offered. This is mainly done without adequate consideration of economic and social behavior of the target population; one cannot talk about environmental health in informal settlements without mentioning pertinent issues that influence it. Research has been done in the field of migration, population growth and the environment but none has ever been done on the influence of urban poverty on environmental health in informal settlements of Uganda, hence the need for a study in this field.

### **1.11 Scope of the study**

#### **1.11.1 Geographical Scope**

The study was based in Kampala; focusing on the informal settlements of Kisenyi I, Kisenyi II, and Kisenyi III with consultations to Uganda slum dwellers federation report, (2011). Kisenyi slum was chosen as a case for this study because it is one of the largest informal settlements situated in the middle of Kampala city and harboring a big number of foreign immigrants from both within and out of the country.

#### **1.11.2 Content Scope**

The study sought to assess the influence of urban poverty on Environmental health in Kisenyi slum. Approaches to the urban poverty (the independent variable) were looked at under the dimensions

of Income status, education status and tenure security. Environmental health was the dependent variable and was looked at in the aspect of sanitation, burden of disease and waste disposal and management

### **1.11.3 Time scope**

The study was limited to the period 2000-2012 because it is within this period that many concerned stakeholders and actors came up with various programs and interventions to try and address some problems such as the disease outbreak, sanitation and waste disposal issues among the Kisenyi community.

## **1.12 Operational definitions**

**Urban poverty:** Urban poverty is a multi-dimensional phenomenon, and the poor suffer from various deprivations for example lack of access to employment; adequate housing and services; social protection; and lack of access to health, education and personal security.

**Health:** A state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity.

**Environmental health;** is a branch of public health that is concerned with all aspects of the natural and built environment that might affect human health. It comprises those aspects of human health, including quality of life, that are determined by physical, biological, social, and psychosocial factors in the environment.

**Income;** is the consumption and savings opportunity gained by an entity within a specified timeframe, which is generally expressed in monetary term. However, for households and individuals, income is the sum of all the wages, salaries, profits, interests, payments, rents and other forms of earnings received in a given period of time.

**Land tenure;** is the mode in which land is held or owned. And are rights that individual and communities have with regard to land, namely the right to occupy, to use, to development, to inherit and to transfer and are thus primarily be viewed as a *social relation* involving a complex set of rules that governs land use and land ownership.

**Tenure security;** It is the right of all individuals and groups to effective protection by the state against forced evictions.

**Slum;**It is a densely populated usually urban area marked by crowding, dirty run-down housing, poverty, and social disorganization. It is a cluster of compact settlements of 5 or more households which generally grow very unsystematically and haphazardly in an unhealthy condition and atmosphere on government and private vacant land.

**Waste Management;**refers to the collection, transportation, processing, recycling or disposal of waste materials. It ought to be appreciated that waste management practices differ for developed and developing countries, for urban and rural areas, and for residential and industrial producers. The volumes and types of waste in these different sources of waste justify the difference in the waste management practices.

**Educational attainment;**is defined as the highest grade completed within the most advanced level attended in the educational system of the country where the education was received. Education level attained has a broad connotation; it not only implies knowledge about a matter but also attitude, values and necessary skills to address social needs.

**Environmental Awareness;** has a broad connotation; it not only implies knowledge about environment but also attitude, values and necessary skills to solve environment related problems.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter discussed the theoretical, conceptual and actual literature review and it also gives a summary of the literature review. A comprehensive review of published and unpublished work from secondary sources of data in the area of environmental health and urban poverty among informal settlements was reviewed. Data was derived from books and journals, newspapers, magazines, conference proceedings, government publications, and other reports.

#### **2.2 Theoretical review**

As already pointed out in section 1.2.2 above, the impact of human activities on the earth's environment can be understood by applying the framework of systems theory. While the biologist Von Bertalanffy (1952) is considered the originator of the general systems theory, elements of the approach can be found in sources going back to ancient times. Thucydides (c460-c400 BC), interest in science was much encouraged by the new methods instituted by Hippocrates. From him he learned to treat the body politics as analogous to the human body and to accept the corollary that it is impossible to understand the parts without understanding the whole.

Aristotle, in his *Nicomachean Ethics*, proposes an interlinked hierarchy of means and ends leading to human wellbeing; and again, in the beginning of his "on the Parts of Animals" deals with the nature of specialist and generalist knowledge, referring to the benefits of an overall perspective in judging well in any situation.

For a useful overview of systems theory, a systems approach to management by objectives, and the systems outlook generally refer to Katz and Kahn (1970), Mockler ((1968) and Wehrich (1977). The systems concept finds a useful explanation in the living organism analogy. From the simplest one-celled bacterium to more complex living organisms one can observe the creature as an “open system” made up of “subsystems”. There are inputs in the form of food, water, oxygen and other material and energy sources. There are the transforming processes of metabolism and there are outputs of energy and waste products. Subsystems in complex organisms can be identified, such as circulatory, respiratory, digestive, etcetera. Human organizations can also be viewed as open systems interacting with their environment.

In health, the living organism functions as a unified complex of subsystems to the benefit of the total organism. Should an injury or disease attack any subsystem the result has consequences within all the other subsystems of the organism. If the organism cannot maintain its equilibrium (homeostasis) it dies. As already outlined, human organizations exhibit certain properties akin to those noted in living organisms. An important consequence of viewing entities in this fashion is that it becomes most significant that no part of the organization be examined in isolation. The organization is a complex of subsystems which are interconnected, interrelated and interdependent. If an adjustment is made to one subsystem repercussions extend throughout the whole organization. If the substantive environment within which the entity operates changes, then the entity is affected and tends to adapt, such that a healthy equilibrium is maintained. To a greater or lesser extent the changes in the entity will affect the substantive environment. Thus this study conclusively adopted the system’s theory in measuring the influence of urban poverty on environmental health in kisenyi slum because of its advantages it holds as compared to other theories.

### **2.3 Conceptual review**

As already pointed out in section 1.2.2 above, this study adopted the concept of Sustainable Development as an operational framework that embodies the principles, ideals and values of the environment. This is seen as desirable and necessary if the world is to deal effectively with current global problems of the environment and development process. The concept express environment as the aggregate of the physical and biological entities outside of man that support the existence of human whether on land, in water or air (Osoko, 2000; Adedeji & Owoeye, 2008; Oriye & Owoeye, 2009). It is undoubtedly the very basis of human existence which has profound influence on the health, welfare and productivity of individuals thereby becoming a viable stimulant to national growth and economic development (WHO, 1987; Osoko, 2000; Brundtland, 2003). At such, health and environment should be seen as essential two inseparable parts of human development that cannot be upheld as though they operate in a vacuum.

Generally, there are two principal groups of environmental problems that are peculiar to high-density residential zone of a city. The first is the presence in the human environment of pathogens because of lack of basic infrastructure and services like sewers, drains or services to collect solid and liquid wastes and safely dispose them off. The second is crowded, congested and cramped living conditions in which the people live (UN-Habitat, 1989). It was further submitted that lack of infrastructure, readily available drinking water, sewerage connection (or other system to dispose human wastes hygienically), garbage collection and basic measure to prevent diseases and provide primary health care ensure many deliberating and endemic conditions among poorer households. Diseases include diarrhea, dysentery, typhoid, intestinal parasites, and food poisoning are very common in such environment. Most cities in Africa and Asia have no sewers at all. Human

excrement and waste water are disposed in rivers, streams, canals, gullies and ditches. Such constitute great danger to human environment (WHO, 2004; Oriye & Omole et al., 2011).

Brundtland (2003), identified six major classes of environmental risks to include inadequate access to safe drinking water, poor hygiene and sanitation, inadequate water resource management, air pollution (indoor and outdoor), chemical hazards and unintentional injuries. He reported that in 2000, an estimated 1.1 billion people lacked access to an improved water source. As at 2003 when the study was carried out, about 2.4 billion people around the world did not have access to any type of improved sanitation facilities. Equally, air pollution was identified as a serious risk-factor for respiratory disease and a major contributor to ill-health among children around the world. From the studies reported in WHO (2004), about 2 million children die each year from acute respiratory infections alone, with indoor air pollution from cooking and heating. Diarrhoea, a disease related to inadequate water and sanitation was identified the second biggest child killer, claiming about 1.3 million children each year.

It is clearly observed that most developing nations of the world are located in the tropics where communicable diseases are very rife. In view of this, various strategies are being adopted to improve the health of majority of the third world's population with the realization of the effect of various unseen factors. The mass eradication approach of small pox and malaria of 1950s had little effect on many killer diseases like measles, tuberculosis and diarrhoea. Further researches in the 60s and early 70s show some links between such factors as poverty, nutrition, environment, housing and health (Akinsola, 1993; Egunjobi, 2002). However, increasing number of health studies in the third world cities show the degree to which the lives of lower-income groups are dominated by ill-health, disablement or premature death. A review of nutrition and health by the World Health Organization stresses the extent to which poor urban groups suffer from very poor



health. Infants in many illegal settlements are 40 to 50 times more likely to die before the age of 5 than infants born in a western country.

