

# **ROOT CAUSES OF ENVIRONMENTAL CONFLICTS THAT UNDERMINE SOCIO-ECONOMIC DEVELOPMENT IN KURESOI SUB COUNTY, KENYA**

**Kipngeno James Ronoh**

University of Nairobi, Institute of Diplomacy and International Studies, University of Nairobi, Kenya

**Dr. Shazia Chaudhry S.**

University of Nairobi, Institute of Diplomacy and International Studies, University of Nairobi, Kenya

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## **ABSTRACT**

Environment issues especially on land are a fundamental aspect of structural conflicts in Kenya but they have also often degenerated into physical violence. Land has been the crux of economic, cultural and socio-economic change in Kenya. Following years of an inappropriate land tenure system, a large segment of the population continues to have difficulties not only in adapting to the modern agrarian economy but also in coping with the increasingly fragile and marginal environment, land degradation, low agricultural output and intensifying conflicts over access to and control of land. Violence over land has occurred sporadically in different parts of the country, and doubts over the worthiness of land titles almost caused major economic instability a few years ago. This research intends to explore the impact of environmental conflicts on

socio-economic development in Kuresoi Sub-county in Kenya. The key objective was to explore the root causes of environmental conflicts that undermine socio-economic development. The findings from this study will be of great significance to government agencies, society at large and future scholars. The study adopted a descriptive research design with the target population of Kuresoi residents. Simple random sampling was applied to collect information. The study used both primary and secondary data to arrive at empirical conclusions, the data was organized, cleaned and analyzed using SPSS and then drew statistical inferences. The results were presented in form tables, charts and graphs accompanied with their explanations.

**Key Words:** *root causes, environmental conflicts, socio-economic development, Kuresoi Sub County, Kenya*

## **INTRODUCTION**

Environmental conflicts are lack of agreements on the uses of water, pasture, land and forests which are environment's natural resources. They include the daily ways of life for the people. If these conflicts are not taken to account can result to violence, environmental degradation and limited livelihood. The renewable and non-renewable resources have the grates conflict power. Firewood, water, fish and land crops are the renewable natural resources while petroleum and minerals are the non-renewable natural resources<sup>1</sup>. A report by UNSO shows that shortages of land for farming, fresh water and fish, are the ones that lead to the highest level of violence. This is mostly due to deficiency of efficient aspects of dispute resolutions that are followed by the people in the administration of resources mentioned above. Environmental conflicts occur in various ways which include political, social, economic, religious or territorial conflicts as reported by Environment and Conflicts Project (ENCOP). Environmental degradation mostly leads to these conflicts. However according to ENCOP these conflicts are not only caused by the environmental predicaments.

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<sup>1</sup> Eriksson, C. & Persson, J. (2012). Economic Growth, Inequality, Democratization, and the Environment, FIEF Working Paper Series, No 178

In Africa, there has been cases of environmental conflicts which have yielded negative results. For instance, In the Niger Delta around the oil-rich region has been faced with environmental conflict. This conflict has been globalized. Global actors have contributed to this strife in the Nigerian Oil industry. In Nigeria, there has also been scrabbles for scarce land, profitable returns investment and the human rights. There have been efforts to ensure uninterrupted exploitation of oil. Exploitation of still continues, state refrainment, conflict over oil and land and waters where oil is mined<sup>2</sup>. Kenya has also experienced environmental conflicts in different parts of the country. Several studies done have showed how much the people of Kenya value land and that according to Akiwumi is dangerous and might be the cause of conflict. Akiwumi's report continues to indicate that the introduction of a multi-party system of politics was interpreted by some as a way of seizing land from them. This system of politics was greatly influenced by tribal differences with majority of them underlying their thoughts on making it possible to influence the people on dropping it thus causing tribal conflicts.

Due to the way of socio-economic growth and its reliance on utilization of natural resources, environmental conflicts need to have a solution, so as to attain sustainable growth at the end. So as to attain peace and security as the end results, there is great need to find environmental conflict resolutions in all states and communities in the world. Environmental security is the general adoption of both traditional and modern ways that include use of military power end threats brought about by the population growth which leads to the decrease of goods and services. To attain national peace and security, the most important thing is to ensure a solution is found on environmental conflicts<sup>3</sup>.

## **STATEMENT OF THE RESEARCH PROBLEM**

Several impacts are prone to take place once environmental conflict strikes. This impact includes both physical and social economic harm influencing the natural resource base and humans which the end result is seen on stagnated economic development. Environmental conflict includes; scarce water resources, unpredictable rain patterns, draught, insecurity as a result of cattle rustling, inter-ethnic conflicts, poor inter-ethnic relations, forced human displacements, loss of human life, havoc as destruction of and slowed economic growth<sup>4</sup>. The above mentioned conditions end up straining households and their coping strategies. Communities like those leaving in Kuresoi Sub- county are highly exposed to such vices as the area according to the Economic Survey lack the necessary resources and infrastructure to cope with such shocks. Kuresoi vulnerability contexts is exposed by limited resources as a result of environmental

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<sup>2</sup> Bruyn, S. (2014). Explaining the Environmental Kuznets Curve: Structure Change and Intenational agreements in Reducing Sulphur Emission. *Environmental and Development Economics* 2:485-503.

