

UNIVERSITY OF NAIROBI

INSTITUTE OF DIPLOMACY AND INTERNATIONAL STUDIES

**COUNTERING THE IMPACTS OF ENVIRONMENTAL DEGRADATION ON HUMAN
SECURITY; A CASE STUDY OF KIBERA SLUMS, NAIROBI KENYA.**

SUBMITTED TO DR CHAUDHRY SHAZIA

ESTHER HASHIMWIMANA

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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF BA IN INTERNATIONAL STUDIES**

DECLARATION

I declare that this research project is my original work and has not been presented or submitted for award of any degree in any university or learning institution.

Signature.....

Date

ESTHER HASHIMWIMANA

This project has been submitted for examination with my approval as a university supervisor.

Signature.....

Date

DR. SHAZIA CHAUDHRY

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DEDICATION

This research project is dedicated to my family and Windle International Kenya. They have been with me throughout this journey.

ABSTRACT

Environmental degradation is a phenomenon that has been a global issue for the longest time possible. It has impacted every aspect of life, be it human or animal, political, economic and even social life. Environmental degradation has been used in ages in some religions to depict signs of end times or Gods punishment to wrong doers. However, it's impossible to assume that most causes of environmental degradation are man made while others occur as a result of mother nature's wrath.

Security has had multiple definitions with the major one being the state as the main aspect for protection against internal and most importantly external threats. However, over the years the concept of security has been contested with the evolution of what security truly entails with security as a core value of human life. To be secure is to be protected from any danger or fears. Most of these fears and threats are from the impacts of environmental degradation that threaten human existence.

Environmental degradation has also been a rising challenge in Kenya and this research project is meant to outline the impacts of environmental degradation on human security with a core focus on a slum called Kibera situated in the capital city of Kenya (Nairobi) and the policies put in place to curb these impacts in a bid to preserve the future of human life in the country.

Drawing on material written this research shows the major causes of environmental degradation in Kenya, those that are man made and those that are as a result of human activities despite their nature being not human. In essence we show the relation between environmental degradation and human insecurity in slum areas.

The data used has already been collected by different authors and journalists. By the end of this research, the knowledge acquired is meant to give future generations a perspective of the root causes of environmental degradation and how the quality of life is affected by this and possibly to play a role during policymaking to protect the environment and life.

ABBREVIATIONS

| | |
|---------------|--|
| AMREF | African Medical and Research Foundation |
| EMCA | Environmental Management and Coordination Act |
| GHG | Green house emissions |
| IMCI | Integrated Management of Childhood Illness |
| KEFRI | Kenya Forestry Research Institute |
| KNBS | Kenya National Bureau of Statistics |
| KPLC | Kenya Power and Lighting Company |
| MSF | Médecins Sans Frontières |
| NCPD | National Council for Population and Development |
| NEAP | National environment action plan |
| UN | United Nations |
| UNEP | United Nations Environment Program |
| UNICEF | United Nations International Children's Emergency Fund |

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CHAPTER ONE: INTRODUCTION AND BACKGROUND TO THE STUDY

1.0.Introduction and background to the study

The environment is deteriorating and has been doing so for the last two centuries and most parts of our planet have been affected in not one but many ways. There are multiple causes of environmental degradation but the primary cause of environmental degradation is human disturbance. Human disturbance refers to activities or actions undertaken by humans that disrupt the environment.

With the emergence of the industrial revolution in the 19th century came about the use of machines in the production and manufacturing of goods, which in turn, used fuels as source of energy that is very dangerous to the environment. Britain was the first to become industrialise and hence the first place in which modern pollution started.¹ We have in time progressed technologically and that is actually attributed as the root cause of the environmental deterioration. Environmental changes are based on factors like urbanization, population and economic growth, increase in energy consumption and agricultural intensification. Environmental degradation has adverse impacts on humans, plants, animals and micro-organism. Shortages of resources and environmental conditions lead to conflicts between both men and interstate.

Environmental security is crucial to the foundation of human security in the sense that it is important when it comes to human livelihood, their health, their productivity etc. Environmental degradation thus plays a role in the disturbance of human security. Therefore, one of the ways to ensure human security is protected is to counter environmental degradation and its impacts.

¹ Thorsheim,P ;Inventing pollution; coal, smoke and culture in Britain since 1800 (2006)

Water scarcity, charcoal trade, depletion of agricultural land has played a role in conflict in parts of Somali.²

Kenya has adverse environmental issues that include climate change, deforestation, water shortage, pollution from poor garbage and sewage disposal which is a threat to Kenyans health with the breeding of mosquitoes in these areas and fungal diseases.³ Poverty in these parts of Kenya have played a crucial role in environmental degradation as most Kenyans over use natural resources to survive; eg over fishing in the lake regions, soil erosion in the agriculture areas etc.

National security has focused traditionally on protecting the territorial integrity and political sovereignty of the state from military aggression from other states. This generally has involved forming alliances and investing in military assets in order to deter potential adversaries and use force effectively when required. In recent years, there has been increased emphasis placed on expanding the traditional conception of security to include so-called nonconventional threats such as human security, resource scarcity, human rights abuses, outbreaks of infectious disease, and environmental degradation caused by toxic contamination, ozone depletion, global warming, water pollution, soil degradation and the loss of biodiversity.⁴

It is believed that environmental degradation can and in most cases trigger, amplify or cause conflict and instability, and a growing concern that environmentally induced conflict might increase. Today, security institutions are being called upon to protect access to environmental goods in other countries as well as in the global commons, and to provide support for humanitarian operations, many of which have significant environmental roots. As the

² Food and Agriculture organisation of the United Nations; Rebuilding resilient and sustainable agriculture in Somalia (2018)

³ Adoyo J.W., Wangai C.I.; Kenya: political, Social and environmental issues (2012)

⁴ Snow, D. M.; National security for a new era Snow, Donald M. 2014. *National Security for a New Era*. Pearson Education,Inc(2014)

development community moves away from measuring progress primarily in terms of economic growth and towards a more holistic concept, it is also becoming aware of the various ways in which its activities can both affect ecosystems and promote or undermine local, national and regional security mechanisms. Awareness of linkages among environment, conflict and security may help development agencies provide assistance that supports other policy objectives or, at least, has fewer negative effects.

Human security and environment degradation are interconnected and this study aims to show how this actualises with regards to Kibera slums in Nairobi and how to further counter the impacts of the former on the human security of the region.

1.1.Problem statement

The environment ensures the survival of any kind of life on the planet. A secure environment makes possible the exercise of the right to life certain by ensuring that any threats to life are neutralized⁵. It is argued that in the absence of environmental security, proper development cannot be sustainably achieved. Therefore, achieving environmental security first, as a human right prerogative will ensure that the Kenyan population is able to enjoy access to environmental goods and services and in so doing, development can be adequately pursued and responsibly achieved. Environmental degradation results the opposite; human security is compromised leading to adverse negative outcomes.

⁵ Stevenson, D.S.; The Nature of life and its potential to survive published by Nottingham: Springer Intl. (2017)

This research is aimed at looking into the impacts of environmental degradation on human security with focus on Kibera slums and Nairobi in a regional manner and also possible solutions that will help resolve environmental pollution and violent conflict.

1.2. Research question

1 To analyse the level of impact of environmental degradation in Kibera and Nairobi at large

2 To examine the impacts of environmental degradation on human security in this region of Kibera

3 to examine the measures of countering impacts of environmental degradation on human security in Nairobi as a result of environmental degradation in Kibera

1.3. Research objectives

General objective

Measures to be taken in countering the impacts of environmental degradation and its impacts on human security in Kibera Nairobi region.

Specific objective

1 To analyse the causes of environmental degradation in Kibera region

2 to examine the impacts of environmental degradation

3 to link the impacts of environmental degradation to human security

4 to highlight measures by the Kenyan government to counter environmental degradation and its impacts on human security in Kibera

1.4. Literature Review

A considerable amount of research has been previously done by other researchers on how to counter the impacts of environmental degradation and its impacts on human security in Nairobi

as projected by the environment of Kibera. This section presents an analysis of existing literature on the topic of the study and the existing gaps

1.4.1 Theoretical Literature

Relative Deprivation Theory

This theory was developed and popularized by Ted Robert Gurr and is based on the breakdown between what people expect from the society and what they actually get.⁶ Gurr developed this theory which is anchored on the frustration of people who are experiencing a wide gap between what their lives are and what they should be. This gap of expectation can be caused by the lack of resources such as clean water and enough land and space to live to sustain the diet, lifestyle, activities and amenities that an individual or group are accustomed to or that are widely encouraged and approved in the society to which they belong. This eventually leads to a violent breakdown in the society. This is a reflection of the current situation in Kibera.

Kibera originated as a settlement in the forests at the outskirts of Nairobi, when Nubian soldiers returning from service with the Kings African Rifles were allocated plots of land there in return for their efforts in 1904. The British colonial government allowed the settlement to grow informally, over time, other tribes moved into the area to rent land from the Nubian landlords⁷. With the increase in railway traffic, Nairobi's economy developed, and an increasing number of rural migrants moved to urban Nairobi in search of wage labour⁸. Kibera and other slums developed throughout Nairobi. Slums have always developed in close proximity to more

⁶ Gurr, T. R; "Why men rebel" Paradigm (2011)

⁷ Rhona Justice Malloy; Theatre history studies 2010.