## **2.4 Actual Literature Review**

### **2.4.1 Income status and Environmental Health in Kisenyi slum**

A wide variety of scholars and activists have identified modern mass consumer society as a fundamental driver of both global economic growth and environmental damage (Redclift, 1996; Stern et al., 1997). The spread of high-level consumption practices across the planet has the potential to dramatically increase human impacts on both local and global resources, and contribute to continuing climate change (Myers, 1997; Wilk, 1998). Direct consumption of food, water, construction materials, energy and other renewable and nonrenewable resources is the easiest to track and quantify. Extraction, production, disposal and transportation of goods are linked together in complex 'commodity chains' that can make it very difficult to assess the full environmental health effects of even common and everyday products (Ryan & Durning, 1997).

Nevertheless, the World Wildlife Foundation estimates that the consumption of resources and consequent pollution are currently increasing by around 2 per cent per year (WWF, 1999). On a global basis the demand for consumer goods is not a simple consequence of income levels. Economic historians now argue that consumer demand has historically been highly variable, and is a fundamental cause of economic growth, rather than a consequence of it (Mukerji, 1983; Tiersten, 1993; Belk, 1995). It is also apparent that populations at the same income levels can have drastically different levels of environmental health impact, consuming different bundles of resources, using different mixes of energy resources, and emitting widely varying amounts of greenhouse gases. For these reasons, consumption is a key issue in both predicting future

environmental change, and in formulating policies that can lead towards sustainable resource use (Cohen and Murphy, 2001).

According to Arrow et al. (2005), most cases of declining emissions with increasing per capita income among the people occur due to institutional changes such as environmental legislation. Esty & Porter (2005), also find a similar effect in their study of environmental performance as quantified by urban particulates, sulphur dioxide and energy use per unit GDP. Consequently, income levels of the people considerably influence various aspects of a country's environmental health.

Writers on the urban economy of developing countries have divided the urban sector into two parallel sectors, a formal sector and an informal sector, and Third World employment into upper and lower circuits (Santos, 1979; Sethuraman, 1981; Saito, 1990; Roberts 1995). However, according to Bromley and Gerry (1979), most commentators now reject the categories of socio-economic groups in urban areas: survivalists, the self-employed and very small businesses. The survivalists being those very poor people who work part-time in income generating activities, the self-employed being those who produce goods for sale or resale or offer services and lastly the very small businesses being those that usually operate from a fixed location with more or less regular hours.

Studies reveal that the share of urban labor force engaged in informal sector activities ranges from 20% to 70%, the average being around 50% (Todaro, 1994). The proportion of informal sector employment to the total urban employment is highest in Africa followed by Asia, Latin America and the Caribbean. Estimates in some South East Asian and South Asian cities put the share of informal employment to the total workforce at around 50 to 60% (Rukmana, 2007). The

contribution of the informal sector to employment generation in leading urban centres in selected African countries in the mid - 1970s ranged from 95% in urban areas in the Republic of Benin to 20% in Djibouti, with Kumasi (Ghana) and Lagos (Nigeria) having 65 and 50%, respectively (ILO, 2004).

The urban sector can have a negative role on the quality of life; researches in India by Harris and Harris (1988) and in Sao Paulo by Humphrey (1994), show a strong correlation between labor market status and poverty. People with a stable job, for example, are much less likely to be poor than people who have an unstable, casual job. This implies that most operators of this sector may never come out of the cycle of poverty. However, in the opinion of Onyenechere (2003), the importance of the informal sector lies in its contribution to a nation's total economy, while to UNECA/AAPAM (1992), it lies most in the aspect of training opportunities it provides through apprenticeship. The relative importance of informal sector activities increases with decreasing urban size (Mabogunje, 1980). Though there exists an increasing body of literature on the informal sector, at the global level few studies such as that of Perera and Amin (1996), have been concerned with the environment. These authors conducted a study in Asia on accommodating the informal sector as a strategy for urban environmental management, while a chapter in Eden and Parry's (1996), book was devoted to "Environmental Impacts of Urban Development and the Urban Informal Sector in the Caribbean". Mubvami (1992) and Lubell (1991), are other researches on the informal sector concerned with its environmental management nexus.

According to Spengler and Ford (1997), cities are environmentally challenged, and managing solid waste is one of the most costly urban services. Typically, it gulps up to 1.5% of any nation's Gross National Product and 20-40% of the municipal revenue in a developing country. Like Nigeria

(Ashiri, 2006), Lubell (1991) and Mitullah (1991), have identified hawking and street trading as one of the more intractable informal sector problems faced by municipal authorities of the Third World. A major catalyst in this chain reaction of waste generation is the rapid but unplanned urban growth, industrial revolution without commensurate check on urban welfare, urban informal sector growth and the resultant development of slum residential areas (Campbell, 1993). Advocates of environmental protection have called for appropriate legislations and regulations to control and protect our environment from further deterioration particularly in connection with the management of solid waste in urban areas (Barton, 2000, as cited in Ashiri, 2006).

#### **2.4.2 Education status and Environmental Health in Kisenyi slum**

Education is an important social determinant of environmental health. For the population as a whole, greater levels of education help to create wealthier economies. However, the benefits of education go far beyond economic ones. Education can impact positively on levels of social engagement, an important factor in generating more cohesive, safer and healthier environment. At an individual level, the knowledge, personal and social skills provided through education can better equip individuals to access and use information and services to maintain and improve their own environment.

According to VanRooyen & Viljoen (2003:15), Educating the population to view and use the environment in a responsible manner and to behave in such a way that we leave an environment of the same and even better quality to our children, is central to modern education. There exists a great need for relevant education for the people of our society for the betterment of the environment to be able to cope with the various challenges influenced by political changes, innovative technologies, economic globalization, demographic shifts, and also the establishment of informal settlements and the restructuring of the workplace, in order to sustain our environmental

resources. Through environmental education, people's behavior towards society, nature, and themselves is shaped. Meyer (2004:13).

According to Allers(1997:4), Environmental Education is described as;

Education about, for, in and through the environment. It is basically a process that seeks to develop the necessary awareness, ethics, values, knowledge, skills, and commitment to allow people to become environmentally literate in order to be pro-active in securing a proper functioning and healthy environment that is sustainable.

To elaborate on the concept "environment" one can follow the description in VanRooyen's article in the Environmental Education curriculum guide (2003:3), indicates that our environment is our world and it comprises of the natural environment (which includes sun, air, water, earth, physical cycles that supports life), the social environment (which includes humans and the human-created world of buildings, farms, machines, governments, economies, religions and cultures); and the personal environment.

According Hawkins (1994:166), in the Oxford School Dictionary, the concept 'education' implies a process of training people's minds and abilities so that they acquire knowledge and develop skills. Therefore, Environmental Education can be described as a method of promoting effective learning and teaching and helping learners to become aware; to acquire the understanding, skills and values that will enable them to participate as active and informed members in the development and maintenance of an ecologically sustainable society.

Those with more years of schooling tend to have better health and well-being and healthier behaviors. Education is an important mechanism for enhancing the health and well-being of individuals because it reduces the need for health care, the associated costs of dependence, lost

earnings and human suffering. It also helps promote and sustain healthy lifestyles and positive choices, supporting and nurturing human development, human relationships and personal, family and community well-being

According to Kneale (2003: 32), on awareness and education strategy in Alexandra, the reasons why waste lying around on streets, open areas, street corners and also illegal dumping by residents is "...lack of awareness of correct waste handling and impact of incorrect waste handling,... and all larger items are washed into river during heavy rains and attracts flies, which bring diseases, clogs up drains, rivers and pipes,...the area becomes a breeding ground for mosquitoes and rodents..." Kneale(2003: 32),indicated that "illegal dumping by residents is an indication of no sense of ownership... and not enough space in informaldwelling areas..."The Lackofknowledge from the community that is leading to ignorance, as a result the community's health is at risk. According to UNCHS (Habitat) and UNEP Water for African Cities Newsletter (2001:5), stated that;

It is the function of education and training to give all people respect for water as a finite, vulnerable resource; knowledge on the multiple benefits and ecological services of water, the relevance of sanitation and hygiene; and basic understanding of integrated water resources management and even the need to change our lifestyles in many areas. Basic education must initiate a holistic, interdisciplinary approach to integrated water management at an early stage.

Education brings about the need and wants to change a person's attitude andbehavior regarding environmental health. This is in agreement with Mckeown (2002:7-9), where he states that "sustainable development aims to improve the quality of life of human beings while at the same time living within their ecological means". According to the White Paper on Environmental

Education (1989:6) "...an attempt will be made, in co-operation with the responsible educational bodies, to ensure that the principles of environmental education are included in all appropriate educational curricula". Allers (1997:4),stated that environmental education "...is a process that seeks to develop the necessary awareness, ethics, values, knowledge, skills and commitment to allow people to become environmentally literate..."