<sup>3</sup> Acho. C. (2015). Human interface and environmental instability: Addressing the environmental consequences of rapid urban growth in Bamenda Cameroun *Environment and Urbanisation* 10 (2) 161 – 174

<sup>4</sup> Eriksson, C. & Persson, J. (2012). Economic Growth, Inequality, Democratization, and the Environment, FIEF Working Paper Series, No 178

conflict caused by human destruction of the environment key being deforestation results in increased environmental degradation leading to high levels of risk and poverty. This has resulted to the dwellers to fall in the poverty trap. The result of the impact is manifested through community conflict as the area has witnessed interethnic animosity resulting in violent clashes between 1991, 1992, 1997 and 2006. Kuresoi has been the worst hit area in the Rift region especially because of the violence that has been happening from time to time that evolved after the 2005 referendum and the worst figures of massacre were recorded during the 2007 Kenya general elections<sup>5</sup>. A study by KNBS shows that the reason behind this conflicts was as a result of communities in the locality competing for declining resources triggered by environmental conflict. To note the area has experienced severe drought in 1983, 1992, 2004 and 2009. Major floods have occurred in 1991, 2000, 2005 and in 2010 this two occurrence have greatly impacted on the planting patterns of the area. The continuous change of weather patterns and drought has affected the agricultural activities resulting to hunger<sup>6</sup>. Factories located within Kuresoi sub-county such as Kiptagich Tea Factory was greatly affected as a result of low production as tea plantations had dried up. Tourism sector in the area was also affected as the Mau Forest was impacted by the extreme events as monkey species of different kinds migrated to other areas due to human/wildlife conflict as drought was rampant and food was scarce. The socio-economic development of the area was highly affected resulting to major impact on the socio-economy of the sub-county. Kuresoi economy is highly dependent on agriculture, energy and tourism and there is need to ensure the environment is sustained and improved in order to ensure Kenya Vision 2030 is achieved<sup>7</sup>. If adaptive environmental conflict mitigation measures are not found the future socio-economic development of the area will be greatly affected. Impacts could threaten past development gains and constrain future socio-economic progress. This thus validates the need for a study to evaluate the impact of environmental conflict on socio-economic development in Kuresoi sub county, Kenya.

## **RESEARCH OBJECTIVES**

The objective of the study was to evaluate impact of environmental conflict on socio-economic developments in Kuresoi-Kenya.

## **LITERATURE REVIEW**

### **Causes of Environmental Conflict in Kenya**

Parvin and Shaw assert that when it comes to resource related conflicts the Horn of Africa is quite a good example. Lots of conflicts occur in the arid and the semi-arid areas. In Kenya

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<sup>5</sup> Hussein, K. and Nelson, J. (2015). Sustainable Livelihoods and Livelihood Diversification. Working Paper No. 69, Institute of Development Studies, Brighton

<sup>6</sup> Gitari, B. (2015). *Environmental conflict and national security in Kenya: Case study of Turkana community*. University of Nairobi, Nairobi

<sup>7</sup> Jagers, G. (2015). Polity IV Project: Political Regime Characteristics and Transitions, 1800-2010. Version p4v2010. College Park, MD: *Center for International Development and Conflict Management*, University of Maryland

communities that live in arid and semi-arid areas are involved in lots of conflicts. These conflicts have led to massive killings in the country. Mostly these communities are usually armed and the government has always made steps to confiscate these ammunitions. The home to the pastoralists, agro-pastoralists and national parks are the arid and semi-arid areas. This shows that these people have to share the resources available and interacting with each other. Peaceful co-existence is therefore crucial for them. Based on the research done by Sobania the unfulfilled demands of scarce water and pasture contribute to conflicts among the pastoralists. According to Fratkin scarcity of land more often contribute to rise of violent conflicts and grievances in the society<sup>8</sup>.

A larger percentage of people are involved in land conflicts worldwide. Apart from land, conflicts can arise due to mineral resources in a particular country. Mostly these conflicts will be among those seeking to take over land and the communities affected. Some of the variables that are mostly used to analyze conflicts where land plays the role include climate change environmental degradation etc. According to Gudrum and Hjort land conflicts has contributed to lots destruction in the past across the borders<sup>9</sup>. For instance, the renowned Rwandan genocide. Land was the key player in the Rwandan genocide. The ordinary citizens who got vulnerable as a result of shrinking of the land sizes were instigated to kill their neighbors and take their land. Genocide was caused by deforestation and land degradation to a high extent.

A study by Mearns shows that water is life and no living organisms can survive without water. It is an essential aspect of life. According to previously done research it has been predicted that by the year 2050 demand for will really escalate which will cause quite an intense competition for water. Various states that share sources of water are at a high peril of experiencing disputes. Water competition will be worldwide and it will be a great threat to national security at local levels. Other than water, marine life is also a source of conflict for instance fish is known to be a source of conflict for a long time know<sup>10</sup>. The situation is likely to worsen if the confines of the state are clearly defined and people are competing for this resources. In Cameroon, Niger, Chad and Nigeria environmental degradation and diminishing of water resources has brought about conflicts. Farmers, pastoralists and fishermen have been involved in this dissonance. In agriculture water, has got a vital role. In Kenya Agriculture is the backbone of the economy and if water lacks then the country's economy is at stake. More so the food security of the country is affected.

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<sup>8</sup> Kamande, W. (2014). Environmental Conservation as an Engine for Economic Growth: Testing the Validity of Environmental Kuznets Curve on Carbon Emissions for Kenya. Unpublished MA Thesis, University of Dares Salaam.

<sup>9</sup> Mearns, R. (2014). The Changing Nature of Conflict and Famine Vulnerability: The Case of Livestock Raiding in Turkana, Kenya. *Disasters*, 22(3), 185-199.