⁸ Himbara , David. n.d. *Kenyan, Capitalists, The state and Development*. Nairobi : East African Educational Publishers.

developed regions, this creates a balance that may not be equal in opportunities but equal in economic purposes. Slum dwellers offer man power to those living in the more urbanised parts of the region in return they get paid for their labour.

Because of the high living costs in Nairobi an overpopulation due to the migration from rural to urban areas Kibera and other slum dwellers had to settle for the degraded and pollution of the environment despite the fact that the railway and other industries had grown growing Nairobi's economy.

Dependency Theory

The Dependency Theory is anchored on the tradition of Marxism. The Marxists argue that the wealth and poverty of nations results from the global process of exploitation. The theory argues that underdevelopment in 3rd world countries isn't as a result of poor technology or culture but is a result of the inequality between the rich and the poor. This is the situation that Andre Gunder Frank refers to as "the development of underdevelopment".⁹ The problem of most developing countries is not the lack of technological know-how, cultural traits conducive to development, or modern institutions, but they have been subjected to the exploitation of the international capitalist system and its special imperialist agents, both domestic and foreign. For Marx, the future communist society will resolve the conflicts among humans and between humans and nature so that people can meet their needs in harmony with one another and with the rest of nature ¹⁰: In his book Wilson spoke of the enclosure of common land, which left many rural people with no means of meeting their needs other than to sell their labor power to the new industrial class. Under the colonial system, enclosure process resulted in the creation of two

⁹ A critical analysis of Oil Exploration and Poverty in the Niger Delta Region of Nigeria by International Journal of Business and Social Science

¹⁰ Wilson, Renee Collins. n.d. *The Banality of environmental degradation*. University of Minnesota.

different classes; small elite, who benefited the virtues of the colonialism disproportionately on one side; and many African cheap wage laborers, who faced to negative social, political and environmental consequences on the other side.

Present day, as a means to earn their livelihood, Kibera dwellers have squatted their homes that is the new settlement structures given to them and as well work for very low minimum wages.

1.4.2. Empirical literature

1.4.2.1. To analyse the level of impact of environmental degradation in Kibera and Nairobi at large

Water pollution and water scarcity: The UN estimated more than two million deaths and billions of illnesses a year that are caused by water pollution. Water scarcity aggravates these health problems. Most of the region's water is provided by the Nairobi River, recent pollution in this river has led to the scarcity of clean water. Human life is threatened by this pollution. Productivity is also affected by the costs of providing safe water, by constraints on economic activity caused by water shortages, and by the adverse effects of water pollution and shortages on other environmental resources ¹¹

Air pollution: As per the estimation of UN, urban air pollution is responsible for over 500,000 deaths annually and creates chronic health problems for many more people. Nairobi is home to a big number of people that use private cars as a means of transportation. Kibera which is within the boundaries of Langata is prone to experience the air pollution caused by the many vehicles driven by this class of people. So many industries and factories are located at the heart of Nairobi

¹¹ K'Okul R ,Nelson O. n.d. *Maternal and Child Health in Kenya*. The Finnish Society for Development Studies.

Restrictions on vehicles and industrial activity during critical periods affect productivity, as does the effect of acid rain on forests and water bodies¹².

Solid and hazardous wastes: Diseases are spread by uncollected garbage and blocked drains; the health risks from hazardous wastes are typically more localized, but often acute. Kibera lacks proper waste disposal systems. Sewages are not properly disposed and the notion of not littering is nonexistent to them. Wastes affect productivity through the pollution of groundwater resources¹³,

Residents of Kibera live in overcrowded conditions with poor sanitation, inadequate and unsafe water, make-shift shelters, and unstable social networks..

1.4.2.2. The extent which environmental degradation has affected human security

The developments after industrial revolution have brought environmental degradation to the stage as a threat to human security in the last few decades¹⁴. It has become obvious that the shortage of natural resources or negative changes in environmental conditions may lead to different forms of conflict that threaten human life. Water resources in Kenya are under pressure from agricultural chemicals and urban and industrial wastes, as well as from use for hydroelectric power. The anticipated water shortage is a potential problem for the future. Rapid population growth has outstripped the ability to deliver adequate services such as education, health care, safe water, sanitation, and waste removal. Poor or inappropriate infrastructure planning conspire to continue degrading the city's water and air quality. In turn, environmental degradation has impacts on human health and the economy. The livelihoods of the majority of

¹² World Health Organisation Report 2006

¹³ Elizabeth M. T. Hope. n.d. *Solid Waste Management; Critical Issues For Developing Countries*. West Indie: Canoe Press.

¹⁴ Hobson, C. Paul B, Robin, C.; "Human security and natural disasters" Routledge 2014

Kenyans depend on rain-fed small-scale farming, a practice that is highly vulnerable to the effects of climate change. Agriculture contributes about 24 percent of Kenya's gross domestic product, and supports at least 75 percent of the total population. Frequent droughts and flooding in various parts of the country have led to recurring food shortages, and it is estimated that more than 10 million people in Kenya suffer from chronic food insecurity and poor nutrition¹⁵. At any one time, about 2 million people require assistance to access food. Kibera is home to around 250 thousand people among the 2 million. Food insecurity is associated with conflict and displacement of households, increased pressure on water and grazing resources, and soaring food prices. Kenya's annual agricultural production could decline due to climate change, loss of soil fertility, and other factors. They also face a high degree of tenure insecurity since most of these settlements are illegal, exposing them to the constant threat of harassment and eviction.

1.4.2.3. To counter the impacts of environmental degradation on human security in Kibera

According to the UN working report in 2004, environmental issues are a threat to global national and individual security¹⁶. Urban environmental degradation, through lack of appropriate waste management and sanitation systems, industry and transport related pollution impacts air, water, soil quality and human health and wellbeing. These have led to changes in the relationship between people and ecosystems and unchecked it will lead to further serious environmental degradation that may perpetuate deprivation, poverty and human life more serious than it already has.

In 2013, a national environmental policy which proposed measures and actions that respond to key issues of the environment was formulated. Fresh water bodies and clean water is an

¹⁵ Brown, Molly E. *Famine Early Warning Systems and Remote Sensing Data* Springer (2008)

¹⁶ UNEP 2004 Annual Evaluation Report by UNEP (2005)

important aspect of Kenya's resources. Water is used in storage services for domestic, agricultural and industrial use. Regulatory services include modifying water flows, recharging and discharging groundwater resources and diluting or removing pollutants. Their supporting services are important for soil formation and retention as well as nutrient cycling¹⁷.

The 2013 National Environmental Policy was created to ensure the implementation of the Constitution and the National Land Policy in a way that will take into account sustainable conservation and management of the environment and land resources, promote and enhance best practices for optimal and sustainable land use, promote sustainable urban and peri-urban land uses, promote land restoration policies¹⁸

Stewardship of the environment refers to a precautionary approach to environmental challenges, promoting greater environmental responsibility and development and diffusion of environmentally friendly technologies. It means taking responsibility for our choices. The responsibility for environmental quality should be shared by all those whose actions affect the environment. Sustainable development requires that at competitive prices, business and industry can supply goods and services that meet societal and individual needs, contribute to improved quality of life and ensure management and efficient use of renewable and non-renewable resources in an effort to counter the impacts of environmental degradation.

1.4.3 Gaps in the Literature

Environmental degradation has negatively impacted human security and as a result, violence due to lack of resources, diseases because of water and air pollution, high maternal death rates and

¹⁷ Ministry of environment, water and natural resources. 2013. "National Environmental Policy 2013." pg72. (2013)

¹⁸ Ministry of environment, water and natural resources. 2013. "National Environmental Policy 2013." pg70.(2013)

death rates because of lack of proper health care, violence due to unemployment, HIV increase¹⁹. Countering the impacts of environmental degradation requires focusing on the root causes of this. The above literature tries to show the interrelation between environmental degradation but misses out on highlighting the negligence by the relevant authorities to mitigate the impacts to that extent.

1.5. Research Hypothesis

H1; There is a link between the impacts of environmental degradation and human security in Kibera

H2; with effective measures the impacts of environmental degradation on human security will decrease

H3; ineffective countering of the impacts of environmental degradation will continue to risk human security in Kibera

1.6. Justification of the study

This study will be helpful because of the following reasons.

1.6.1. Policy justification

This study is important because it will help examine the extent to which environmental degradation has affected human security in Nairobi with focus on Kibera. This study will also critically survey how environmental degradation has aggravated insecurity and as well as adversely affecting the way of life of the inhabitants of the Kibera. The effects of environmental degradation have also been inter-linked with violent conflict in the region and this study is further aimed at looking into addressing this phenomenon. This study will also look into the

¹⁹ Fretes-Cibilis, V; Giugale M. M., Newman, J. L. An opportunity for a different Peru; Prosperous, Equitable and Governable, World Bank 2007

previous measures implemented by the Kenyan government in the past few decades to address the issues of environmental degradation and conflict and why some of these measures have been successful and others unsuccessful.