### **2.4.3 Tenure Security and Environmental Health in Kisenyi slum**

The struggle for survival in squatter areas without access to water, sewers, garbage collection or clean fuel often forces the urban poor to cause further environmental health problems. In this context, many are forced to make significant trade-offs between basic needs and environmental safety and protection. Often, there is no other choice but to settle on environmentally vulnerable lands, burn polluting fuels, or publicly dispose off wastes. Leonard and Petesch thus argue that "the interaction of urban poverty and the environment contributes to a downward spiral of ecological destruction that further undermines the wellbeing and productivity of poor people. (Bartone et al., 1994). He discovered that the urban poor, confined to economically fragile and ecologically vulnerable areas, contribute to the incidence of environmental degradation and urban congestion.

Illegal occupation of public or private land is often the only option for most of the urban poor, lack of secure tenure is therefore a common problem in many low-income urban areas. In transition countries, illegal occupation is not a common practice but unclear property rights remain a serious problem. Furthermore, in these countries, widespread public ownership of urban land and vague transaction rules constrain land transactions and thus limit individuals and small-scale developers from accessing urban land, this poses serious challenges to sustainable development. First in the

economic dimension, inequitable land distribution and economic growth tend to be negatively correlated (Deininger, 2003). That is, higher levels of inequality in land distribution translate into lower GDP growth. Secondly, in the social dimension, access to land is a core determinant of whether people move out of or into chronic poverty (Hulme and Shepherd, 2003). Last but not least, in the ecological dimension, security of land rights is a pivotal incentive for investments into the resource (Meinzen-Dick and di Gregorio, 2004). Poor people often do not only hold rights to a limited amount of land, their rights are also often insecure, they lack the necessary regulative backing that would allow them to invest in soil improvement measures.

Since access to common resources is often key to the livelihood of the rural poor and plays a crucial role in enhancing their opportunities, questions of property rights, local institutions for the management of common-property resources and “environmental entitlements” become central to the issue of poverty alleviation. For instance, the weak definition of property rights in forest areas is seen by some as a driving force behind deforestation (World Bank, 1991). In urban areas slum dwellers, squatters and migrants often lack tenure security over the land they inhabit.

The illegal nature of settlements, combined with poor public-infrastructure provision, is seen as reducing individual incentives for managing local surroundings, and thus contributing to a deteriorating urban environmental health (Ekbom and Bojo, 1999).

Access to land and security of tenure are key questions here, along with access to the urban services that indirectly depend on them. Many people in informal neighborhoods have no direct access to potable water and have to use more expensive options to obtain mediocre quality water. In fact poor people in precarious neighborhoods pay 3 to 10 times more for their water than residents who are connected to a water system. Massive investment in infrastructure development is absolutely essential.



Across the globe inequality in access to land tends to play out along the lines of social and political classes, race and gender. To uncover those differences and their underlying causes should be at the core of questions regarding distributional equity in soil and land governance. On this regard, especially gender dynamics in land governance processes are receiving increasing global recognition. Gender is thus understood to be an important analytical category for obtaining more sustainable natural resource governance (Pottier, 1999; Agarwal, 2000).

Property rights are often at the core of available opportunities, existing property regimes often favor the rich and other established sectors, and this has been particularly evident in land and natural resource tenure. The enforcement of property rights, without due consideration of equity and justice issues, may exacerbate conflict among users at different levels including the local national, and possibly beyond this.

It has been argued that land ownership makes poor people less reliant on wage labor and increases opportunities available to them, thus reducing their vulnerability to shocks, providing poor people with access to land, together with building their capacity to effectively use the land, is central to reducing poverty and Environmental health problems hence empowering the poor communities (World Bank, 2003). Improving land productivity needs to be part of a multi prolonged economic strategy that amongst other things promotes industrial development for employment opportunities.

Effective land use management, which takes into account equity and access issues and tenure rights, is critical to sustainable development in Africa. Ineffective land use governance and planning leads to only over exploitation of the resources, contributing to increased land degradation, salination, pollution, erosion and conversion of fragile lands (UNEPI, 2000). The poor often end up on insecure public or private land as it is their only option. This is as a result of

poorly functioning land and housing markets and the lack of planning for urban development and growth. Insecurity of tenure puts the urban poor at constant risk of eviction, hampers them from building up assets and accessing credit, inhibits using one's home for income generating activities and does not allow for investments in service provision (World Bank, 2007). Insecure land tenures have led to land fragmentation and poor urban agriculture practices further affecting the environment. (Durand- Lasserre and Royston, 2002).

## **2.5 Summary of literature**

This chapter has proved that one cannot talk about environmental health without mentioning pertinent issues that influence it. Indeed the income levels of the people, their education status and tenure security have been found to play a big role in determining the health of the environment looking at the sanitation, waste disposal and management and the disease burden in urban poor settlements among others and if improved can also be key players in determining the level of environmental health among the urban poor around the world. The review however, suggests an existing gap in urban areas on income levels, education status and tenure security literature. Despite the fact that urban poverty in the Sub-Saharan Africa has attracted the attention of researchers in recent times few studies focus on education and tenure security as dimensions of poverty. Therefore, the existing gaps in literature justify an empirical study on urban poverty in an emerging dilemma of environmental health, hence combating the drastic effects such as water borne diseases like cholera and diarrhea which are a big threat to human/public health.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter presents the methodology used in the study, it covers the research design, study population, sample size and selection, sampling techniques and procedures, data collection methods, data collection instruments, pretesting (validity and reliability), procedure of data collection, data analysis and measurement of variables.

#### **3.2 Research Design**

This study took on a cross sectional research design because it helped the researcher collect data that made inferences about a population of interest at one point in time and it described two or more groups of respondents such as the residents of Kisenyi, the Uganda Slum Dwellers Federation, KCCA officials and Kisenyi Community Health Workers Association, among others whose opinions vary in the amount of knowledge of the area of study as justified by Amin (2005). Both qualitative and quantitative approaches were at play however the former was used to supplement the latter. This particular survey design was chosen because of its flexibility in data collection as it allowed collection of both types of data at the same time (Ahunji, 2005: p. 138).

#### **3.3 Population of the study**

The study was conducted in the three parishes of Kisenyi, Kampala city. It had a total population of 6,700 according to a survey by the Uganda Slum Dwellers Federation (2011). The target population included local residents, Uganda Slum Dwellers Federation members, Kisenyi Community Health Workers Association (KICHTWA) and KCCA officials (Environmental

and physical planning officers). This population was chosen because it was made up of a highly representative percentage of the people living in the three parishes of Kisenyi.

### 3.4 Sample size, determination and selection strategies

The sample size was comprised of 366 respondents and this sample size was determined using Morgan & Krejcie (1970) table 1 as shown below:-

**Table 1: Sample size, determination and selection strategies**

	<b>Category</b>	<b>Population</b>	<b>Sample Size</b>	<b>Sampling Strategy</b>
	Local residents	6,700	354	Systematic Sampling
	Uganda Slum Dwellers Federation	15	5	Purposive sampling
	(K.I.C.H.W.A) Kisenyi Community Health Workers Association	15	5	Purposive sampling
	KCCA officials	12	2	Purposive sampling
	<b>Total</b>	<b>6,742</b>	<b>366</b>	

**Source:** *Uganda Slum Dwellers Federation report (2011) and UBOS (2002)*

### 3.5 Sampling techniques and procedure

Doscombe (2000), asserts that a sample needs to be carefully selected if there is to be confidence that the findings from the sample are similar to those found among the rest of the category under investigation. In this study, respondents from KICHWA, Uganda Slum Dwellers Federation and KCCA were selected by purposive sampling because they were few and equipped with important information required for the objectives of the study. Local residents were subjected to systematic sampling since it involved a very high number of respondents.

### **3.6 Data Collection Methods and procedures**

A three fold method involving interviews, questionnaire survey and observation was adapted to enable a systematic and comprehensive capture of data. The interviews were used to provide a rich understanding of the variables and phenomena of interest while the questionnaire survey enhanced generalization, interviews were carried out as well as administration of questionnaires.

Documentary review was also helpful in supplementing on information available on environmental health in the informal settlements.

#### **3.6.1 Questionnaire**

According to Mugenda (2003), questionnaires are commonly used to obtain important information about the population. Structured questionnaires were therefore given to potential respondents. The questionnaire was the main instrument for collecting data in this particular study and it was interviewer-administered to 354 local residents. This questionnaire was structured based on a five point likert scale. The items mainly focused on the key variables of the study and their dimensions. Each item in the questionnaire was developed to address a specific objective of the study. This method was used because it is very helpful in the generation of constructive data and enables the coverage of large samples in addition to making the results more dependable and reliable (Sekaran, 2000).