<sup>10</sup> Kanesa, L. (2014). Cattle as a Store of Wealth: Comment. *American Journal of Agricultural Economics* 62(3), p. 606-13

## **Development of Environmental Conflict**

The environment is one of the pillars of sustainable growth and socio-economic development since it fulfills developmental needs such as increasing the asset base and their productivity and also providing various goods and services. In addition, the environment empowers women, the poor and marginalized communities thus playing a crucial role in enhancing intra- and intergenerational equity. In the process of economic development, physical, natural and human capitals all contribute to overall wellbeing by supporting the production of goods and services. Natural capital provides raw materials for production and is the backbone of core sectors such as agriculture, tourism and manufacturing<sup>11</sup>.

The quality of the environment is mostly affected by the organization of human activities according to Engle and Grander. Human activities control more resource-concentrated than the tertiary and auxiliary divisions. The production process is mainly more escalated than either administration or agriculture. Synthesis of yield are mostly affected by salary per capita and the changes in economy. Also, the organization impact can have a positive or negative effect on the environment since it quantifies the development of the economy towards a pretty much proper beneficial structure. The specialized impact is the environmental outcomes of increments in wage that insist on clean production techniques that are positive<sup>12</sup>.

Despite significant progress in human development, two trends may be noticed. First, economic progress has differed between regions and between countries. Income inequality has worsened between population groups within countries even if the human development indicators between countries have been improved. Indeed, despite the poverty reduction, a quarter of the global population remains in extreme poverty<sup>13</sup>. According to the Dinda, Condo and Pal the number of extreme poor in developing countries was about 1.4 billion in 2008. Three-quarters of the people living in extreme poverty are in Southern Asia and sub-Saharan Africa by 2015. Second, population growth and income are lead to overexploitation of natural resources.

Indeed, the human population, economic growth and social development potentially increase the pressure on environmental resources. These situations may undermine sustainable development in developing countries. Simon and Francis shows the existence of the poverty trap. In many developing countries, demographic transition is not achieved (low natality and low mortality). Therefore, there is a high population growth rate, which increases the depletion of environmental resources and the deterioration of environmental quality. When this situation occurs, poverty, high fertility rates and environmental degradation can reinforce one another in a negative spiral

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<sup>11</sup> Kamande, W. (2014). Environmental Conservation as an Engine for Economic Growth: *Testing the Validity of Environmental Kuznets Curve on Carbon Emissions for Kenya*. Unpublished MA Thesis, University of Dares Salaam

<sup>12</sup> Okwiri, J. (2013). Environment, population growth and productivity in Kenya: A case study of the Machakos District. *Development Policy Review* 10:359-387

<sup>13</sup> Parvin, G. and Shaw, R. (2011). Climate Disaster Resilience of Dhaka City Corporation: An Empirical Assessment at Zone Level. *Risk, Hazards & Crisis in Public Policy*, 2(2), Art.6.

and undermine future economic development. In other words, the development goals set have fallen short of sustaining development through environmental, social and economic factors<sup>14</sup>.

Developing countries, particularly the poorest, are more exposed and less resilient to climate hazards. They bear the burden of climate change (low agricultural productivity, increased hunger, malnutrition and disease) even if they strive to overcome poverty. Moreover, Kjellstrom and Mercado explain this vulnerability by the fact that their economies are closely linked to climatic sensitive sectors such as agriculture. According to the World Development Report 2014, many other factors can explain the changes that occur in most of these countries due to changes in climate.

According to Ahmed sub-Saharan African countries have been the most dependent since 1960. To mitigate and to reduce vulnerability to climate change, countries need international funds and technology transfers to implement policies that foster socio-economic performance associated with adequate and efficient management of natural resources<sup>15</sup>. They also need capacity building that depends critically on human capital. The natural resource literature has highlighted the consequences of poor management of natural resources on socio-economic. The main key areas that cause environmental conflict have been discussed below;

### **Population Growth**

Bruyn asserts that the global crisis has mostly been caused by the massive growth rate in all developing countries that was agreed upon by western researchers in the 1970s. Massive growth rate has caused a completion on natural resources therefore causing environmental crisis. Every resources used by each and every person is connected to the ecosystem and the population growth<sup>16</sup>. Population growth increases creation of waste, environmental degradation and uses of resources. They are additionally exacerbated by utilization propensities, certain innovative improvements, and specific examples of social associations and resource administration.

According to Pesaran, Shin and Smith as the number of humans much increment, the potential for irreversible changes of broad extent leads to increments. Pointers of serious environmental anxiety are the developing loss of biodiversity, intensifying ozone depleting substances, growing cutting of trees, exhaustion of the ozone layer, rain, topsoil and shortages of fuel, food and water all over the world<sup>17</sup>. An investigation by Taylor and Brock demonstrates that while both developing and developed nations have added to worldwide environmental issues, developed nations with 85% percent of the gross world products and 23% of its population represent the

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<sup>14</sup> Omondi, L. (2015). Migration and Environmental Hazards. *Population and Environment*, 26:273-302.

<sup>15</sup> Wilson, J. (2012). Reexamining the Empirical Evidence for an Environmental Kuznets Curve, *Review of Economics and Statistics* 83: 541-551

<sup>16</sup> Vincent, J. (2015). Testing for Environmental Kuznets Curves within a Developing Country. *Environmental and Development Economics* (2):417-431

<sup>17</sup> Vermwimp, P. & Baval, J. (2005). Child survival and fertility of refugees in Rwanda. *European Journal of Population*. 271-290

biggest piece of mineral and petroleum derivative utilization, bringing about huge environmental effects. With current advances, introduction levels of utilization by the developed world are probably going to result to genuine negative outcomes for all nations. This is particularly clear with the increments in environmental carbon dioxide and follow gasses that are together with industrialization, which have the potential for changing universal atmosphere and raising sea level.