1.6.2 Academic Justification

This study is important because it will contribute to new literature in the field of academia. It will lead to the identification of the root causes of environmental degradation and their impacts on human life. Conflict that is anchored on the impacts of environmental degradation on human is an emerging issue in international human security yet there isn't enough literature to address this, and hence this research will seek to shed light on these areas.

1.6.3. To the General Public

This research is also important because it will help to address several issues on environmental degradation and the health hazards, poverty, violent conflicts, unemployment and death rates that come from this and to show their link and how to manage and reduce their impacts through measures already in place and to come up with more. The general public (citizens) are the most affected when it comes to the effects of environmental degradation and their security. This research will therefore help in enhancing awareness to the general public for them to take the initiative in decision making processes and also demand for proper solutions from governing bodies to protect them from the impacts of environmental degradation and ensure proper access to basic needs and resources.

1.7. Theoretical Framework

Ted Robert Gurr developed this theory which revolves around the frustration of people on experiencing a gap between what their lives are and what their lives should be.²⁰ Kibera residents lack access to proper basic resources such as clean water, proper health facilities, food, proper wages, and proper housing and sewage facilities. The idea of relative deprivation predicts collective violence by social groups when they feel that they have been deprived of essential needs in the society. It is depicted in present day Kibera. A lot of man power for the industries that contribute to the country's economy reside in slums. The first railway passed through Kibera. Despite this, the poorest people are found in slums forcing them to settle on the little they have and this causes conflict as the resources are not enough for everyone that is why most criminal gangs reside in the slums which well why the mortality rate of slum dwellers is very high as they are prone to diseases. An example would be that of the recent pandemic of Covid19 which saw the unemployment of millions of Kenyans directly and indirectly. Spread of the virus was also seen to be higher in slum areas than developed areas as slums do not have proper sanitation or access to water and live in large numbers in small spaces increasing the risk of infections.

Loss of jobs has led to disruption of economic activities as the government put measures that did not favor most informal jobs such as house help jobs, hawking etc.

²⁰ Gurr, T R; Why Men Rebel Paradigm Publishers (2011)

1.8. Research Methodology

1.8.1 Secondary Data Collection Method

For purposes of this study, the researcher will make reference to books, journals, policy, and documents from the Government of the Kenya, United Nations publications, African Union publications, internet sources and any other material that will prove useful to this research.

1.9 Chapter Outline

Chapter one introduces the study to the causes of environmental degradation on human security in the region of Kibera. Chapter 1 gives an overview of the causes of environmental degradation and how they have affected human security of the inhabitants of Kibera region. Chapter one did a study based on the objectives of the study which are; to analyse the causes of environmental degradation in Kibera region to examine the impacts of environmental degradation to link the impacts of environmental degradation to human security, to highlight measures by the Kenyan government to counter environmental degradation and its impacts on human security in Kibera

Chapter two outlines how the causes of environmental degradation in Kenya have resulted to negative impacts on human security. How environmental degradation in one part of the country leads to negative impacts in a region like Kibera. How slum dwellers are affected and their role in this either directly or indirectly.

Chapter three will highlight the link between the impacts of environmental degradation and human security

Chapter four presents the policies by the government in countering the effects of environment degradation nationwide and in the process in Kibera slums.

Chapter five outlines recommendations and conclusion about the impacts of environmental degradation on human security in Kibera

CHAPTER TWO: THE CAUSES OF ENVIRONMENTAL DEGRADATION IN NAIROBI KENYA (KIBERA REGION)

2.1. Introduction

Nairobi city where Kibera is situated, originated in the late 1890s as a colonial railway settlement, and has the origin of its name from the Masai word Enkare. When the railhead arrived there in 1899, the British colonial capital of Ukamba province was transferred from Machakos to the site, and in 1905 Nairobi became the capital of Kenya, a British protectorate. In 1900 going forward the city of Nairobi developed into a trading center with the pop up of the establishment of an Indian bazaar. Nairobi hence attracted migrants from all parts of rural Kenya as it had now developed into a government centre. This move made Nairobi one of the biggest cities in this part of the continent. In 1919 Nairobi became a municipality and later became a city. When Kenya gained independence in 1963, Nairobi remained the capital.²¹ The country's constitution expanded the city's municipal area.

This migration of a stream of people into Nairobi which was a result of the railway development was to become one of the many reasons for the development of slums. During this colonial period, slums inevitably developed as a result of the imbalance in the allocation of public resources towards the housing and infra-structural needs of the available sections.²² The post-colonial period saw a relaxation of the colonial residential segregation policies, and major population shifts occurred, notably rural-to-urban migration.

²¹Charton B.H.; Rodriguez D. n.d.; Nairobi today the paradox of a fragmented city published by Mkuki na Nyota Publishers Ltd.

²² Ese, A.; Ese, K. The city makers of Nairobi,an African urban history by Routledge(2020)

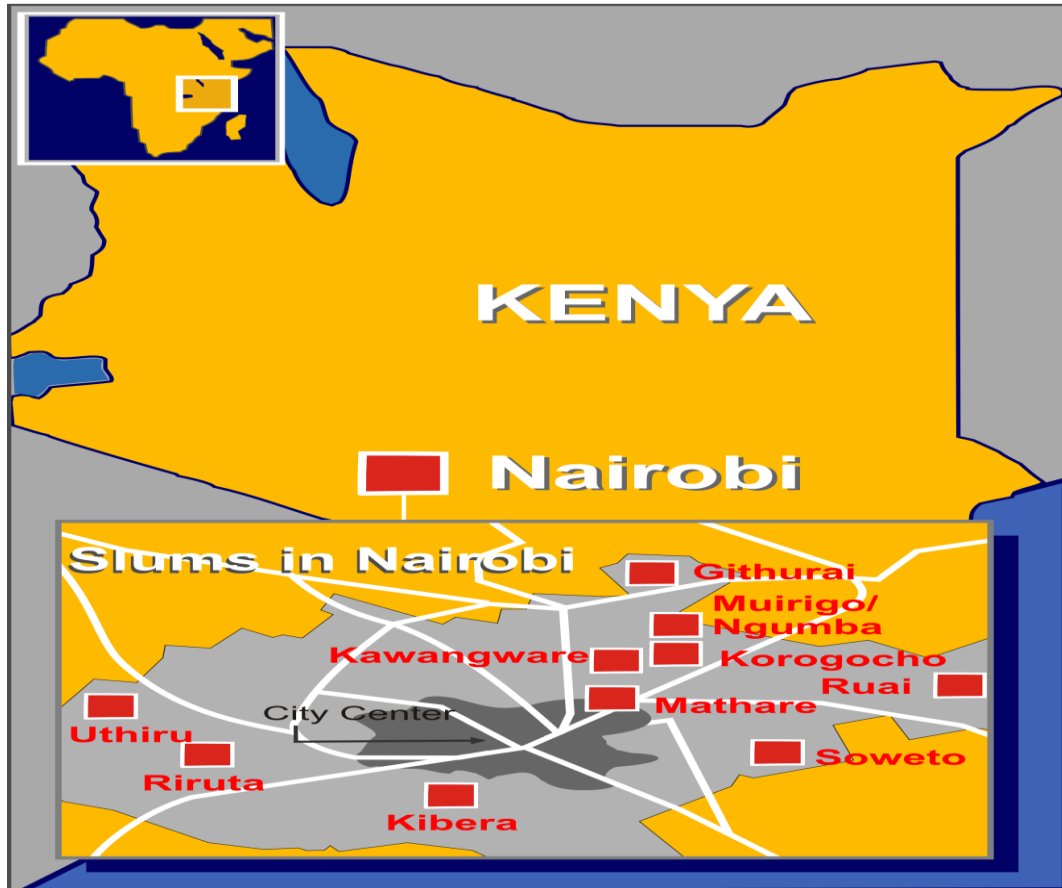
Slums were able to come up all over in the vicinity of the town as a result of chances for employment, access to better resources for a better life and railway access

Kibera is the largest slum in Nairobi, and the largest urban slum in Africa. Kibera is divided into nine official villages, with each village having elders. These villages include are Makini, Mashimoni, Soweto, Kisumu Ndogo, Lindi, Kianda, , Kisu, Laini saba, Silanga. The residences in Kibera are not bigger or larger than one single storey and has an average number of 5 or more people living together under the same. A large number of the people living in Kibera slum live in extreme poverty, earning less than ksh 100 per day. Unemployment rates are so high. Persons living with HIV and other diseases brought about by poor sanitation in the slums are many²³.

Overpopulation, air and water pollution, deforestation among other factors that we will mention in this research; have been important factors for the depletion of the environment and natural resources, thus the negative impacts in our day to day lives. There are approximately 2.5 million slum dwellers in about 200 settlements in Nairobi which is basically approximately 60% of the Nairobi population and occupying just 6% of the land. Kibera houses about 250,000 of these people.