#### **3.6.2 Interviews**

The researcher used a face to face interview on KICHWA members, members from the Uganda Slum Dwellers Federation and KCCA as key informants. The purpose for this action was to obtain accurate, detailed and authentic information through interviews. Amin (2005), stresses that for the interview to be conducted, the information must be accessible to the respondents, the respondents should be able to play the role of a respondent and he/she should be motivated to participate in the

interview. The target population for the Uganda Slum Dwellers Federation was 5 only 3 were accessible, Kisenyi Community Health workers Association also was 5 but 3 were accessed while all the 2 KCCA officials targeted were accessed.

### **3.6.3 Observation**

The researcher used the observation method; unobtrusive observation is non-participatory in the interest of being non-reactive and can be done in an informal way (Robson, 2002; Leedy and Ormrod, 2005), and that is why the researcher decided to use it alongside the other methods. It was helpful in direct observation of people's behavior and attitudes towards environmental health; this was done to check the accuracy of the responses from the questionnaires and interviews.

### **3.6.4 Documentary review**

Secondary data was obtained and collected from research reports, journals, newspaper articles, and minutes of meetings (Mugenda et al. 2003). This method was helpful in finding out information available on environmental health in the informal settlements. It further assisted the researcher in identifying strengths, weaknesses and gaps in previous researches done.

## **3.7 Data Collection Instruments**

### **3.7.1 Questionnaire**

As justified by Amin (2005), a questionnaire is a carefully designed instrument for collecting data in accordance with the specifications of the research questions. It consisted of a set of questions to which the respondents responded to in writing. They were self/ researcher administered questionnaires for the local residents. This tool for data collection was used because respondents could easily express themselves with no interference from the researcher.

### **3.7.2 Interview Guide**

This was developed by the researcher that was used when conducting interviews for the purposive sampling strategy as guided by Marjorie (2003). Marjorie asserts that in every community, family, neighbourhood, workplace and schools, there are people who have knowledge and skills to share. This category of respondents included KICHWA staff, members from the Uganda Slum Dwellers Federation and KCCA officials.

### **3.7.3 Observation Guide**

This was developed by the researcher used concurrently with the questionnaire and the interview guide. It mainly included the environmental health indicators such as the water accessibility, the general sanitation and waste disposal/ management facilities.

## **3.8 Data collection procedure.**

After the proposal had been approved by the supervisors and successfully defended before a panel, the adjustments pointed out by the panel were adjusted and presented to the supervisors. A recommendation letter for commencement to the field was issued. Adjustments were made according to the results then actual field work commenced. While administering the questionnaires, observations were made to ascertain the state of the prevailing water and sanitation facilities in the area as well as the waste disposal and management mechanisms present.

## **3.9 Pre-testing of data collection instruments**

### **3.9.1 Validity**

Construct validity according to McNeill and Chapman (2005), is concerned with whether the findings portray an accurate image of what is being studied. The questionnaire was given to the supervisor to comment on its structure, the wording and the content of the questions. These

questions matched the content of the theories selected in the conceptual framework and validity was carried out. Amin (2005), observes that for a research instrument to be accepted as valid, the content validity index should be 0.7 and above. The questionnaire was also pre tested on 30 individuals in order to check that no irrelevant statements were present and the content validity index was also calculated using the formula as shown below based on expert judgement.

Content Validity Index (CVI) =  $\frac{\text{Number of items rated relevant by all judges}}{\text{Total number of items in the instrument}}$

Total number of items in the instrument

### **Questionnaire**

CVI for 3 experts =  $(0.75+0.82+0.73) \div 3$

CVI =  $2.3 \div 3$

CVI = 0.77

### **Interview guide**

CVI for 3 experts =  $(0.75+0.75+0.88) \div 3$

CVI =  $2.38 \div 3$

CVI = 0.79

Where;

CVI = Content Validity Index

K = Total number of items rated as relevant

N = Total number of items in the questionnaire or interview guide

(Refer to appendix 1V for detailed computation)



### 3.9.2 Reliability

Bryman and Nilsson (2005), state that reliability is concerned with the stability of the measures taken in the study, to facilitate reproduction of this study a questionnaire, an interview guide and observation guide were attached in the appendix. Reliability of the questionnaire was assessed using Cronbach's Alpha coefficient values as provided by Amin (2005). This was done to test for internal consistency coefficient of 0.71 and above implying that there is a high degree of reliability of the data.

**Table 2: Reliability statistics**

Cronbach's Alpha	Cronbach's Alpha based on standardized items	No. of Items
.680	.718	33

Source: Field data (Pre- test data)

### 3.10 Data Analysis

Data was collected, sorted and analyzed; the analysis of data was undertaken using both quantitative and qualitative approaches to interpret information from data collected with regard to the objectives of the study.

#### 3.10.1 Quantitative data analysis

The data was analyzed using statistical package for social sciences (SPSS) version 16, descriptive statistics such as measures of central tendencies like the mean, frequency was used to summarize the data and inferential statistics to make deductions from the data collected and relate the findings to the sample size (Amin, 2005). Tabulation was also done to provide a summary of the data.

Correlations were used to analyze the relationships in order to explain how the variables are related (Amin, 2005).

### **3.10.2 Qualitative data analysis**

Miles and Huberman(1994), state that the three ways through which qualitative data can be analyzed are through data reduction which concerns arranging and focusing the collected data in a way that relevant conclusions can be drawn from them. The researcher scrutinized the data generated from the field, made analysis, collated it then drew conclusions and presented it in form of paraphrases. Direct observation from the field was also recorded with the help of the observation guide and used to enrich the findings. Content analysis was used to analyze interview information, as a research technique it is highly regarded as it provides an effective means of systematically evaluating the symbolic content of recorded communications (Neuendorf, 2002).

### **3.11 Measurement of Variables**

Questionnaires with five point rating likert scale were used to measure respondents attitudes by asking them the degree of agreement with statements in the questionnaire that were classified from 1-5. This was later narrowed down to a three point likert scale so as to ease in quantitative data analysis as shown in chapter four.

## CHAPTER FOUR

### PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS

#### 4.1 Introduction

This chapter presents, analyzes and interprets the results. It is divided into six major sections. The first section is the introduction, the second presents the response rate results and the third section presents data on the demographic characteristics of the respondents. It is then followed by results on the income status of the respondents and environmental health. The next section assesses effect of the education status of the respondents on environmental health while the final section investigated how tenure security relates to environmental health in Kisenyi.

#### 4.2 Response Rate

Response rate (also known as completion rate or return rate) in survey research refers to the number of people who answered the survey divided by the number of people in the sample expressed as a percentage. In this study, the total sample size was 366 respondents and the study managed to get 346 respondents categorized in the break down table below.

**Table 3: Response rate**

	<b>Respondent Category</b>	<b>Sampled size</b>	<b>Responses received</b>	<b>Percentage %</b>
1	Local residents	354	338	95.4%
2	Uganda Slum Dwellers Federation	5	3	60%
3	(K.I.C.H.W.A) Kisenyi Community Health Workers Association	5	3	60%
4	KCCA officials	2	2	100%
	<b>Total</b>	<b>366</b>	<b>346</b>	<b>94.5%</b>

**Source:** Primary Data

According to Amin (2005); Mugenda and Mugenda (1999), the response rate should be a minimum of 50%, in this study, the response rate was 94.5%; therefore, the results were considered representative of what would have been obtained from the population.

### 4.3 Demographic characteristics

The demographic characteristics of respondents considered in this section included: gender and age.

#### 4.3.1 Gender

Information concerning the gender of the respondents from the three parishes of Kisenyi (Kisenyi I, Kisenyi II and Kisenyi III) was collected. The corresponding results were presented in table 4below.

**Table 4: Gender of the Respondents**

	<b>Gender</b>	<b>Frequency</b>	<b>Percentage (%)</b>
1	Male	286	85%
2	Female	52	15%
	Total	338	100.0

**Source:** Primary Data

From table4above, the respondents were dominated by males with (85 %) while the females comprised of only 15%. The results show that majority of the people that operate from the area during day mainly comprise of the male population. This implies that the health of the environment in Kisenyi is promoted or threatened mainly by the male population.

#### 4.3.2 Age of the respondents

The data in this study was collected from different age groups, one's age being an important factor in determining the information that they are to give. The age 18 was chosen because the adult status in Uganda is attained when one reaches that particular age, the results were then presented in table5 below.

**Table 5: Age of Respondents**

	<b>Respondent Age</b>	<b>Frequency</b>	<b>Percentage (%)</b>
1	19-25 years	26	7.7
2	26-30 years	130	38.5
3	Over 30 years	182	53.8
	Total	338	100.0

**Source:** Primary Data

Statistics from table 5 above, indicate that majority of the interviewed respondents were above 30 years followed by those in the age group 26-30 years (38%) and those below 26 years only formed 8% of the respondents. This essentially meant that the views presented here were from more experienced population. Their views on environmental health are relatively from informed point of view since they had lived in Kisenyi for relatively a longer time.