In states that are either rich or poor, are affected by issues like contamination from energy consumption, dangerous farming practices, fixation in population, lack of proper environmental governance and distraction of environmental goals<sup>18</sup>. At the point when current financial generation has been the superseding need and insufficient consideration has been given to environmental insurance, nearby environmental harm has resulted to genuine negative effects on health and significant obstacles to future economic development. Reestablishing the environment.

The connections between human population, economic improvement, and the indigenous habitat are unpredictable. Examination of local and territorial contextual analyses uncovers the impact and association of numerous factors. For instance, environmental and economic effects change with population structure and supply, and with provincial urban and universal movements. Moreover, poverty and absence of economic opportunities motivate fast population development and increment motivators for environmental degradation by empowering abuse of negligible resources.

Selden study also shows that both developed and developing nations confront an incredible situation in reorienting their beneficial exercises toward a more amicable association with nature. This test is emphasized by the uneven phases of improvement. In the event that all individuals of the world consumed petroleum derivatives and other natural resources at the rate now normal for developed nations (and with current advances), this would extraordinarily increase our officially unsustainable requests on the biosphere. However improvement is a real desire of less developed and transitional nations<sup>19</sup>.

The rising population and the environmental disintegration confront the test of practical improvement. The presence or the nonattendance of ideal natural resources can encourage or impede the procedure of financial improvement. Population development and financial improvement are adding to numerous genuine environmental cataclysms. These incorporate overwhelming weight ashore, arrive degradation, backwoods, territory pulverization and loss of biodiversity. Changing utilization design has prompted rising interest for vitality. The ultimate

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<sup>18</sup> Bruyn, S. (2014). Explaining the Environmental Kuznets Curve: Structure Change and Intenational agreements in Reducing Sulphur Emission. *Environmental and Development Economics* 2:485-503.

<sup>19</sup> Acho. C. (2015). Human interface and environmental instability: Addressing the environmental consequences of rapid urban growth in Bamenda Cameroun *Environment and Urbanisation* 10 (2) 161 – 174.

results of this are air contamination, a dangerous atmospheric deviation, environmental change, water shortage and water contamination<sup>20</sup>.

According to Moss a significant stimulus to the present in 1987, the World Commission on Environment and Development report indicates that the relationship between population issues and the environment mostly involves around supportable advancement. The report continues to explain how population rate affects the environment due to human activities and their daily comforts thus environmental crisis need to control the development of population so as to control the environmental crisis<sup>21</sup>.

The Amsterdam Declaration was embraced in the 21<sup>st</sup> century in the International Forum on Population, which recognized, the environment, resources, the population and inter alia are inseparably connected and which focused on the responsibility regarding achieving a feasible connection between human numbers, resources and improvement. The 21<sup>st</sup> Agenda by the UNCED received in 1992 indicated that analytical factors, issues and improvement of feasibility have a positive relationship and the development of total population and creation consolidated with unsustainable use of designs puts progressively serious weight on the life-supporting limits of the planet. Lopez and Mitra further point that the pivotal contribution of UNCED was its solid accentuation on the on the issues that connect growth to the environment. The Population Action Plan of Action suggests that the critical issues to be focused on are the relation between statistic progression and manageability and their further uses<sup>22</sup>.

According to Musa, five key destinations were recognized inside the three major program parts: to include statistic patterns and consider the global investigation of environment and its advancement issues; to grow better comprehension of the connections among statistic progression, innovation, social conduct, natural resources and life emotionally supportive networks; to survey human weakness in biologically regions and focus of population to decide the needs for activity at all levels<sup>23</sup>; to coordinate the whole population needs into national planning, strategy settling on and basic leadership forms with full acknowledgment of women's rights; to actualize population programs alongside common resource administration and improvement programs at the nearby level to guarantee maintainable utilization of characteristic resources, enhance the personal satisfaction of the general population and upgrade environmental quality in chapter 5 of Agenda 21.

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<sup>20</sup> Eriksson, C. & Persson, J. (2012). Economic Growth, Inequality, Democratization, and the Environment, FIEF Working Paper Series, No 178

<sup>21</sup> Emmanuel A. & Alakinde M. (2016). Nature of Environmental Science. *Monograph of department of Urban and Regional Planning*.

<sup>22</sup> Hussein, K. and Nelson, J. (2015). Sustainable Livelihoods and Livelihood Diversification. Working Paper No. 69, Institute of Development Studies, Brighton.

<sup>23</sup> Mearns, R. (2014). The Changing Nature of Conflict and Famine Vulnerability: The Case of Livestock Raiding in Turkana, Kenya. *Disasters*, 22(3), 185-199.

Shahbaz, Jalil and Dube asserts that India's economic and population growth is resulting to some issues in the environment that are brought about by unplanned increase of urbanization and industrialization, massive expansion in the agricultural sector, and the damaging of forests. The environment is mainly affected by forests, degradation of land caused by agricultural activities, water, degradation caused by the environment<sup>24</sup>. The fast increase of population rate in developing states in Africa are alarming through farming, development of urbanization effects of common surroundings to the environment. The weights on the environmental increase each day as the population develops. The developing patterns of populations and subsequent interest for sustenance, vitality, and housing have impressively modified land-use exercises and extremely corrupted the environment.