²³Charton B.H. ; Rodriguez D; Nairobi today the paradox of a fragmented city published by Mkuki na Nyota Publishers Ltd.

2.2 Map of Nairobi showing Kibera region



(map source is from By Gernheim - Own work, Public Domain)

2.3. Overpopulation as a cause of environmental degradation in Nairobi (Kibera)

Overpopulation refers to when the population of certain region exceeds the carrying capacity of that region in terms of the resources required to sustain the population, that is when the people that live in a certain region surpass the available resources needed for human survival. From a global perspective, human overpopulation is a serious issue and is on the rise mainly due to high birth rates, especially in developing countries, and falling death rates due to improvements in health care. Overpopulation is a major component of the tragedy of the commons in that more people are sharing the same resources which means less per individual.²⁴ Competition and scarcity of resources leads to the over exploitation of the available yet scarce resources which results to deforestation, loss of biodiversity, air and water pollution.²⁵

There are a few ways to meet the number of the fast-growing population and to also put a boundary between the rural and urban areas. one of the ways is to clear very large parts of land for the construction of infrastructure, roads, buildings for living and conducting day to day activities and it is while clearing this land that deforestation usually occurs as a result of the few trees left holding the loose soil together. When strong winds or heavy rainfall comes, this soil becomes eroded.²⁶

The effects of climate change and rapid population growth are increasing food insecurity, human insecurity, environmental degradation and poverty levels in Kenya. Just About a quarter of Kenya's population currently lives in urban areas, but the country is urbanizing quickly and it is

²⁴ Environmental education by Lahiri (2019)

²⁵ Managing natural resources for development of africa, a resource book by Ochola, Sanginga and Bekalo (2010)

²⁶ UN program: The challenge of slums, global report on human settlement; by 2003 UN Programme

expected that in the next 30 years close to the total number of Kenyans might become urban settlers.²⁷

As much a high percentage of the country's residents live in urban areas, a bigger percentage of the urban dwellers live in extreme poverty in the slums of Nairobi which is a big challenge to the country. In countries like Kenya, rapid population growth places enormous pressure on natural resources such as forests, water and land with the scramble for these resources due to their scarcity. A big number of the Kenyan population is young with a higher number being among the youth. A census that was conducted. The 2019 census of Kenya's population by the KNBS recorded that 35.7 million Kenyans (75.1%) are below 35 years, and that 43 per cent of all Kenyans are below the age of 15 years. It is a fact that this young generation carries the future of Kenya as its citizens. This fact by the demography is enhanced further by the continued growth of urbanisation which has out a lot more children and young people in the cities as most are either sent by their parents in the rural areas to come to the city to make a living. Others just relocate out of their own will with the hopes of a better life but end up in the congested slums. The situation of urban youth and children creates a host of challenges especially in terms of providing shelter, education and employment opportunities.²⁸

In present day, the Kenyan youth have high aspirations many of which way above their reach hence not attaining their goals and visions leads them to anger and frustration and make them susceptible to the wrong forces using them example being politicians when they are not having things their way eg during the 2008 post-election violence that erupted in the country.

²⁷ Food and Agriculture Organization of the United Nations 2019

²⁸ Kenya national bureau of statistics; Kenya Population and Housing Census: Population by county and sub-county, volume 1 by KNBS (2019)

Slum dwellers are the most vulnerable to the effects of climate change such as floods, fires, and landslides and often lack basic amenities and proper sanitation. The Kibera slum, in particular, houses 1 million of Nairobi's slum dwellers, and is considered the biggest slum in Africa, indeed one of the biggest in the world. In paradox, this situation has attracted tourism in recent years. Most of them trying to learn the slum dwellers way of life, others to write reports for their institutions although some bring aid, residents are not usually comfortable with them.²⁹

About 90% of Kibera land is reported to be owned by the government yet residents of this community live in small shacks owned by non-Existent landlords or better known as absentee landlords. The houses are built with mud walls, held together by cement, a corrugated tin roof and dirt or concrete floor. These shacks usually offer shelter to eight or more family members, many of whom sleep on the floor as they can neither afford beds or space for everyone.³⁰

Pumza Fihlani from BBC reported that the Kenyan government has issued multiple warnings about houses that have been built along the river but these warnings fall on deaf ears, as such it gets dangerous whenever it heavily rains as sometimes these areas tend to flood. The reason for this unresponsiveness by the dwellers of Kibera is that with their income, it is because it becomes hard for the people to get cheaper housing elsewhere. This community is characterized by unemployment; poor environmental conditions; limited water supply; poor sanitation; inadequate electricity supply and access to health facilities, even though efforts are being made to improve the situation.

The BBC report also talked about a program to upgrade the Kibera slums was first implemented when the UN Habitat and the Kenyan government signed a memorandum

²⁹ Baker, Judy L.; Climate Change, Disaster Risk, and the Urban Poor: Cities Building resilience for a changing world

³⁰ Gumuchian, Marie-Louise ;Slum life: A tailor's tale from Nairobi's Kibera 2007

with help from a joint initiative by the World Bank and UN Habitat and in result about 600 families relocated although within a short time the buildings fell into a bad state of lack of sanitization and scarcity of water and proper waste disposal. ³¹

The government does not offer free medical facilities. The medical facilities in Kibera are mostly public clinics which do not get proper funding hence mostly rely on non-government organisations for funding and resources e.g. AMREF, MSF and faith-based organizations. The unemployment rate is reported to be very high in this community, perhaps as high as 50% of the employable population.

The high population of Kibera habitants have made accessibility to clean water and proper waste disposal and sewages almost impossible. Most of these people use pit latrines which are in a deplorable state because they are poorly maintained hence, they tend to block leading to the threat of health hazards.

2.4. Air and water pollution as a cause of Environmental degradation in Kibera

Indoor air pollution is killing thousands of people every year in Nairobi, Kenya. This is usually as a result of rubbish fires especially in the slums where there is not enough air space to burn off their rubbish and inaccessibility of proper garbage disposal, especially burned plastic smells, dirty air from old cars since most houses are in close proximity to roads and the continuous use of biomass fuelled stoves. 58% of Nairobi's population live in informal settlements in extremely poor conditions. Household air pollution is one of the leading causes of premature death and disease in these settlements. Regulatory frameworks and government budgets for household air

³¹ <https://www.bbc.com/news/world-africa-31540911>

pollution do not exist and humanitarian organisations remain largely inattentive and inactive on this issue.³²

A large number of houses in Nairobi's slums have tin/corrugated iron roofing and mud or tin/corrugated iron sheet walls. Most households use a room that can be measured to be 10by10 ft and these rooms serve as the bedroom area, kitchen area, living room area and at night the kids just use the space to help themselves using tins mostly as its insecure to access toilets at night for the children. The rooms usually have one door and one window, and in most cases the houses have no windows at all hence depend on the door for lighting and letting in of air.

Most households rely on kerosene (paraffin) for cooking and lighting as well as charcoal or wood for cooking. There have been cases of using of plastic waste burning and even cloth rags in the extremely poor households to use as fuel for cooking and other activities in the household. High levels of harmful air pollution both indoors and outdoors have been recorded especially in the evening when charcoal or/and kerosene is burnt or used. Apart from housing features being a major reason for the persistent air pollution in slums, slums tend to be in areas near busy highways next to industrial zones or next to dumpsites. Slums have also been a designated ground for the disposal of garbage increasing outdoor pollution and also increasing the pollution of water used by slum dwellers.³³

High population density and poor or infrastructure has led to persistent problems of drainage, sanitation and solid waste management in slum areas. Most sewage runs downhill in open ditches, resulting in stagnation, breeding insects and environmental pollution. Residents in Kibera use plastic bags as a toilet and throw the contents on the roadside or as far as they can

³² Gumuchian, Marie-Louise ;Slum life: A tailor's tale from Nairobi's Kibera 2007

³³Ezeh A.C., Dianati, K., Milner, J. T., Muindi, K., Zimmerman, N.; Household air pollution in Nairobi's slums: A long-term policy evaluation using participatory system dynamics, Science of The Total Environment pgs. 1108-1134 (2019)

throw, these are referred to as flying toilets. This condition of unsanitariness becomes a breeding ground for water and air borne diseases such as typhoid and cholera which has been a high cause of death among children and older people in the slums. (Dianati, et al. 2019)³⁴

The high population density and poor or bad infrastructure has led to persistent problems of drainage, sanitation and solid waste management in slum areas. Most sewages go towards open ditches, which results to stagnation, breeding of insects like mosquitoes' insects and environmental pollution. Residents in Kibera use plastic bags as a toilet and throw the contents on the roadside or as far as they can throw, these are referred to as flying toilets. This condition of unsanitariness becomes a breeding ground for water and air borne diseases such as typhoid and cholera which has been a high cause of death among children and older people in the slums.