#### **4.4 Income status of respondents and Environmental health**

To effectively analyze the relationship between the two variables, descriptive statistics were presented for each of the variables and then inferential statistics computed and interpreted. Tables 6 and 7 below present the descriptive statistics for income levels and environmental health respectively.

##### **4.4.1 Statistics on income status**

Three hundred and thirty eight (338) local residents responded to the five-point Likert scale: “Strongly agree”, “agree”, “Not sure”, “Disagree”, and “Strongly disagree. To analyze the findings, respondents who strongly agreed and those who agreed were combined into one category “Agreed” to the items. In addition, respondents who strongly disagreed and those who disagreed were combined into another category “Disagreed” thus the three categories Agreed, Neutral and

Disagreed were compared. Interpretation was then drawn from the comparisons of the three categories.

**Table 6: Findings on the income status of respondents**

	<b>Income status of respondents in Kisenyi</b>	<b>1</b>	<b>2</b>	<b>3</b>
1	There is high unemployment rate in Kisenyi.	76.9%	11.5%	11.5%
2	The incomes among the people in Kisenyi are relatively low.	0.0%	3.8%	96.2%
3	The birth of the informal sector in the area is due to a lot of the unskilled labor force.	.0%	.0%	100.0%
4	Informal sector activities like motor vehicle repairs are rampant in the area.	.0%	.0%	100.0%
5	There is a high consumption rate in Kisenyi due to low incomes of the people.	.0%	.0%	100.0%
6	There is an overdependence on natural resources in the area	.0%	.0%	100.0%

**Key: 3 = Agree 2 = Neutral 1 = Disagree**

**Source:** Primary Data

According to the results from table 6 above, the high unemployment rate in Kisenyi is not a major factor in the area as those who did not affirm constituted 76.9% while those with neutral responses and those who affirmed constituted 11.5% of the respondents each. This means that a large number of the people that operate from Kisenyi are involved in some form of employment. This means that the state of the environmental health in Kisenyi is mainly determined by residents who are employed.

The views from in depth interviews with the key informants highlighted that many of the residents in the area had turned to the informal sector as the only available source of employment. So it's not the unemployment which affects the health of the environment but the activities in the informal

sector which promote the poor waste disposal and sanitation in the area, hence affecting the health of the environment in Kisenyi. One government official had this to say:

The low incomes force residents to involve in informal sector activities such as motor vehicle repair and street vending which involves generation of a lot of solid wastes hence compromising the health of the environment in Kisenyi (Interviewee 7).

The findings show that most people earn low incomes (96.2%) and activities like motor vehicle repairs are rampant in the area (100%). This means that the activities Kisenyi residents engage in, in order to make a living are mainly low income generating activities which include motor vehicle repairs, street vending, among others. One of the interviewee affirmed that:

Dangerous substances like oils from the motor vehicle garages when released to the environment lead to soil pollution and during rainy season, they are washed off by run off to the nearby water bodies, hence polluting the nearby water sources like wells and water springs useful for our human consumption (Interviewee 2).

The study also showed that there is a high dependence on natural resources in the area (100%) with high consumption levels (100%). This means that the informal sector activities in Kisenyi enforce the high consumption levels as many people are drawn into these activities that lead to generation of a high volume of wastes which is poorly managed, hence greatly affecting the health of the environment in the area.

#### 4.4.2 Descriptive statistics on Environmental Health

**Table 7. Findings on Environmental health**

	<b>Sanitation</b>	<b>1</b>	<b>2</b>	<b>3</b>
1	The area does not have an adequate number of toilets for the residents	92.3	3.8%	3.8 %
2	The residents in the practice a lot of open space disposal of faeces	3.8%	3.8%	92.3%
3	The toilet facilities in the area are not good for privacy and dignity.	.0%	3.8%	96.2%
4	Sewage is rarely emptied from the latrines	3.8%	.0%	96.2%
5	The drainage systems in the area are very poor.	.0%	3.8%	96.2%
	<b>Waste Disposal</b>			
6	The area is not served with adequate disposal facilities by the authorities.	35.0%	4%	61.0%
7	Garbage takes long to be collected by the authorities	23%	5.3%	71.5%
8	Many diseases have erupted because of poor waste disposal in the area.	41.0%	22.1%	36.9%
9	A reasonable number of areas are not accessible for waste collection	21.1%	31.7%	47.2
10	Most residents are ignorant of proper waste disposal mechanisms.	11.6%	1.4%	87.0%
	<b>Burden of disease</b>			
11	The area doesn't have adequate piped water facilities	55.3%	0.0%	44.7%
12	Spillage of sewage in the area contaminates drinking water	43.0%	1.1%	63.9%
13	Waterborne diseases like typhoid and dysentery are prevalent in the area	2.3%	4.1%	93.6%
14	Access to safe drinking water still poses a challenge in the area.	21.5%	20.3%	58.2%
15	A number of residents suffer from water borne diseases from unprotected water sources such as shallow wells.	45.4%	21.7%	32.9

**Key: 3= Agree 2 = Neutral 1 = Disagree**

#### 4.3.3 Testing the first hypothesis

The first hypothesis stated: *Income/consumption levels of slum dwellers have got a significant positive relationship on Environmental health.* Spearman's correlation coefficient (*rho*) was used to determine the strength of the relationship between income levels and environmental health. The



coefficient of significance (p) was used to test the findings by comparing p to the critical significance level at (0.05). This procedure was applied in testing the second and third hypotheses.

**Table 8. Correlation between Incomestatus and Environmental health**

			<b>Income status of respondents</b>	<b>Environmental health</b>
Spearman's rho	<b>Income status of respondents</b>	Correlation Coefficient	1.000	0.731
		Sig. (2-tailed)	.	0.0318
		N	338	338
	<b>Environmental health</b>	Correlation Coefficient	0.731	1.000
		Sig. (2-tailed)	0.0318	.
		N	338	338

The findings in table 8 above show no correlation ( $rho = 0.731$ ) between income status of respondents and environmental health. The corresponding coefficient of determination ( $rho^2 = 0.531$ ) was computed implying that the income status of the respondents account for 53.4% changes in environmental health. A corresponding p-value 0.0318 was obtained which is lower than the recommended standard p value of 0.05. This confirms that the effect of one variable on the other was significant. Conclusively, the hypothesis *Income status of local residents have got a significant positive relationship on Environmental health was accepted*; the findings implied that the income status of the slum dwellers affect the state of environmental health.

## 4.5 Education status of respondents and environmental health

### 4.5.1 Descriptive statistics on Education status of the respondents

The items presented under this variable were six (6) and the corresponding descriptive statistics are presented in table 9 below.

**Table 9. Findings on Education status of the respondents**

	<b>Questions on the Education/Awareness of Kisenyi residents</b>	<b>1</b>	<b>2</b>	<b>3</b>
1	The education levels of the residents in the area are generally low.	28.0	0.0%	72.0%
2	The education level is a major determinant of the health of the environment in the area.	15.0%	5.6%	79.4%
3	The education standards in the area deserve much attention.	23%	4.1%	72.9%
4	The awareness of the residents on environmental issues is still lacking.	2.2%	10.3%	87.5%
5	The government hasn't done much to improve on the awareness of the local residents concerning the environmental health.	21.1%	11.5%	67.4%
6	Awareness has been done but residents just lack discipline.	39.0%	13.3%	52.3%

**Key: 3= Agree 2 = Neutral 1= Disagree**

**Source:** Primary Data

The study results in table 9 above show that majority of the respondents (72.0%) were of the view that the education status of the respondents were generally low. Similarly, 79.4% affirmed that these low levels of education were key players in determining the state of environmental health in Kisenyi. The statistics also indicate that the education standards in the area deserved much attention (72.9%). This means that the education attained by the local residents was generally low and this determined the way they handled the environment. The poor sanitation, drainage and waste disposal in Kisenyi had a lot to do with the low education levels attained by the local

residents because they seem to be ignorant about environmental issues such as proper hygiene and waste disposal and also the 'I do not care' attitude on waste management that may later have an impact on their health as well as the general health of their environment.

On the other hand, majority (87.5%) pointed out that awareness of the local residents on environmental issues was still lacking. Those that did not affirm to this statement accounted for only 2.2% while 10.3% were neutral. Government failure to sensitize the residents was identified as a major cause of the poor health of the environment in the area (67.4%). Those that did not perceive the government as incompetent on sensitization issues were only 21.1% while 11.5% were neutral. The study results also show that 52.3% of the residents affirmed that sensitization to raise awareness on environmental health issues had been done but the residents lacked the discipline to apply and handle what they had been taught. A reasonable proportion (39.0%) of the residents never affirmed to this while 11.5% were neutral.

This means that though the residents lacked discipline on environmental health management such as proper waste disposal, this was mainly attributed to the lack of awareness campaigns on promotion of a healthy environment, mainly by the government and other stakeholders. With this in perspective, the state of environmental health in Kisenyi is likely to continue dwindling if adequate awareness campaigns are not enforced.