Mohammed assert that unless the link between the increasing population and the life emotionally supportive network can be balanced, improvement programs, whatsoever, imaginative are not liable to yield required outcomes. Population effects on the environment basically by common resources and creation of waste and is related with environmental anxieties like the contamination of air and water, biodiversity and arable land growth rate. Human population issues are critical with regards to our lifestyle and our lives on earth. Poverty is a result of both causes and impacts of environmental war. The round connection of poverty and the environment have a great impact. Unsustainability may be encouraged by imbalance because poor people, rely on the natural resources more that the rich people and therefore they are responsible for draining up resources as they do not have other ways of getting the resources. Environmental conflict fastens the procedure of impoverishment, as the poor depend specifically on the resources<sup>25</sup>.

Sasch and Warner posits that urbanization is mostly being caused by lack of better income in the rural areas resulting to massive movements of people to town. These movements are causing the urban slums to grow and develop and these has also caused conflict to the environment and commonly in the urban areas. It has enlarged the gap between request and distribution of infrastructural facilities including vitality, housing, transport, communication, education, water supply and sewerage and recreational facilities, thus draining the valuable environmental resource base of the urban communities. This results to the developing pattern in disintegration of air and water quality, waste increment, the multiplication of slums and undesirable land utilization add to urban poverty.

### **Intensification of Agriculture**

Globally, search for agricultural land plays an important and growing role in environmental conflict. Intensification of agriculture has effects that are either positive or negative affecting the physical and financial results. These effects are approximated to be clear and dynamic. Changes in the environment have effects on climate change, sea level, marine creatures, wetness of the

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<sup>24</sup> Omondi, L. (2015). Migration and Environmental Hazards. *Population and Environment*, 26:273-302.

<sup>25</sup> Vincent, J. (2015). Testing for Environmental Kuznets Curves within a Developing Country. *Environmental and Development Economics* (2):417-431

soil and accessibility of water; these then lead to agricultural, forestry, natural eco-system changes, excessive heat, increase in vector-borne diseases, world's population growth rate, issues on settlement and relocation issues<sup>26</sup>. All these have massive financial effects to both the economy and the environment. According to Kamande coordinate effects development in agriculture cause soil disintegration, salination of land and supplements loss. Misuse of land and water together with the use of pesticides have also generated effects to the environment. Land degradation has also been greatly affected by shift cultivation. Pollution of water sources has greatly been caused by use of chemicals and pesticides. Water logging, alkalization and salination of the soil have added to land degradation. It is very clear that land is debasing slowly by slowly therefore slowing the rate of economic growth.

According to Shafik and Bandypadhyay most part of the connected pesticides and composts, independent of harvest, instrument or the detailing utilized, at last discovershow to get into the soil. Pesticides have affected the quality of soil and these has resulted to the killing of different types of life possessions in the soil. The floods caused by lack of vegetation in soil causes the water to drain the soil nutrients and chemicals to the water bodies thus affecting the life of animals living in water<sup>27</sup>. The effects of pesticides have led to the problems in human bodies by consumption of the foods from plants that are grown using pesticides that leads to massive concentration of fats in the body. Some of the long term effects are carcinogenicity, diminished life expectancy and fruitfulness, cholesterol, high newborn child mortality and changed metabolic and hereditary issue. These pesticides eventually cause water contamination when washed to the water bodies from the farms.

Grossman and Krueger asserts that customers are influenced by farming concomitants, for example, pesticides and manures that keep running off from fields into streams.<sup>28</sup>Contaminating a stream is hazardous on the grounds that for the most part, rivers are essential sources of water for all uses both commercial and domestic. Farmers are being enlightened o safe farming skills by the New Agricultural Policy to deal effectively with environmental crisis. The growing stream water contamination is the greatest danger to general health. The sicknesses related to water contamination are; water are cholera, diarrhea, hepatitis, typhoid amoebic and bacillary, dysentery, guineaworm, whereas scabies, leprosy, trachoma and conjucvitis. The main causes being scarcity of water and the increasing growth rate. Most of the illness that are associated with intestines and infant mortality are being caused by lack of safe water for drinking.

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<sup>26</sup> Wilson, J. (2012). Reexamining the Empirical Evidence for an Environmental Kuznets Curve, *Review of Economics and Statistics* 83: 541-551.

<sup>27</sup> Wilson, J. (2012). Reexamining the Empirical Evidence for an Environmental Kuznets Curve, *Review of Economics and Statistics* 83: 541-551.

<sup>28</sup> Grossman, G. & Krueger, T. (2014). *Environmental Impacts of a North American Free Trade Agreement*, in P. M. Garber, (ed.). *The U.S.-Mexico Free Trade Agreement*, Cambridge, MA: MIT Press, pp. 13-56.

## **Increase in Energy Use**

Lane assert that the connection between socio-economic development and environmental conflict as a result of increased contamination is clearly through the growing levels of emanations.<sup>29</sup> These effects are caused by the current changes of the environment due to modernization and daily comforts. In a developing country, more energy is expected to be emphasized therefore the effects of this emphasized energy lead to environmental issues. Due to the high demands of energy utilization, the expected daily comforts lead to effects to the environment. This procedure is similar in most of the countries where the environment suffers due to the financial growth of the country.

For the US, this period begun in the late 19th century and for China this procedure was set apart by the Open Door Policy in 1978. In China this time of development and industrialization has gone on for as long as three decades and has begun to leave its natural stamp. Today, China's environment is attempting to help its vast and persistently developing population and its steady interest for energy<sup>30</sup>. Financial advancement associates with environmental conflict because of the growing interest for energy and the overwhelming utilization of coal and oil to fulfill those energy needs.