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Human health and the environment are unfavourably affected by air pollution. Air pollution is associated with respiratory and eye diseases such as asthma, heart attacks, strokes, lung cancer, and conjunctivitis, especially in the young and elderly who are more vulnerable. Air pollution is also a major contributor to effects such as acid rain, which has been responsible for much damage to soil, fish resources, and vegetation, often very far from the emission sources.³⁶

Mt. Elgon, Mau Forest Complex, Mt. Kenya, Aberdares, Cherangany Hills, provide approximately 75 percent of the country's water resources. The principal sources of water for

³⁴Ezeh A.C., Dianati, K., Milner, J. T., Muindi, K., Zimmerman, N.; Household air pollution in Nairobi's slums: A long-term policy evaluation using participatory system dynamics, Science of The Total Environment pgs. 1108-1134 (2019)

³⁵Baker, Judy L.; Climate Change, Disaster Risk, and the Urban Poor: Cities Building resilience for a changing world

³⁶) Garbino, Jenny P.; Children's Health and the Environment: A Global Perspective : a Resource Manual for the Health Sector by WHO(2005)

Nairobi are Ndakaini, Ruiru and Susumua dams. These dams are all on rivers that emerge from the Aberdare Forest. The following factors compromise the city's water quality, the water quality has been compromised and degraded by a number of activities, including irregular and ill-planned settlements, overgrazing, uncontrolled and illegal forest resource extraction, and the conversion of forest land to agriculture, natural phenomena such as the high fluoride content in groundwater, to anthropogenic factors such as poor wastewater treatment and environmental degradation both within the city and in the surrounding countryside.³⁷

It is so evident that the management of waste disposal in Nairobi city is having challenges keeping up with the increasing population and their demands and is inadequate to treat the amount of industrial and municipal effluent entering the Nairobi River and other surface waters. Nairobi was historically known as a place of cool waters but over the years, this expression is not practical as most of the water is no longer fit for everyday consumption and other useful purposes. A rising number of factories in Nairobi's industrial area discharge waste directly into the Ngong River, which makes it the most polluted river in Kenya. Industrial waste discharge includes petro-chemicals and metals from micro-enterprises and jua kali sector. As well, oil and grease from the busy roads run off into adjacent waters. Also, disposal of waste into the river branches by the population eg the disposal of dead animals like dogs and cats and they decompose in the water.³⁸

Water pollution has led to scarcity of clean water to use in both the rural and urban areas. In Kibera women and children and some men purchase water in twenty-litre jerrycans that used to

³⁷ UNEP. 2005. "2004 Annual Evaluation Report." *Kenya: Atlas of Our Changing Environment*. "United Nations Environment Programme.(2009)

³⁸ UNEP. 2005. "2004 Annual Evaluation Report." *Kenya: Atlas of Our Changing Environment*. "United Nations Environment Programme.(2009)

contain cooking oil but are then recycled and sold to them. The streets of Kibera are small, often unpaved and uneven. Many streets have open drains which also serve as sewers, and are from time to time unblocked by residents pushing mud and garbage onto the streets as there are no sewers or organized garbage collection in Kibera.³⁹

Local cartels take advantage and sell clean water to the people in Kibera at very high prices leading to a rise in conflict as people fight to access clean water. Water and sanitation provision in Kibera are so inadequate that rates of infant mortality are 3 times the average for Nairobi as a whole.

2.5. Deforestation as a cause of environmental degradation

Deforestation refers to the removal and clearing of forest space and trees with the aim of using this land for agricultural purposes and the trees for either charcoal, wood for building houses and the other uses of timber. The fast growth rate at which Kenya's population is going is believed to be among the major underlying causes behind deforestation in Kenya according to KEFRI, 15 million hectares of forest are lost worldwide every year due to their clearing for agricultural reasons. It is excessively difficult to monitor the scale of deforestation in the country. The latest available figures, published in 1994 by the Kenya Forestry Master Plan, mention 5,000 hectares of forest excised on a yearly basis. The consequences of forest destruction on the environment are far greater when canopy forests are destroyed.

The ongoing drought that has hit Kenya in the past few months has led to an increase in deforestation. Forest resources have been increasingly exploited as people have turned to

³⁹ Phillips T., *Tomorrow's Crises Today: The Humanitarian Impact of Urbanisation*. OCHA/IRIN. (2009)

alternative means of income by transforming wood into charcoal or selling it as timber. Some of the main causes of deforestation include:

- **Demand for farming and resident land.** – because of the growing population at a fast rate, farmers are unable to meet the also rising demand for food crop to meet the population's needs. the local administration has over the years been in charge of the allocation of land to people who were landless and this has also immensely contributed to deforestation over the years. many Nubians faced eviction in the 1970s and 1980s as the government reclaimed parts of Kibera for different purposes.
- **Corruption in leadership**– For many years, politicians have used the same land to gain political mileage at the expense of a suffering environment. Politicians allocate land directly or indirectly to become popular among the people to garner their votes. The Nubians in Kibera have suffered as a result of this as they claim their land was unlawfully taken away from them and given to other communities.⁴⁰
- **Nonfunctional Government Agencies.** Illegal human activities of deforestation continue to happen in front of the eyes of Kenya Forest Services, and other government agencies that are meant to protect the forests and environment, and they seem not to appreciate the need for a green economy. Activities like logging, charcoal burning and encroachment of forestland are rampant in the Kenya and as much as the government is aware of the ongoing deforestation in the country yet continues to do nothing because of corruption and impunity and the fact that they are not directly affected with the impacts of deforestation.⁴¹

⁴⁰ Adam, A. H.; "Kenyan Nubians: standing up to statelessness." *Forced Migration Review* 19-20(2009)

⁴¹ Taskforce Report on Forest Resources Management and Logging Activities in Kenya by the Ministry of Environment and Forestry(2018)

- **Globalization-** the pressure for high demand of raw materials by well industrialized countries pushes countries like Kenya to ignore the degrading effects of deforestation as the greed to profit from this high demand over crowds their judgement and therefore end up getting over exploited by the industrialized countries. There is high demand for raw materials by industrialized nations for processing. In the end, the negative effects of deforestation surpasses the economic gain. For instance, China has been buying timber from Kenya for years, leading to the escalation of legal and illegal deforestation countrywide.⁴²

Charcoal is obtained after wood is carbonised without air, and has twice the calorific value per unit weight as compared to wood, and doesn't produce as much smoke as wood.⁴³ The production of charcoal has been outlawed yet this hasn't stopped the chain of production and to the burning fields of the stoves in the house where it is used. Its availability and constant supply are almost assured as it is easy to package and transport over long distances. Most of the charcoal consumed in urban areas is mainly produced in the rural areas, despite the fact that the Forest Department is always on the look out to arrest individuals engaging in the cutting down of trees. The production of coal in the country is not efficient. The energy recovery efficiency using the best charcoal making kilns is about 30% but in Kenya, where charcoal production is done in the traditional earth kilns which have very low energy recovery systems, ranging between 10-20%. Most of the energy ends up being lost and tonnes of wood wasted in the process. Charcoal

⁴² UNDP; *Human Development Report: Beyond Income, Beyond Averages, Beyond Today - Inequalities in Human Development in the 21st Century*. 2019

⁴³ Reddy, P. Jayarama.; *Clean Coal Technologies for Power Generation*. CRC Press.2013

production is yet to be legitimised by the Government.⁴⁴ The supply of raw materials used for the production of charcoal in the country has been directly affected by the ban on logging by the Kenyan government which has resulted to a general increase in the end user price. Charcoal emits carbon monoxide (CO), a poisonous gas, as one of its by-products. If used in a room that is not well ventilated, charcoal can lead to serious respiratory ailments and possible death if large quantities are inhaled.⁴⁵ As in the case of Kibera habitants, charcoal and kerosene fuel is efficient in their everyday lives as most houses are not powered by electricity. This is because slum habitants are notoriously known to steal the oil that fuels transformers while others unlawfully tap into the electrical lines to access power. This is largely contributed to the high cost of electricity offered by KPLC in the country vis a vis what the people earn for living.

Deforestation is one of several human activities that experts say contribute to climate change. The effects of deforestation and changes to the atmosphere, in turn, have caused hardship for the local population.

CHAPTER THREE: THE IMPACTS OF ENVIRONMENTAL DEGRADATION ON HUMAN SECURITY

3.1. Introduction

The notion of environmental security includes a variety of issues involving the role that the environment and natural resources can play across the peace and security dimension, and their relationship to human wellbeing, development and security. today's world is seen to be an

⁴⁴ Clement N.P. n.d., John N., Kalenda, Monica, *AVAILABLE CHARCOAL PRODUCTION TECHNOLOGIES*. Research, UNDP.

⁴⁵ WHO Guidelines for Indoor Air Quality: Dampness and Mould by World Health Organisation(2009)

insecure place faced with potential threats of violence and disaster in all sectors, violent conflicts, natural disasters, persistent poverty, epidemics and economic decline impose hardships and undersell prospects for peace, stability, and sustainable development. The crises that exist make up multiple forms of human insecurity. And they can destroy communities and nations if they overlap.

The General Assembly resolution 66/290 stated that “human security is an approach to assist Member States in identifying and addressing widespread and cross-cutting challenges to the survival, livelihood and dignity of their people.” It calls for “people-centered, comprehensive, context-specific and prevention-oriented responses that strengthen the protection and empowerment of all people.”⁴⁶

This chapter will give an overview of how these two concepts intersect or link. Environmental degradation is a threat to the peace and stability of human beings.