Data obtained from interviews with officials from Kisenyi slum dwellers federation highlighted the fact that the local and central government officials were not doing much to create awareness. They cited poor drainage systems, improper management of solid wastes, inadequate number of public toilets and dustbins among others. Many of those interviewed affirmed that the health of the environment in Kisenyi was poor and alarming which was a threat to public health and something

needed to be done. They cited that few Community Based Organisations (CBOs) and other NGOs were coming in to help but still this was not adequate enough. This means that the few awareness campaigns done by other parties' besides the government had not done much to change the way the residents managed the environment health related issues especially waste disposal and the general sanitation issues in their midst. This was affirmed by one of the local Official;

If this is to continue in this manner, environmental health issues in years to come would be inevitable such as the manifestation and re-occurrence of water borne diseases like diarrhea, cholera and typhoid among the slum dwellers in the area(Interviewee 4).

#### 4.5.2 Testing of the Second hypothesis

A table of correlation is presented below which shows the degree to which the education status of the Kisenyi residents significantly affects the health of the environment in the area.

**Table 10. Correlation between Education status and environmental health**

			<b>Education status</b>	<b>Environmental Health</b>
Spearman's rho	<b>Education status</b>	Correlation Coefficient	1.000	0.882
		Sig. (2-tailed)	.	.000
		N	338	338
	<b>Environmental Health</b>	Correlation Coefficient	0.882	1.000
		Sig. (2-tailed)	.000	.
		N	338	338

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Findings in table 10 above show that there was a very high positive correlation ( $rho = 0.882$ ) between the education status of the residents and environmental health. The corresponding coefficient of determination ( $rho^2 = 0.777$ ) was computed and expressed as a percentage to

determine the variance in environmental health due to the education attained (both academic and sensitisation). Thus, findings in table 10 above indicated that the education status of the residents accounted for 77.7% variance in environmental health. These findings were then subjected to a test of significance (p) and results indicated that the significance of the correlation ( $p = 0.00$ ) was below the recommended critical significance at 0.01 (2-tailed). Thus, the effect was highly significant. Therefore, the hypothesis *the education levels of the people significantly affect the health of the Environment* was accepted. The implication of these findings is that the education status of the residents in Kisenyi greatly affects their practices on the environmental health issues which in turn affect the human health of these slum dwellers. The high correlation implied that an improvement in the education and awareness of the local residents would eventually improve the environmental health as well as the general public health related issues in Kisenyi.

#### 4.6 Tenure Security and Environmental health

##### 4.6.1 Descriptive statistics on Tenure security

Information was collected on land ownership and the legal systems thereof in Kisenyi. Five items were identified and table 11 below presents the overview of the results.

**Table 11. Findings on Tenure Security**

	<b>Tenure Security</b>	<b>1</b>	<b>2</b>	<b>3</b>
1	There an inequitable access to land in Kisenyi	3.8%	.0%	96.2%
2	There are no property rights for the Kisenyi area residents.	.0%	3.8%	96.2%
3	There are no land reforms and laws governing and protecting Kisenyi residents.	.0%	3.8%	96.2%
4	The land tenure system in Kisenyi is not defined thereby promoting encroachment.	.0%	.0%	100.0 %
5	Most of the residents in Kisenyi are tenants	23.1%	3.8%	73.1%

**Key: 3= Agree 2 = Neutral 1 = Disagree**

According to results from the table 11 above, the inequitable access to land, the absence of property rights and the absence of land reforms and laws threaten the health of the environment. This can be seen as 96.2% of the respondents affirmed to this in all the three items aspects.

Additionally, because of the absence of proper land tenure in the area, improper waste disposal and management is common (100%). This means that illegal stay of people in these areas is a common practice that is promoted by the absence of a proper land tenure system of administration. This eventually distorts the way they dispose off wastes, drainage and sewage systems in the area. Evidence also shows that most of the residents in Kisenyi are tenants (73.1%). On the contrary, 23.1% disagreed while 3.8% were neutral. This can be linked to encroachment on the land due to the lack of enforcement of the existing land management systems.

Data obtained from the interviews also confirms that land tenure systems in Kisenyi were not properly functional. Many of them cited encroachment on swamps in the area even when the local authorities were fully aware. One of the interviewee cited that;

The physical plan that KCCA had drawn in conjunction with the environmental authorities had not been properly implemented in Kisenyi and the entire Kampala city at large (interviewee 8).

#### **4.6.2 Testing of the third Hypothesis**

The table 12 below shows the extent to which tenure security relates to environmental health in Kisenyi. It measures the degree to which these two variables are correlated.

**Table 12. Correlation between Tenure security and Environmental Health**

			<b>Tenure Security</b>	<b>Environmental health</b>
Spearman's rho	<b>Tenure Security</b>	Correlation Coefficient	1.000	1.000**
		Sig. (2-tailed)	.	0.00
		N	338	338
	<b>Environmental health</b>	Correlation Coefficient	1.000**	1.000
		Sig. (2-tailed)	.	.
		N	338	338

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Source:** Primary Data

In order to ascertain the relationship between tenure security and environmental health, the spearman's correlation coefficient (*rho*) was run and the value obtained above (*rho* = 1.000) shows that there is an extremely strong correlation between tenure security and environmental health. Otherwise stated, tenure security accounts for an extremely high percentage in environmental health interference ( $rho^2 = 1.000$ ).

Subject to a test of significance, a p value of 0.000 which far less than the standard p value of 0.01 (two-sided) re-affirms that tenure security is extremely important in the health of the environment in Kisenyi. Therefore the hypothesis, *Tenure security has a positive relationship with Environmental health* was accepted. This essentially means that the presence of proper landtenure systems and security will greatly lead to a healthier environment in Kisenyi and vice versa.

## **CHAPTER FIVE**

### **SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents the summary, discussion, conclusions and recommendations. It is divided into six major sections. The first section is introduction, the second section presents the summary and the third section presents the discussion. Fourth, fifth and sixth sections present the conclusions, recommendations and areas of future research respectively.

#### **5.2 Summary of Major findings**

The purpose of the study was to assess the influence of urban poverty on environmental health in Kisenyi slum and the specific objectives were; 1) to assess the extent to which incomes status of slum dwellers affect environmental health in Kisenyi slum, 2) to find out the effect of education status of slum dwellers on environmental health in Kisenyi slum and 3) to examine the relationship between tenure security and environmental health in Kisenyi slum, presented here is the summary of the findings based on the objectives of this study.

##### **5.2.1 Income status and Environmental health in Kisenyi.**

The findings revealed that unemployment was not a major factor in determining environmental health as 76% of the respondents were involved in some kind of informal activities in the informal sector as a form of employment.

The low incomes force residents to encroach on the nearby land especially swamps in search for cheaper rent for their business and residence which leads to swamp reclamation in the area which swamps turn into garbage dumping sites.



The informal sector activities in Kisenyi enforce high consumption levels as many people are drawn into the informal sector and thus immerse production of mainly solid wastes which are poorly disposed as observed by the presence of heaps of garbage within their operational areas as a result of limited waste disposal and management facilities in the area. The income status of the slum dwellers accounted for 53.4% changes in the state of environmental health in Kisenyi.

### **5.2.2 Education status of the respondents and Environmental health in Kisenyi.**

The findings in this study revealed that the education levels of the local residents were generally low and the standards deserved much attention.

The poor sanitation, drainage and waste disposal in Kisenyi had a lot to do with the low education levels attained by the local residents.

The biggest percentage of the respondents (87.5%) pointed out that awareness of the local residents on environmental health issues was still limited.

Government failure to sensitise the residents was identified as a major cause of the poor health of the environment in the area. The study results also show that 52.3% of the residents affirmed that sensitization to raise awareness on environmental health issues had been done but the residents still lacked the discipline and responsibility to put into practice whatever they had been sensitized about.

### **5.2.3 Tenure security and Environmental health in Kisenyi**

Findings revealed that inequitable access to land; the absence of property rights and the absence of land reforms and laws threatened environmental health in Kisenyi, this therefore encouraged uncontrolled open dumping in the area.

The encroachment on land through swamp reclamation was common in the area but this was mainly due to the lack of adherence to the existing land laws and absence well defined property rights and the fact that most of the residents in the area are tenants.

Tenure insecurity greatly affected environmental health in Kisenyi as it accounted for 100% change in its state, this was mainly due to the rampant evictions in the area and type of tenancy contracts most of the slum dwellers hold.

The type of housing in Kisenyi where most of them are congested without adequate sanitary facilities such as easy access to safe water and toilet facilities also encouraged open dumping of wastes both on top of their houses and the drainage channels.