Shafik gives another case scenario of the use of coal is additionally very common in Brazil since it is a moderately bottomless natural resource inside Brazil. The area was positioned fifth in its aggregate creation of coal. Since the people of Brazil depend vigorously on coal, the administration has been effectively supporting the coal business. As per the Five Year Plan, the Brazil government intends to solidify the coal division keeping in mind the end goal to completely use the coal resources in the country<sup>31</sup>. Brazil is gradually growing its creation and using coal and despite the fact that the market cost of coal is reasonable, the expenses related with coal use to general wellbeing and the environment is to a great degree high. The environmental is affected because of growing levels of fills like coal; lignite, oil and atomic and so on are of much concern. The ignition of these fills in businesses has been a main source of contamination.

According to Raymond Agenda 21 of Chapter 9 points out that "most of the global energy is right now delivered and expended in ways that couldn't be supported if innovation somehow managed to stay consistent and if general amounts were to increase considerably. It additionally indicates out that the there is need to discharge of greenhouse and different gases and substances

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<sup>29</sup> Lane, C. (2014). *Pastures Lost. Barabaig Economy, Resource Tenure, and the Alienation of their Land in Tanzania.* Initiatives Publishers. Nairobi.

<sup>30</sup> Jagers, G. (2015). *Polity IV Project: Political Regime Characteristics and Transitions, 1800-2010.* Version p4v2010. College Park, MD: *Center for International Development and Conflict Management*, University of Maryland.

<sup>31</sup> Kioko J. & Okello M. (2015). Land use cover and Environmental changes in a Semi-arid range Land, Southern Kenya. *Journal of Geography and Regional Planning* 3(II), 322-326

progressively ought to be founded on proficiency in energy creation<sup>32</sup>. Plan 21 calls, between alia, for the distinguishing proof of financially reasonable and environmentally solid energy sources; the definition of energy arrangements coordinating economic and environmental contemplations; the advancement of innovative work, exchange and utilization of enhanced energy proficient advances, including new and inexhaustible sources of energy and the advancement of limit building in order to eradicate the environmental conflict vice and boost socio-economic development within states.

According to Ahmed with respect to provincial energy, the General Assembly asked that more prominent consideration be given to the advancement of new and inexhaustible sources of energy for the rustic division and to mix into the general country economy, remembering the consumption of fuelwood supply occurring in numerous districts of the world<sup>33</sup>. Agenda 21, section 14, requires the advancement of a blend of practical fossil and sustainable power source resources that is reasonable and that guarantees economical farming improvement; and for the advancement of pilot projects that are suitable and liable to be satisfactorily kept up; the start of rustic energy programs strengthened by specialized preparing, banking and related framework; and the escalation of innovative work, enhancement and preservation of energy.

Opschoor assert that late decades have seen fast population changes and financial advancement however this has been joined by expanding environmental worries at all levels. These environmental conditions have greatly affected both the populations themselves and the economies that encourage them<sup>34</sup>. Switching or notwithstanding directing those patterns will require actions in many fronts, reassessing national strategies, reclassifying political duties, and distinguishing needs for universal collaboration, to give some examples. From the theoretical side, cautious consideration ought to be given to the examination of two specific ideas that have turned out to be exceptionally well known when this sort of issue is talked about. The main thought alludes to the idea of the conveying limit of ecosystems, which is for the most part comprehended as the quantity of individuals that an ecosystem can support at a worthy level of personal satisfaction. The second idea alludes to the distinguishing proof of conceivable environmental discontinuities, which are comprehended as basic edges of irreversible damage to the environment that happen when ecosystems have been abused over long stretches of high concerns without unmistakable indications of harm<sup>35</sup>.

According to Eriksson and Persson notes that it is equally essential to consider that in the not extremely far off future, the expansive quantities of individuals, who are and will be living in

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<sup>32</sup> Bruyn, S. (2014). Explaining the Environmental Kuznets Curve: *Structure Change and Intenational agreements in Reducing Sulphur Emission*. *Environmental and Development Economics* 2:485-503

<sup>33</sup> Common, L. (2011). Is There an Environmental Kuznets Curve For Sulfur? *Journal of Environmental Economics and Management* 41 (2): 162-178.

<sup>34</sup> Kioko J. & Okello M. (2015). Land use cover and Environmental changes in a Semi-arid range Land, Southern Kenya. *Journal of Geography and Regional Planning*3(II), 322-32

<sup>35</sup> Common, L. (2011). Is There an Environmental Kuznets Curve For Sulfur? *Journal of Environmental Economics and Management* 41 (2): 162-178.

what are presently called less developed localities, will be achieving the utilization and generation levels that are present in the more developed nations at display, in this way tending to a few riddles as far as future environmental anxiety. It is then expected that, because of synchronous endeavors in the greater part of the above fronts, it is conceivable to build up an arrangement of economic, social and statistic approaches which will both enhance the condition of the environment and increase the socio-economic dimensions of the world population.

### **Increase in Transportation**

Hettige, Mani and Wheeler assert that globally, the greatest effect of human health and to the environment is the motor vehicle. Road transport is responsible for transport energy transmissions, accidents, air pollution, noise pollution and degradation on the environment. Water transport which is not connected to much environmental effects also is involved in oil pollution in the water from accidents. Air traffic has also recently raised concerns especially to the tourism department. Air transport is currently involved in about 11% of transport energy related issues<sup>36</sup>.

Torras and Boyce posits that a properly planned transport system in a country is a benefit to the entire growth and social welfare. It eases the movement of goods from one place to another, therefore trade easily enabled. Although transport as a series of negative effects to the environment as is mostly involved in much consumption of fossil fuels and also poses a threat to the human health. At the local and global levels, the transport sector is one of the main causes of air, water, environmental pollution and it's also a major risk of accidents.