3.2. The Impacts of environmental degradation

i) Human health is on the receiving end as a result of environmental degradation. Areas exposed to toxic air pollutants can cause respiratory problems like pneumonia and asthma. Millions of people are known to have died due to the indirect effects of air pollution. Exposure to high levels of air pollution can cause a variety of adverse health outcomes. It increases the risk of respiratory infections, heart disease and lung cancer. Both short- and long-term exposure to air pollutants have been associated with health impacts. More severe impacts affect people who are already ill. Children, the elderly and poor people are more susceptible.

⁴⁶ Lung-C. Myres S. M., *Human Rights and World Public Order: The Basic Policies of an International Law of Human Dignity*. Oxford University Press. 2018

The death through pneumonia of children under the age of five has been recorded to be on the high and hence pneumonia is referred to as a leading killer disease for children in 3rd world countries. . About 1.9 million children die from pneumonia in a year. Half the world's deaths due to pneumonia in children under the age of five years occur in Africa. The mortality rates of children under the age of five years in most developing countries ranges from sixty to about a hundred per a thousand births, 1/5 of these deaths are due to pneumonia that is 21% of these deaths are as a result of pneumonia. About 1.9 million children die from pneumonia in a year. Half the world's deaths due to pneumonia in children under the age of five years occur in Africa. In sub-Saharan Africa, the approximated measure of deaths among children aged below 5 years accredited to pneumonia lies between 17-26%. Kenya is currently ranked among the 15 countries with the highest approximated number of deaths as a result of clinical pneumonia. Pneumonia is the second leading cause of death among children in Kenya. pneumonia in children under the age of five years is currently diagnosed using IMCI criteria in public health facilities. IMCI aims to reduce death, illness and disability, and to promote improved growth and development among children under five years of age. ⁴⁷ .

A large number of women living in the slums are not formally employed hence create their own employment by selling food, groceries on the roadside. Most women doing this in Kibera use firewood for preparing these street foods and in their homes spend a large amount of time cooking next to stoves. All the smoke they inhale is dangerous to their respiratory and that's how they become prone to diseases. Recently in Kibera near Fort Jesus, a lady that was used to selling fried arrowroots died due to health complications and was too poor to go to hospital for treatment. for women who have been lucky to get formal employment, they are still at a risk of

⁴⁷ Dickens Onyango et al. Risk factors of severe pneumonia among children aged 2-59 months in western Kenya: a case control study. Pan African Medical Journal.; 13:45(2012)

environmental pollution because of the smoking of tobacco at their places of work and for those who work in bars, the different smokes released by sheesha smokers and in addition, there is exposure at home where cigarette smoking indoors is a common occurrence. With all the provided sources of air pollutants and the closeness of the women to these pollutants over long periods of time, the amount of exposure the women and small children experience is way higher than the exposure of men.⁴⁸ A different study in the slums of Kibera concluded that children under five years have a huge mortality rate as a result of severe and very severe pneumonia.

The public health data recorded over a period of time in Kibera directly correlates with the high levels of contaminated water in the area. Most of the cases reported in hospitals are as a result of preventable and diseases caused by insanitation and bad hygiene. The result is dangerous diarrhoea that contains blood in some instances which is detrimental to the people. In Kibera, when the toileting facilities are located far from the residential areas, the residents defecate in plastic bags which they later throw in ditches, on the road side or as far away as possible. This form of toileting is commonly referred to as the flying toilets in Kibera. In 2006, a number of people living in Kibera slums identified flying toilets to be the main mode of going to the toilet to them. Politicians and authorities should be put on blast for not discussing toilet facilities in this informal settlement. The piles of polythene bags used to defecate end up on people's rooftops and doorsteps attracting flies and other unsanitary insects.⁴⁹ Piles of the polythene bags used for defecation land in roofs, and attract flies. Some of them block the drainage systems while others burst from pressure impact. Some times when they land in open water systems they

⁴⁸ (Senior Research Associate Division of Epidemiology and Biostatistics; *Tobacco and Public Health: Science and Policy*. Oxford University Press(2004)

⁴⁹ Elizabeth M. T., Hope n.d. *Solid Waste Management; Critical Issues For Developing Countries*. West Indie: Canoe Press.

get washed away and people get hit by the plastic bags when they are tossed to the air. During the rainy season, the excretion is often washed away to people's houses. Children swim in the water which leads to diseases such as typhoid, skin disorders, diarrhoea and malaria. According to a report by Amref in 2007, women and children are the most vulnerable to infections related to hygiene during the rainy season when water systems become contaminated.⁵⁰

When water gets stagnant after a long period of time mosquitoes breed in this area which ends up causing all sorts of infections and diseases. Water may get stagnant as a result of blocked drainages which ends up in malaria and typhoid spreading.

A locally alcoholic brew called Chang'aa is very common in slums and in this case in Kibera it is a very popular drink because it is cheap and it gets one drunk so fast as compared to other traditional brews. Chang'aa can pose serious threats though because it is a mixture of a variety of products with methanol having a higher percentage. Excess of methanol can lead to serious health problems and can lead to death.

ii) the benefits of forests are many to the environment. Forests affect the climate, water and temperature of an area either positively or negatively. Forests preserve the environment by draining and getting rid of harmful products from the soil and protect watersheds and in result protect the human health. The unappreciated role of forests is that from the tree's humans are able to get food and in the past trees had medicinal value and still do as most modern medicine borrows from the trees and plants... What is generally not appreciated is the role deforestation plays in human health with particular reference to diseases.

⁵⁰ Elizabeth N., Karanja J., Mercy; "Women concern's and Nurses promotional tools." *Sanitation and Hygiene in Kibera Slums*, pg31.(2008)

Deforestation is responsible for about 25% of net annual releases of carbon dioxide into the atmosphere. It also reduces the capacity of forests to absorb greenhouse gas emissions. Resulting health consequences include changing patterns of disease transmission and host-vector relationships, increases in food- and water-related diseases, and a rise in cardiovascular and respiratory problems.

iii) the Malthusian theory states that the food problem of a region is directly related with its fast population growth. malnutrition and hunger come as a result of this. A high population growth is not only having an impact on food supply but also adversely affects the development of a region, resources that would have been used in developing a region are instead redirected to solving the hunger crisis⁵¹

A nation needs natural resources to survive but this becomes a challenge as an increase in demand for food leads to a decrease in natural resources. Other negative effects of population growth include poverty caused by low income per capita, famine, and disease since rapid population growth complicates the task of providing and maintaining the infrastructure, education and health care needed in modern economies.⁵²

Over population is the lead cause of unemployment in Kibera hence daily crime is a reality for many of its residents. Since more than 50 percent of Kibera's population is unemployed, many people drink throughout the day, which contributes to Kibera's problems of widespread crime.

⁵¹ Leach, M.; *Gender Equality and Sustainable Development*. New York: Routledge.2016

⁵² Almadi O., Gideon K., Paul G, and Thuku "THE IMPACT OF POPULATION CHANGE ON ECONOMIC GROWTH IN KENYA." *International Journal of Economics and Management Sciences* 43-60.(2013)

3.3. Link between the impacts of environmental degradation and human security in Kibera

We have earlier noted the causes of environmental degradation and their impacts, this part seeks to link the effects of environmental degradation to human security. According to the Commission on Human Security, human security is needed in response to the complexity and the interrelatedness of both old and new security threats – from chronic and persistent poverty to ethnic violence, human trafficking, climate change, health pandemics, international terrorism, and sudden economic and financial downturns. Such threats tend to acquire transnational dimensions and move beyond traditional notions of security that focus on external military aggressions alone. In this case we will focus on human security in the form of health pandemics, persistent poverty including economic and financial downturns.⁵³

3.3.1. Link between impacts of environmental degradation and human health

Every living thing depends on their environment for resources to survive; energy, clean air, potable water, healthy and sufficient food, and a safe habitat to live. Air pollution and water pollution are the leading factors in health deterioration and even death as they're the lead cause of respiratory diseases, risk of cancer, heart disease, asthma, and many other illnesses. Unsafe drinking water and poor sanitation and hygiene are responsible for a variety of infectious diseases, such as, diarrhoea, cholera, meningitis, etc.⁵⁴ UNICEF recorded that 350,000 children under five years are reported to have died from diarrhoea and these diseases related to the consumption of dirty water in 2015 in developing countries. Some of the environment related diseases include:

⁵³ Human Security Unit. "Application of the Human Security Concept and the." *HUMAN SECURITY IN THEORY AND PRACTICE* pg 6.(2009)

⁵⁴ David R.H, Edward T. R, Naomi A., Timothy P. E, Tom S.; Hunter's Tropical Medicine and Emerging Infectious Diseases published by Elsevier 2020

Cancer

- Heart disease
- Diabetes
- Asthma
- Arthritis
- Malaria

Factors that risk for diseases from the environment are:

Pollution

Water, air and soil microbes

Food contaminants

Weather conditions

Natural disasters

Pesticides and other chemicals

Pests and parasites

Radiation

Poverty

Lack of access to health care

In Kibera however, the most common diseases related to water, sanitation and hygiene are cholera, typhoid, malaria and diarrhoea. Most people in Kibera due to being unable to access proper toilets or any toilets at all use what we have earlier referred to as flying toilets where they defecate in plastic paper bags and throw them on the roadside or just as far as the hand can throw. During the rainy season, the excretion is often washed away to people's houses. Children swim in the water which leads to diseases such as typhoid, skin disorders, diarrhoea and malaria. Malaria is one amongst the leading causes of death in Kenya.