## **5.3 Discussion of results**

### **5.3.1 Income status of the slum dwellers and Environmental health**

The first hypothesis stated; *Income status has got a significant positive relationship on Environmental health.* The Spearman correlation index indicated a high correlation between these two variables. It was clearly seen that it was due to the low incomes that majority of Kisenyi dwellers are involved in the informal sector activities as a source of employment, these activities such as street vending involves production of a lot of wastes which are poorly managed as well as poor sanitation which greatly affects the general environmental health in the area. The findings in

this study concur with a number of earlier researches that concluded that income/consumption levels of the people were a key predictors of the area's environmental health in which they lived.

Myers (1997), for example concluded that, the spread of high-level consumption practices across the planet had the potential to dramatically increase human impacts on both local and global resources, and contribute to continuing environmental damage. Esty& Porter (2005) in their study also affirmed that income levels of the people considerably influenced various aspects of a country's state of the environment and also determined that income levels possessed a significant capacity for influencing environmental performance.

However, the aspect consumption in an area has a lot more to do with the number of people living in the area than their incomes. This is affirmed by Belk (1995), who asserts that on a global basis, the demand for consumer goods is not a simple consequence of income levels. He notes that consumer demand has historically been highly variable, and is a fundamental cause of economic growth, rather than a consequence of it.

Similarly, Cohen & Murphy (2001), point out that population at the same income levels can have drastically different levels of environmental impact. They conclude that consumption (and not income) is a key issue in both predicting future environmental change, and in formulating policies that can lead towards a healthy environment. So in this case consumption will be a function of other variable like population, country of origin and consumption practices of the people among others.

### **5.3.2 Education status of the slum dwellers and environmental health in Kisenyi**

The second hypothesis stated; *the education status of the people significantly affects Environmental health*. Spearman correlation index indicated that a high correlation existed between the education status of the people and environmental health. The results further indicated that low standards of education and low awareness levels were key players towards poor disposal of wastes, inadequate number of latrines use and congestion. VanRooyen & Viljoen (2003:15), asserts that “Educating the population to view and use the environment in a responsible manner and to behave in such a way that we leave an environment of the same and even better quality to our children, is central to modern education”. Much as his cause had to do with children, greater impact is even felt when it comes to adults. Adult behavior towards environmental use is greater function of the degree to which they have been sensitised. There exists a great need for relevant education for the people of our society for the betterment of the environment to be able to cope with the various challenges influenced by innovative technologies, economic globalization, and demographic shifts in order to sustain our environmental resources. Meyer (2004:13), argues that through environmental education, people’s’ behavior towards society, nature, and themselves is shaped.

In this study, the education status of the Kisenyi residents was generally low. Findings reveal that those with more years of schooling tend to have better health and well-being and healthier behaviors. Education is an important mechanism for enhancing the health and well-being of individuals because it reduces the need for health care, the associated costs of dependence, lost earnings and human suffering. Education also brings about the need and wants to change a person’s attitude and behavior regarding environmental health. This is in agreement with Mckeown (2002:7-9), where he states that “...sustainable development aims to improve the quality of life of human beings while at the same time living within their ecological means”

### **5.3.3 Tenure security and Environmental health in Kisenyislum**

The outcomes of this study indicated that *tenure security had a positive relationship with Environmental health*. This meant that tenure security had an outstanding impact on creating a healthier environment. Also, the absence of property rights and the absence of land reforms and laws threatened the state of the environment in Kisenyi. Similarly, encroachment on the land especially through swamp reclamation which are later turned into dumping sites was rampant and this was promoted by the absence of a proper land tenure system of administration. The struggle for survival in squatter areas without access to water, sewers, garbage collection facilities or clean fuel often forces the urban poor to compromise with healthy living. In this context, many are forced to make significant trade-offs between basic needs and environmental safety and protection. Illegal occupation of public or private land is often the only option for most of the urban poor, lack of secure tenure is therefore a common problem in many low-income urban areas. In transition countries, illegal occupation is not a common practice but unclear property rights remain a serious problem (Barton et al, 1994).

Meinzen&Gregorio (2004), agree that poor people often do not only hold rights to a limited amount of land, but their rights are also often insecure as they lack the necessary regulative backing that would allow them to invest in soil improvement measures. This is exactly what is happening in Kisenyi as soil improvement measures are often ignored. The projects that have come up to help address environmental health issues are progressing but at an extremely slow pace since occupants of the land keep changing with time as most of them are tenants and illegal land owners. This is evidenced and observed in the number of those facing evictions in the area (73.1%) making it

impossible to consistently follow through individual and overall environmental health improvements especially the general sanitation over time.

## **5.4 Conclusions**

In view of the findings of this study, and in regard to the literature reviewed earlier in chapter two, the researcher made the following conclusions.

### **5.4.1 Income status and Environmental health in Kisenyi slum**

The findings of this study concluded that; the low income levels of the slum dwellers greatly affected environmental health in Kisenyi slum. The low incomes of the people in Kisenyi was a major player in the rampant growth of the informal sector where many of the residents are involved and employed in as a source of survival, for example motor vehicle repairs from poorly structured garages and street vending which promoted high production of wastes and poor sanitation in the area. It is therefore these activities that were identified as dominant determinants of the poor environmental health, hence a great impact on both public and human health in and around Kisenyi slum and Kampala city at large.

### **5.4.2 Education status and Environmental health in Kisenyi slum**

Education and awareness levels amongst the slum dwellers were generally low and this highly affects the health of the environment in the area such as irresponsible waste disposal especially into drainage systems which results to flooding during rainy seasons. A high degree of correlation existed between the education/awareness of the people in Kisenyi and poor waste disposal, and sanitation systems. On the overall, the state of environmental health in Kisenyi was alarming and a sense of urgency is needed to sensitize the locals on environmental management issues especially

those that might be of great threat to human health, as well as enforcing the existing laws on the environment.

#### **5.4.3 Tenure security and Environmental health in Kisenyi slum**

Tenure insecurity was identified as a key predictor on the state of environmental health. Lack of adherence to existing land tenure systems was rampant leading to encroachment on the nearby land especially the existing swamps which were turned into dumping sites hence promoting poor waste disposal which eventually threatened the health of the environment as well as the lives of the people in the area. This has also led to overpopulation and poor settlement patterns which puts environment health at a great risk. Therefore there was a strong relationship between tenure security and environmental health.

### **5.5 Recommendations**

The recommendations for this study took into account all the views and opinions of the respondents in the study that are summed up in the findings of the study.

#### **5.5.1 Income status and Environmental health in Kisenyi slum**

There should be support for the urban informal sector by government. This could be done through improvement in the establishment and management of the cottage and agro-allied industries and markets to create more formal jobs and employment opportunities for the urban poor, thus improving on the slum dwellers incomes and effectively reducing on the involvement of the slum dwellers in the informal sector which seems a great threat to the environmental health and the health of the people living in in Kisenyi slum.

More support should also be extended to the small projects implemented by the Kisenyi residents, for example the brisket project where the community is trying to earn a living at the same time saving the environment by converting household wastes into cooking fuel.

Capacity of work force should be strengthened in terms of skills development among the slum dwellers so as to impart them with better self-sustaining skills, this can be done through training.

### **5.5.2 Education status and Environmental health in Kisenyi slum**

There should be an improvement on environmental awareness programs by the local government authorities, central government, CBOs and NGOs especially within the poor communities in the country.

There should be encouragement of private sector and community participation in urban renewal activities, housing and infra-structural provision.

Treatment of pollutants entering surface waters unchecked especially those from the motor garages and nearby industries should be emphasized in these awareness campaigns to reduce the risk of ground water contamination.

Adoption of an integrated approach to provision of water, electricity, sanitation, drainage and solid waste management especially for the urban poor and further organisations and schools in the area should put more emphasis on environmental awareness programs.



### **5.5.3 Tenure security and Environmental health in Kisenyi slum**

Land use master plans should be implemented as well as zoning of the area by KCCA, this will help reduce and control unplanned developments such as informal settlements within the city center.

There should also be encouragement of the private sector and community participation in urban renewal activities as well as housing and infrastructure provision by both the local and central government; this can be emphasized through renewal and upgrading of all existing slum areas together with improving on the present conditions that may lead to development of new slums.

More emphasis on rural development for example provision of not less than 70% of rural communities with social amenities to curb rural urban migration, should also be emphasized by the central government. This will further help reduce on the influx of people from rural areas in to the city in search for better living conditions and opportunities.

### **5.6 Limitations of the study**

The study encountered limitations and difficulties throughout the pre-planning, planning, implementation as well as in analysis phases and these were as follows;

**Scope of the study;** the study was requested as an undertaking to assess the influence of urban poverty on environmental health in Kisenyi. Because of this, statistical representation of any whole population was not a primary goal of this study, therefore, the results presented herein are meant to be solely indicative, not representative.

**Access to respondents;** access to many key informants and other targeted respondents was difficult with regards to administering questionnaires and scheduling interviews. Because of non-response or scheduling conflicts, some of the respondents that may have proven beneficial to further develop the context were unavailable.