According to Ogboru issues of transportation and the environment are confounding in nature since transportation passes on huge financial focal points, yet it is influencing environmental systems. One, transportation practices support growing compactness demands for explorers and cargo, and two, transport practices are connected with developing levels of environmental externalities. The improvement of individual and load adaptability in late decades have grown transportation as a source of surge of toxins and their diverse impacts on the environment

According to Uдах and Ogbuagu in support of the Ogboru these impacts fall inside three categories. The brisk consequence of transport practices on the environment where the conditions and final products relationship is generally evident and understood. For instance, noise and carbon monoxide releases are known to have dangerous effects. The discretionary effects of transport practices on environmental systems<sup>37</sup>. These are known to have greater effects though their connections are harder to determine. For instance, the smoke that is exhaled from vehicles is known to be associated with some respiratory diseases. They evaluate the changed effects of indirect impacts on an ecosystem, which are much of the time unpredicted. Environmental

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<sup>36</sup> Acho, C. (2015). Human interface and environmental instability: Addressing the environmental consequences of rapid urban growth in Bamenda Cameroun Environment and Urbanisation. *Environment and urbanization* 10 (2) 161 – 174.

<sup>37</sup> Wilson, J. (2012). Reexamining the Empirical Evidence for an Environmental Kuznets Curve, Review of Economics and Statistics 83: 541-551.

change, with a mind extraordinary end goal, is the aggregate impact of a trademark and anthropogenic factors, in which transportation has a division. 15% of the world's CO<sub>2</sub> surges are attributed to the vehicle area

According to Inyang and Eleje the complexities of the effects have prompted to much contention in environmental approach, the responsibility of transportation and relief techniques. The transportation sector is regularly financed by people by the public, particularly through the development and support of road construction, which have a tendency to be free. Some of the time, public stakes in transport sector, terminals and framework can be at odd with environmental issues<sup>38</sup>. In case the proprietor and the controller are the same (distinctive branches of the administration), at that point there is a hazard that directions won't be viably agreed to add up to costs caused by transportation exercises, quite environmental harm, are not completely expected by the clients. According to Usenobon and Chuku transport and environmental relations are dynamic. Some factors are more dynamic like the effects of corrosive rain and chlorofluorocarbons that occurred in the 1980s that resulted to drastic changes.

Okada and Samreth asserts land, natural vegetation, life, atmospheric nature and geographical structures are the principle factors of physical environment. In the transport sector, the causes, yields, consequences and the system are the main factors that are associated with the environment. It is a hard process to set up the relationship between the environment capacities. Wilson declares that transportation is fixed in environmental phases, outstandingly finished the carbon cycle where carbon streams from one component of the biosphere, similar to the climate, to another like the ecosphere, where it can be gathered (forever or incidentally) or passed on<sup>39</sup>. According to Krueger the connections between transport and the environment are mainly affected by two factors; as the transport sector is associated with natural causes that greatly result to environmental issues. At times these factors are aggressive and are therefore difficult to handle. The main issues that affect the environmental that involve the transport industry are noise and carbon dioxide discharges that lead to environmental changes in the continental, national and territorial levels of smog and acid rain effect.

According to Norman the establishing environmental approaches for transportation subsequently need to assess the geographical scale and the commitment level, these may make changes to the issues and therefore have unexpected results. A well-known illustration are environmental approaches in cutting edge economies inducing the migration of a few exercises with high environmental externalities in developing economies. This exchange the issue starting with one area then onto the next. Still, for example, exchange generally includes new hardware and advances that are normally with less impacts.

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<sup>38</sup> Vermwimp, P. & Baval, J. (2005). Child survival and fertility of refugees in Rwanda. *European Journal of Population*. 271-290.

<sup>39</sup> Hussein, K. and Nelson, J. (2015). Sustainable Livelihoods and Livelihood Diversification. Working Paper No. 69, Institute of Development Studies, Brighton.

A study by Laplante shows that regardless of the possibility that a managerial division (district, county, state) has satisfactory environmental authorization approaches, the geological size of an environmental effect (remarkably air poisons) goes past set up locales. The structure of the transport network, the modes utilized and activity levels are the primary variables of environmental effect of transportation<sup>40</sup>. Systems impact the spatial appropriation of emanations, while modes identify with the idea of the discharges and the movement the force of these outflows. Nevertheless these environmental effects, monetary and modern procedures that support the vehicle industry must be put to account. These process includes creation, assembling and transfer of vehicles and the arrangement of infrastructure. They all have an existence cycle timing their creation, usage and transfer. Accordingly, the assessment of the connection between transport and the environment conflict without the thought of cycles in the environment and in the item life alike is probably going to pass on a constrained review of the circumstance and may even result to wrong examination, arrangements and relief procedures.

## **THEORETICAL FRAMEWORK**

### **Environmental Scarcity and Violent Conflict Theory**

This study is based on environmental scarcity theory that was developed by Thomas Homer Dixon. According to Homer Dixon environmental scarcity, economic, political and social factors bring about migrations, poverty, and violence. Homer came up with a model that deploys a conceptual framework. It presents the obtaining of social reality in a way that the causal process linking environmental scarcity and violence fall in three stages. These are the origin of environmental scarcity, its socioeconomic and political consequences and the outbreak of different forms of violent conflicts. Environmental scarcity arise as a result of resource depletion, demographic pressure and distribution inequalities. As a result, socio-economic effects of the scarcity. Thomas points out a relationship between degradation of the environment, struggle over resources and discord. Degradation and conflict have a direct relationship. He specifies that resource depletion may be supply-induced, demand induced or as a result of structural scarcity.