Some of these diseases have had the highest number of deaths in Kenya according to survey taken in 2018. According to the 2018 Economic survey by Kenya National Bureau of Statistics, 21,584 people died of pneumonia in 2017, another 17,553 succumbed to malaria while deaths caused by cancer stood at 16,953. tuberculosis at sixth place anaemia at seventh place and road accidents at eighth place. Heart disease and meningitis come in at ninth and 10th place with 4,786 and 3,540 registered deaths.⁵⁵

3.3.2. Link between Impacts of environmental degradation and persistent poverty

Natural resources and environmental services encourage a massive amount of economic production and consumption activities. A large number of Kenya's productive sectors directly depend on raw materials provided from natural resources. Some of the sectors include the - agriculture, fisheries, mining, and timber industry. However, most of the activities linked to these sectors and the laws that make and protect them also end up undermining and depleting the same resources they depend on to run. As a result of this imbalance environmental degradation, economic down spiral and in the end poverty.

⁵⁵ Njugunah, M. "Pneumonia, Malaria And Cancer Are Kenya's Leading Causes Of Death." *CAPITAL NEWS*, april 28th. (2018)

These activities carried out by the major sectors in Kenya's economy are a big contributor to environmental degradation of the air, water, land pollution; land degradation; water resources depletion; reduced biological diversity; a decline in natural resources stocks.

Direct economic costs in terms of production and consumption opportunities foregone: the decline in the quality and quantity of environmental resources also decreases the amount of raw materials required to generate. As environmental resources decline in quantity and quality, the amount of raw materials available to generate the end product also decreases. An example of this is overfishing, and the consequent - and growing - decline in fish catches and fisheries income. The loss in employment and livelihoods of Lake Victoria is estimated to be at least Kshs. 763 million. This explains why a large part of rural settlers move into urban areas like Nairobi and end up in slums and why a larger population of Kibera slum settlers are from Western and Nyanza provinces.

Poverty has led to frequent gang attacks and muggings are the order of the day; this is as a result of lack of employment for the youth in the slums. They use drugs and the addiction to the alcohol and drugs pushes them to engage in crime to enable their drug addictions. Those who are not in crimes scavenge in dumpsites for plastic bottles which they then sell for recycling and any valuables for sale or get into illegal sex trade to make ends meet. With no land or means of growing their own food, slum residents are entirely reliant on markets for food but the high costs of food have pushed an already desperate people into extreme poverty, leaving them incapable of feeding their families or paying for basic services such as healthcare, rent and school fees.

CHAPTER 4: POLICIES BY THE GOVERNMENT AND NON-GOVERNMENT ORGANISATIONS AND INSTITUTIONS IN COUNTERING THE IMPACTS OF ENVIRONMENTAL DEGRADATION ON HUMAN SECURITY

4.1. Introduction

The topic of environmental degradation is a collective subject that has required the intervention of both government bodies and non-government bodies in a bid to eradicate the negative impacts on human life and on the state. Both the government and non-government bodies through policies and initiatives to preserve what's left of the environment and to preserve both human and natural life. We have talked about the causes, impacts of environmental degradation and the damage these impacts have had on human security. But what have the government and non-government bodies done or doing in order to counter these damages well government policies that have been put in order to counter climate change, poverty, deforestation, water and air pollution, overpopulation, general health of its people.

4.2. Government policies and initiatives.

The Rio Earth Summit of 1992 helped Kenya in the understanding of the link between the environment and development through the management and planning of the environment. It is important to note that the survival of Kenyans and the survival of the environment are concepts that intertwine as most Kenyans depend directly or indirectly on goods and services provided by the environment eg; livestock rearing, agriculture, fishing, water, tourism and trade. These activities contribute to local and national economy through revenue generation and wealth creation in such productive sectors. the environment has therefore been essential to Kenya's

development policy.⁵⁶ National Development Plans have dealt with the environment since independence. Following the 1992 Summit, Kenya initiated the NEAP process which was completed in 1994. The NEAP recommended the need for a national policy and law on the environment. It is significant therefore that the global environment body UNEP is located in Nairobi⁵⁷.

This policy then developed to the Sessional Paper No6 of 1999 which was called Environment and Development which later came to be known as EMCA that is the Environmental Management and Coordination Act No8 of 1999 which was a legislative process and Kenya's first framework for Environmental law. The Sessional Paper and the Act added to a large number of existing sectoral laws and policies dealing with the different sectors of the environment, such as water, forests, minerals and the others. This has created a dispersed kind of system of environmental laws and policies.⁵⁸

4.2.1. Policy on Climate Change (National Climate Change Framework Policy)

The rising temperatures and changing rainfall that cause floods and droughts are a threat to Kenya's development and sustainability. The dependence of Kenya's economy to the natural resources would therefore be at a high risk of vulnerability due to the instability of Kenya's climate. The government of Kenya developed the National Climate Change Framework Policy to

⁵⁶ Dodds, Felix, Maurice S., Michael S., ;*Only One Earth: The Long Road via Rio to Sustainable Development*. New York: Routledge 2012

⁵⁷ Grève, A. M. "*National Environmental Action Plans: Future Directions for Sub-Saharan Africa*. Indiana University."2011

⁵⁸ Odidi C.O, Patricia K.M, Aketch J M,: *Environmental Governance in Kenya: Implementing the Framework Law*. East African Educational Publishers.2008

provide a clear and incisive joint of overall response priorities to climate variability and change in order to safeguard sustainable development ⁵⁹

This Policy was developed to facilitate a coordinated, coherent and effective response to the local, national and global challenges and opportunities presented by climate change. An overarching mainstreaming approach has been adopted to ensure the integration of climate change considerations into development planning, budgeting and implementation in all sectors and at all levels of government.

Kenya has come a long way in terms of development but the key economic sectors are highly vulnerable to climate changes hence it is important that Kenya builds a strong resilience against climatic changes through enhancing the country's system of governance and ecosystems to be able to maintain function in the face of climatic changes. Not only should Kenya be able to try and prevent the effects of climate change but should also have an adaptive capacity. Adaptive capacity is key to improving socio-economic characteristics of communities, households and industry as it includes adjustments in behavior, resources and technologies, and is a necessary condition for design and implementation of effective adaptation strategies.⁶⁰ (Sessional Paper No. 3 of 2016 on National Climate Change Framework Policy 2016)

Shifting the transport of cargo from road to using the railway, reforestation, agroforestry and increasing the use of geothermal energy are some of the actions that will positively impact GHG (greenhouse gas emissions)

⁵⁹ Nations, Food and Agriculture Organization of the United Nations: *Options for low-emission development in the KENYA dairy sector: Reducing enteric methane for food security and livelihoods*. Food and Agriculture Organization of the United Nations(2007)

⁶⁰ Sessional Paper No. 3 of 2016 on National Climate Change Framework Policy by the Ministry of environment and Natural Resources (2016)

The production and consumption of energy are closely connected to climate change. Biomass energy is still used in the country's urban and rural households. Biomass energy includes charcoal and firewood, they are easily available to both the rural and urban residents hence the reason for their popularity. Accessing biomass energy is important to building resilience. It is important to ensure a well organised production and utilisation of the biomass energy through sustainable plantation forests, sustainable tree harvesting techniques for commercial charcoal production, and efficient charcoal kilns and cook stoves.⁶¹

It is important for the country to build and enhance its climate resilience and adaptive capacity. Building climate resilience requires Kenyan governance systems, ecosystems and societies to have capability to maintain competent function in the face of climate change and to return to some normal range of function even when faced with adverse impacts of climate change.

Adaptive capacity is the ability or potential of a system to respond successfully to climate variability and changes, and includes adjustments in both behaviour and in resources and technologies. It is key to improve the socio-economic characteristics of communities, households and industry because of its inclusiveness and in behaviour and in resources and technologies

Adaptive capacity is a necessary condition for the design and implementation of effective adaptation strategies to reduce the possibility and strength of the negative impacts of climate change. The ability of Kenya to amplify adaptive capacity is therefore crucial to allow the society to take advantage of opportunities and benefits from climate change.⁶²

⁶¹ Kalenda, M, John N, and Clement N. P. n.d.; *AVAILABLE CHARCOAL PRODUCTION TECHNOLOGIES*. Research, UNDP.