**Methodological biases;** some residents of Kisenyi refused to take part in the study, and likewise those who did were notably hesitant. Many who refused to take part had claimed that many studies are done in the areas, yet no apparent programming has resulted from them. Survey fatigue of the residents in the slums may have influenced the results to an unknown degree.

**Population size;** the population of Kisenyi slum is large in both number and inhabited area, each slum area has their own context associated with it, though for the sake of this study only those designated as the most vulnerable were investigated. Admittedly, this itself was an arbitrary measure at the time as formal studies or statistics relating specifically to the slums either as a whole or individually were limited. Therefore, the selection of areas and groups for further investigation was based nearly entirely on anecdotal, qualitative information. Though the profiling of the selected areas was conducted successfully, the results may not be pertinent to other groups or areas within Kampala.

## **5.7 Area for Further Research**

This study was primarily focusing on urban poverty and environmental health in Kisenyi slum which is one of the biggest slums in Kampala, a similar study could further be carried out in other urban slums such as those in Jinja or Mbale. However, a similar research could further be done once again after a certain period of time, say after five years so as to show trends of this problem over time.

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## APPENDICES

### APPENDIX 1: SELF ADMINISTERED QUESTIONNAIRE

Dear Respondent,

I am a student at Uganda Management Institute pursuing a Master's degree in Management Studies (Project Planning and Management). I am currently undertaking a research study on the influence of urban poverty on environmental health in Kisenyi slum, Kampala city. I am requesting you to kindly fill this questionnaire for purely academic purposes. Any information provided will be treated with maximum confidentiality.

#### **SECTION A: SOCIAL DEMOGRAPHIC CHARACTERISTICS**

**Instructions:** Tick (✓) as appropriate

**Section A:** Background Information (Tick (✓) as appropriate)

**1. Gender:** (a) Male (b) Female

**2. Age:** (a) 0 – 18yrs (b) 19 – 25yrs (c) 26 – 30yrs  
(d) Over 30yrs

**For Sections B and C, Tick (✓) the appropriate scale (from 1 - 5) according to the level of agreement as indicated below;**

**5 - Strongly agree    4- Agree   3- Neutral    2- Disagree   1- Strongly Disagree**

**Section B:    Urban poverty**

QN	OBJECTIVE AREA	OPTIONS				
		1	2	3	4	5
A.	<b>Income status of slum dwellers</b>					
1	There is high unemployment rate in Kisenyi					
2	The income levels among the Kisenyi residents are relatively low.					
3	The birth of the informal sector in the area is due to a lot of the unskilled labor force.					
4	Informal sector activities like motor vehicle repairs are rampant in the area.					
5.	There is a high consumption rate in Kisenyi.					
6.	There is an overdependence on natural resources in the area					

B: <b>Tenure security</b>						
Education status of the residents						
13.	The education status of the residents in the area is generally low					
14.	There are no property rights for the Kisenyi area residents					
15.	There are no land reforms and laws governing and protecting Kisenyi					
9.	The education systems in the area deserve much attention.					
10.	The awareness of the residents on environmental issues is still lacking					
11.	The government hasn't done much to improve on the awareness of the local residents concerning the environmental health.					
12.	Adequate awareness has been done but residents just lack discipline.					

## Section C: Environmental Health

Qn	Objective Area	OPTIONS				
		1	2	3	4	5
<b>a.</b>	<b>Sanitation</b>					
1	The area does not have an adequate number of toilets for the residents					
2	The residents in the practice a lot of open space disposal of faeces which has led to poor environmental health.					
3	The toilet facilities in the area are not good for privacy and dignity.					
4	Sewage is rarely emptied from the latrines					
5.	The drainage systems in the area are very poor.					
<b>b.</b>	<b>Waste Disposal</b>					
6	The area is not served with adequate disposal facilities by the authorities.					
7	Garbage takes long to be collected by the authorities					
8	Many diseases have erupted because of poor waste disposal in the area.					
9	A reasonable number of areas are not accessible for waste collection.					
10	Most residents are ignorant of proper waste disposal mechanisms.					
<b>c.</b>	<b>Burden of disease</b>					
11	The area doesn't have adequate piped water facilities					
12	Spillage of sewage in the area contaminates drinking water					
13	Waterborne diseases like typhoid and dysentery are prevalent in the area					
14	Access to safe drinking water still poses a challenge in the area.					
15	Most residents get water from unprotected water sources such as shallow wells.					
16	Water prices still pose a major challenge to a number of residents					

Thank you for your precious time and contributions

God bless you!

## APPENDIX II: SEMI-STRUCTURED INTERVIEW GUIDE

### (QUESTIONS FOR KEY INFORMANTS ON ENVIRONMENTAL HEALTH)

1. In your opinion, how do you rate the income status of the residents in Kisenyi? *Prompt: [In what ways are these income levels likely to affect the state of environmental health in the area?]*
2. What is your opinion on the consumption rates of the residents in Kisenyi? *Prompt:[What is the overall effect of the consumption rates on waste disposal and sanitation in the area?]*
3. What is your opinion about the employment rates in the informal sector in Kisenyi? *Prompt: [What is the likely effect of this on the sanitation, waste disposal and water accessibility in the area?]*
4. How do you comment on the education status of the Kisenyi residents? *Prompt: [What is the overall effect of their behavior towards the environment?]*
5. What is your opinion on the awareness of the Kisenyi residents on good environmental management practices? *Prompt: [How does this affect the current state of waste disposal and sanitation in Kisenyi?]*

6. Comment on the current state of land and property ownership in Kisenyi.

*Prompt: [How does this promote or demote good environmental management practices in the area?]*

7. What is your opinion on government policies regulating the rate of environmental degradation in Kisenyi? *[How have these been enforced?]*

8. What is opinion on the effect of poverty in Kisenyi on waste disposal, garbage collection, water accessibility and sanitation in the area? *[What has been done so far and what is still lacking?]*

### **APPENDIX III: OBSERVATION CHECKLIST**

**Checklist used to observe environmental health indicators in Kisenyi slum.**

<b>INDICATOR</b>	<b>COMMENT</b>
------------------	----------------

	<b>Available</b>	<b>Not available</b>
<b>1. Waste disposal and Mgt</b> <ul style="list-style-type: none"> <li>• Dust bins</li> <li>• Dumping sites</li> <li>• Heaps of garbage within human settlements</li> <li>• Waste sorting</li> <li>• Innovative disposal</li> </ul>		
<b>2. Sanitation</b> <ul style="list-style-type: none"> <li>• Toilet facilities</li> <li>• Drainage systems</li> </ul>		
<b>3. Degree of pollution.</b> <ul style="list-style-type: none"> <li>• The environment is cared for excellently</li> <li>• The area is highly polluted by things such as papers, plastics, tins, human waste, solid wastes rubbles, and oil from cars.</li> <li>• The area looks unhygienic, filthy and highly polluted</li> </ul>		

## **APPENDIX IV: VALIDITY AND RELIABILITY TESTS**

### **A) Validity tests ( Questionnaire)**

Content Validity Index (CVI) =  $\frac{\text{Number of items rated relevant by all judges}}{\text{Total number of items}}$

Total number of items in the instrument

$$CVI = K/N$$

$$CVI = a) = 25 \div 33 = 0.75$$

$$CVI = b) = 27 \div 33 = 0.82$$

$$CVI = c) = 24 \div 33 = 0.73$$

$$CVI \text{ for 3 experts} = 0.75 + 0.82 + 0.73 \\ = 2.3 \div 3$$

$$CVI = 0.77$$

**B) Validity tests ( Interview guide)**

$$CVI = K/N$$

$$CVI = a) = 6 \div 8 = 0.75$$

$$CVI = b) = 7 \div 8 = 0.88$$

$$CVI = c) = 7 \div 8 = 0.88$$

$$CVI \text{ for 3 experts} = 0.75 + 0.88 + 0.88 \\ = 2.38 \div 3$$

$$CVI = 0.79$$

Where;

CVI = Content Validity Index

K = Total number of items rated as relevant

N = Total number of items in the questionnaire

**C) Reliability tests**

Cronbach's Alpha	Cronbach's Alpha based on standardized items	No. of Items
.680	.718	33



**APPENDIX V: INTERVIEWEE SEGREGATION TABLE.**

<b>CATEGORY</b>	<b>INTERVIEWEE CODE</b>	<b>DATE OF INTERVIEW</b>
Uganda Slum Dwellers Federation	Interviewee 1	4 <sup>th</sup> /06/2013
	Interviewee 2	4 <sup>th</sup> /06/2013
	Interviewee 3	5 <sup>th</sup> /06/2013
Kisenyi Community Health Workers Association	Interviewee 4	6 <sup>th</sup> /06/2013
	Interviewee 5	6 <sup>th</sup> /06/2013
	Interviewee 6	7 <sup>th</sup> /06/2013
KCCA Officials	Interviewee 7	10 <sup>th</sup> /06/2013
	Interviewee 8	10 <sup>th</sup> /06/2013