Decrease in the availability of resources for consumption lead to supply-induced scarcity. Increase in the total population and change in consumption rates bring about demand induced scarcity. Structural scarcity is brought out by unfair distribution of wealth and power. All these factors interact and none operates alone in causing conflicts. In this regard, this is a flaw or a weakness in the framework because it does not identify the specific factors that combine to produce conflict. The factors interact leading to two phenomena which are capturing of resources and marginalization of the environment. When the reduction of quality or quantity of natural and renewable resources coincides with the population growth, that's when resource capture occur.

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<sup>40</sup>Vermwimp, P. & Baval, J. (2005). Child survival and fertility of refugees in Rwanda. *European Journal of Population*. 271-290.

Ecological marginalization is when population growth, unlimited pasture and water cause migrations in regions that are ecologically fragile.

## **RESEARCH METHODOLOGY**

### **Area of Study**

This study will focus on the southern part of Kuresoi on the former Rift Valley province. Kuresoi has a population of 37,681 and an area of 1,297.7 km<sup>2</sup>. Kuresoi County is the home of Kalenjin, Ogiek, Kikuyu and Kisii communities. Kuresoi is a home of the Mau Escarpment and Forest, it is one of the largest the water catchment area which most rivers originate. It borders Narok to the South and Kericho to the West.

### **Research Design**

According to Cooper a research design is a plan that the researcher adopts so as to answer questions accurately, according to the objectives, reliably and economically. The design helps the researcher know the right procedures to follow so as to attain efficient results that are valid and accurate according to the objectives of the study. This study will also adopt a survey design. This is the process of collecting data so as to test for hypothesis or to give answers according to the current subjects in the study according to Mugenda Mugenda. So as to attain the best understanding of results, both quantitative and qualitative will be used.

### **Population**

Mugenda Mugenda explains that a population is a whole group of people, items or events that have the same characteristics or features. Therefore, a targeted population is a calculated group of items, people or objects with the same observable characteristic and is distinct from any other population. According to Nyororo said that a population is a well-defined set of persons, elements, events or households under investigation or study to ensure the homogeneity of the population of interest. For this study the population consists of all the people living in Kuresoi Region in Kenya.

### **Sample and Sampling Procedure**

According to Kothari, a complete list of units or items with the same interest from where the sample is obtained is what is termed as a sampling frame. The requirements that tend to fulfil an optimum population are efficiency, representativeness and reliability. Data duplicity results from an unnecessary large sample size, consumption of more time and cost implications while a small sample size would not make a good representation of the targeted population. Kothari indicates that a 10-20% sample size of the targeted population is adequate.

### **Data Collection method /Instruments**

This study will use both primary and secondary data, which will be collected by way of an interview guide that will be structured as per the research questions. This will be done on the victims and their family members who have experienced environmental conflict in Kuresoi Sub County Kenya. Secondary data will be acquired from previous studies on the impact of environmental conflicts and KNBS where necessary.

### **Data Analysis and Presentation**

Content analysis will be used by grouping the responses given in similar themes which will be analysed per indicator and supporting or opposing literature will back the findings.

## **RESEARCH RESULTS**

From the study findings the following key findings on environmental conflict abatement in Kuresoi are implied. Socio-economic development is significantly associated with increased environmental degradation both in the short run and the long run. The Kenyan government and the County government has enhances a strategy for climate resilient development in Kuresoi aimed at adaptation and disaster risk reduction aimed at creating climate variability through adaptive measures of floods and droughts, mitigation and adaptation synergies aimed at fostering better land, water and forest management, enhance use of green energy, advocate for knowledge, capacity building and new technology aimed at improving climate knowledge and scaling up financial support. The study therefore found that Kuresoi is highly vulnerable to climate change related impacts because of lack of vibrant institutions championing climate change adaptation and mitigation, lack of climate knowledge sensitisation mechanism, poor land use methods, poor urban-rural planning, poor government policies regarding climate change and rapid population increase resulting to stagnation of socio-economic development. Therefore, any beneficial effect that economic growth may have on the environment is transitory. This suggests that in order to realize sustainable development environmental policies should be pursued alongside developmental policies.

## **RECOMMENDATIONS**

The study recommends that there is the need for the government to get ready and act now if anything to do with current or future climate change mitigation and adaptation is to be achieved. Most importantly, the government has to establish and empower institutional and policy development facilities aimed at forecasting, advancing and fostering climate change related agenda within the country and the East Africa region at large. This can be achieved through empowering existing climate change related institutions such as Kenya Meteorological services, NEMA, Kenya Agricultural Research Institute (KARI) and revisit further on analysing vision 2030 to advance for low carbon growth paths in the face of industrial growth and revolution in the country and the predicted increase in population. The study recommends that there is need

for the government, climate sensitive institutions and learning institutions to enhance research activities tailored at advancing climate change related ideas which will be instrumental in advocating for future methods of adapting to climatic changes at the same time coming up with new mitigation methods.

Currently, Kuresoi has a weak mechanism for collecting information on climate change, with an unconsolidated and departments tailored at enhancing the fight against climate change. This fragmented framework makes it difficult for key stakeholders to track progress, share results and access information. Therefore, the government, higher learning institutions and climate sensitive institutions should enhance a holistic and adequate resourced monitoring system aimed at enhancing a free flow of information through research based initiatives. This study concentrated on evaluation of the impact of environmental conflict on socio-economic development. Even though the study has achieved its objectives, there's need to investigate the nature of the relationship between economic growth and other environmental variables such as water pollutants, noise and gaseous emissions.

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