⁶² Adger, W.N., S. Agrawala, M.M.Q. Mirza, C. Conde, K. O'Brien, J. Pulhin, R. Pulwarty, B. Smit and K. Takahashi,. "Climate Change 2007: Impacts, Adaptation and Vulnerability." In *Assessment of adaptation practices, options, constraints and capacity*, ,pg 717-743. Cambridge: Cambridge University Press.2007

Mainstreaming of climate change is the most suitable approach to guarantee Kenya's objective to attain a low carbon environment and a resilient one. climate change mainstreaming is a new approach that provides the framework to achieve coordinated action on climate change across government functions. Mainstreaming in this sense requires cross-sectoral policy integration that operates both horizontally, by providing an overarching guide for all sectors; and vertically, by requiring all sectors and levels of government to implement climate change responses in their core functions.⁶³

4.2.2 Government frameworks and Policies on accessibility to clean water

The government has taken measures to address the water scarcity in the region through water projects which entail the extension of water infrastructure to the areas that do not have connection to clean water supply.

The Kenyan government is purposed to spend about 4B dollars to develop enough clean and potable water supply to these areas that have no access to such. For this to last as a long-term solution to the water problem the water should be protected from pollution by implementing strict standards to manage the disposal of waste especially into water bodies. To this effect, water and disposal permits can be made dynamic and used as economic instruments for water pollution control. Water inspection bodies will be put in place to ensure the quality of water is not disturbed by factories and other industries that play a role in the consumption and wastage of water.

4.2.2.1. The National Water Resource Management Strategy

⁶³ Sessional Paper No. 3 of 2016 on National Climate Change Framework Policy by the Ministry of environment and natural resources (2016)

The National Water Resource adopted the following principles in its formulation;

- (i) To achieve equitable access to water, that is, equity of access to water services, to the use of water resources, and to the benefits from the use of water resources

- (ii) (ii) To achieve sustainable use of water by making progressive adjustments to water use with the objective of striking a balance between water availability and legitimate water requirements, and by implementing measures to protect water resources.

- (iii) (iii) To achieve efficient and effective water use for optimum social and economic benefit.⁶⁴

Kenya's Water Act and Policy

By independence year, that is the year 1996, Kenya's water policy had put a lot of emphasis on the cooperation of all sectors of the state for the country's social and economic prosperity, these sectors the Department of Water, the private sector, non-governmental organizations (NGOs), and the local people through self-help projects through the spirit of Harambee that was to show the unity the country had used to attain independence. The local communities were given control of the water projects to initiate, manage and implement the policy with minimal help from the government. This was to however fail because the local people lacked enough skills to implement this, there was limited financial resources and the country was experiencing poor governance with weak land and environment policies. The focus of water management in the

⁶⁴ Ministry of Water and irrigation. 2006. *The National Water Resources Management Strategy*. Published by the Ministry of Water and Irrigation. 2006

country was for domestic use of water, industrial and agricultural uses on the provision of water for domestic, industrial and agricultural uses.⁶⁵

The objective of this policy was to develop water supply systems, build boreholes and dams and ensure the pipes and furrows were efficient in passing the water and still maintaining its cleanliness. The government was required to make huge financial and skilled manpower investments in water development and supply to effectively meet the needs of its people. On top of this, the government needed to play a key role in policymaking and regulation in the use of water resources countrywide.

4.2.3. Government policies on overpopulation

Kenya National Bureau of Statistics recorded an addition of 1million people in Kenya every year between the years of 1999 and 2009. At this rate Kenya's population was adding 1million and was expected to hit 77 million by 2030. Vision 2030 projects that a fast-growing population would derail the country's primary goal of economic prosperity and a quality life for every Kenya with access to human survival resources. To support Kenya's vision for 2030 a couple of departments came together and began a series of policies that would help support this vision. The departments included; The National Council for Population and Development (NCPD), under the Ministry of Planning, National Development, and Vision 2030. Over the years the country has made efforts to achieve this goal and has succeeded in some areas by increasing the contraceptive coverage which was at 27% in 1989 to 46% in 2009. Yet Kenya still marks great concern over the continued growth of unemployment levels, food shortages and looming crime and violence by the large number of growing youths in the urban areas.

⁶⁵ OECD,WHO,WORLD BANK GROUP;Delivering Quality Health Services: A Global Imperative published by WHO(2018)

The Ministry of state for planning, The National development and Vision 2020 have presented a policy framework that aims to achieve a good quality life for Kenyans by managing the population growth to a level that can be sustained with the available resources.

If this policy is successfully implemented it will result to a well-managed population living a good quality life and not lacking the resources required for a human being's good life thereby contributing to the attainment of Vision 2030 goals. More results would be;

- a reduction in fertility and mortality rates among the women and effective family planning in families.
- resources that would have otherwise been used to provide for the citizens can now be used for the development of the state.
- improve of youth skills and proper and legal utilisation of these skills.
- A balanced socio-economic and environmental sustainability.

4.2.4. Government policies on deforestation

Lack of proper governance has been a thorn in the issue of forestry over a long period of time. Forest reforms are put up but fail as a result to this type of governance over the last ten years. The establishment of the Kenya Forest Service (KFS), and the formation of Community Forest Associations came as result of the introduction of participatory forest management by the private sector, engagement of the local communities through the 2005 Forests Act. This also brought a lot of institutional and organizational change in the way things were run previously in the forest department.

The Ministry of Environment and Forestry has many objectives and some of them include;

a) promoting the conservation of trees and ensuring sustainable management of existing trees in urban areas and along road reserves

(b) to enhance great forest cover and promote roadside tree planting for the sustenance of urban health clean air in urban areas and to promote efficient production and utilization of wood fuel and adoption of alternative forms of renewable energy.

4.3. Non-government initiatives to counter the impacts of environmental degradation on human security

The United Nations Environment Programme (UNEP or UN Environment) was put in place to coordinate the UN's environmental activities and to assist developing countries in implementing environmentally sound policies and practices.

In 1994 the Declaration that was passed showed the important link between the population and resources and the emerging issues that were correlated to this. To fund the goals of the 1994 International Conference on Population and Development, a summit was held in Nairobi to try and rally political will and funding that were needed. implementation of the goals of the 1994.

The emerging issues linked to population included migration, climate change, the gender issue of inequality etc, but the 1994 declaration also recognized that if the issue of population was well addressed it could be turned into something positive in terms of generating enough man power for the different sectors of the country's economy, i.e. industrial and agricultural production etc.

At community level there was the signing of a memorandum of understanding between the Kenyan government and the UN-Habitat which became the first phase of the slum upgrading program. The project aimed to improve housing, infrastructure and the livelihood of people living in Kibera's informal settlements.

CHAPTER FIVE: RECOMMENDATIONS AND CONCLUSION

5.1. Recommendations

The impacts of Environmental degradation is a wide subject that has been seen to not only have a negative impact on human resources but also is a threat to human life. Communities that are adversely affected are those that live in the slums as compared to those living in more developed areas. Countering these negative impacts requires communal and personal intervention in the day to day life. Both rural and urban settler should ensure they play their part in conserving and educating each other about the consequences of water pollution, air pollution, deforestation, their role in overpopulation.

Those living in slum areas should actively engage with their community leaders to voice out their needs to government authorities so as to protect themselves and their future generations through their children. The use of environmentally friendly sources of energy should be implemented and made cheaply available for the people who cannot afford better energy sources. Regular smokers should find ways of quitting or reducing the use of smoke as it greatly affects their immunity system making them susceptible to dangerous diseases.

Water accessibility should not be a luxury. Access to clean and reliable water should be made a necessity by the government to the slums. Also, sanitation should be looked into as most of the

areas in slums like Kibera do not have toilets and those that can access proper toilets are too far from the vicinity of the habitations.

The government and non-government organizations should ensure proper governance and management of the policies and frameworks implemented to counter the impacts of environmental degradation by ensuring that everyone has equal access to proper resources needed for human life survival.

The need to protect the environment through the preservation of trees should be emphasized. Trees should be protected from unnecessary uprooting and in the case of uprooting, two trees should be planted to replace one that has been cut. There are local youth that run campaigns during their birthdays that as a present they require you to plant one tree in their honor. This is a good initiative as it teaches the younger generation the importance of forestry conservation.

5.2. Conclusion

If Kenyans do not wake up, they could wake up to adverse effects yet to be experienced by environmental degradation. The cases of death that have been reported due to air pollution, water pollution, unsanitary living conditions. climate changes are expected to rise if not properly dealt with as is expected. They say it takes two to tangle. In this case it takes the government and its citizens to tangle. To ensure that the population living in slums declines in the next decade, to ensure that living conditions greatly improve. Environmental challenges have seen people turn against each other as a result of unemployment crime rates have gone high, the struggle for clean water has seen cartels taking advantage and selling clean water to the people at even Ksh20 a jerrican. For a people whose earnings are sometimes below a dollar that is excessively expensive. This leads to intra conflicts amongst the people, the cartels who in most times are in cahoots with the leadership.

Without sustained, concerted and participatory measures to defend the rights of the local people and protect their environment, the threat to human life could greatly worsen. An inclusive and participatory approach will achieve better success if all the actors are included in the decision-making process. Slum dwellers should also be consulted and their views ought to be factored into the government policies for the region if they plan to collectively achieve a healthy environment free from threats.

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