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DEPARTMENT OF DIPLOMACY AND INTERNATIONAL STUDIES

MA RESEARCH PROJECT

ENVIRONMENTAL DEGRADATION AND SOCIAL CONFLICT IN EAST AFRICA; A

CASE STUDY OF THE TANA DELTA IN KENYA

BY

Jared Bosire Ondieki

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SUPERVISOR:

Dr. Shazia Chaudhry

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November 12, 2021

DECLARATION


This proposal is my original work and has not been presented for a degree award in any other University.

Signature.....

Date.....25/11/2021

REG NO: R50/35967/2019

This research proposal has been submitted for examination with my approval as the University of Nairobi supervisor.

Signature.....

Date.....25/11/2021

Dr. Shazia Chaudhry

Senior Lecturer,

Department of Diplomacy and International Studies

University of Nairobi.

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Chapter One

Introduction to the study

1.1 Background of the study

Social conflicts are a subset of natural resource conflicts, which are either characterized as violent or non-violent forms such conflicts are that are fundamentally linked on the day to day livelihood of people and community in accessing or controlling the resources and utilization of the same in areas under competing interest or contestation.¹ Numerous African countries over the years have been characterized with conflicts over natural resources such as water, grazing pasture, and minerals among many others.²

Social conflicts resulting from environmental degradation are unique as they involve directly the livelihoods of people and thus require special and immediate attention in resolving them. Environmental degradation leads to scarcity of resources both renewable and non-renewable which in turn leads to competition of the scarce resources on people who depend upon them. This consequently leads to social conflicts as different communities aggressively compete and lay ownership over them. If such conflicts are not adequately addressed they quickly turn violent and cause more environmental degradation and loss of lives and livelihoods.

Omojinite observed that, security is genuinely viewed as carrying out a positive value in the sense of guaranteeing fundamental human rights with a transformational normative ambition.³

Degradation and depletion of natural resources, extinction of species, water and air pollution,

¹ Gesimba, Linnyvicky. "A Critical Analysis of the Cooperative Frameworks on Shared Natural Resources in East Africa Community: a Case Study of Lake Victoria." PhD diss., University of Nairobi, 2020..

² Renner, Julia. "A conflict over water in water abundant regions: The case of Lake Naivasha in Kenya and Lake Wamala in Uganda." (2021).

³ Sharifi, Ayyoob, and Dahlia Simangan. "Environmental Sustainability: The Missing Pillar of Positive Peace." *The Palgrave Handbook of Positive Peace* (2021): 1-19.

fuel wood scarcity, and soil erosion are some of the consequences of a country's industrial growth.

Nations with the highest consumption levels of land as a resource include those in Europe. These countries are increasingly using land from the other parts of the world, which creates direct competition with the local land needs.⁴ The availability of land is also being affected by climate change sea levels are rising, floods and droughts are increasing the instability of agricultural lands and deserts are expanding in many countries. About 40% of the land that Europe uses annually is sourced from other countries. The nations with the highest land imports include UK with about 23 million ha and Germany with 26 million ha.⁵

In Zambia, natural resources are considered to be a major component of the economy. Therefore, the poor people ability to achieve their visions depends entirely on institutional structures which dictate the access and management of resources. Along the Lake Kariba shores in Zambia, residents compete over tourism, commercial aquaculture and fishing. to exuberate conflict multi-stakeholder dialogue was used to develop agreements with investors and increased accountability traditional leaders and state agencies , thus creating a higher influence of the communities over their futures through aquatic resource governance improvements.

In Northern Eastern Kenya, Gakuria indicates that the long term and short term impact of resource based conflict include reduced livestock and crop yields, increased casualties, human

⁴ Sharifi, Ayyoob, and Dahlia Simangan. "Environmental Sustainability: The Missing Pillar of Positive Peace." The Palgrave Handbook of Positive Peace (2021): 1-19.

⁵ M Muriithi, Peter. "Enhancing Public Participation for Effective Management and Protection of Environmental Resources in Kenya." Journal of Conflict Management & Sustainable Development 6, no. 4 (2021).

displacement and property destruction. Just like in Tana Delta, the north eastern region of Kenya has been experiencing conflicts over natural resources like water.⁶

Boran, Garri and Gabra pastoralists in most parts of southern Ethiopia and northern Kenya and have for long depended relied on proper utilization of natural resources to use land resources in the best way possible and sustain the productivity of livestock. Proper management of herd movements plays a fundamental role in rangeland management, with some parts being suitable for use during the wet and dry season. Most parts of the rangeland constitutes communally owned economic resource which is used by different clans and ethnic groups inhabiting the area. They have formed an institutional system that constitutes both primary and secondary rights of access with negotiation principles among various pastoralist groups to regulate the sharing of pasture and water.

While the Tana River Delta can possibly incredibly add to Kenya's financial development, it is undermined by an assortment of extreme and different natural concerns. Drainage for horticultural use, land change, preparation and contamination, unreachable collecting assets, over siltation because of poor farming practices upstream, over flooding because of upstream debasement catchment, infringement for human settlement because of expanded interest for land, and over expulsion of untamed life species, especially warm blooded creatures and fish. The inclusion of the corporate area is a significant concern, and there seems, by all accounts, to be a solid race for the delta's assets without respect for the privileges of native nearby gatherings.

⁶ Gakuria, Anne R. "Natural resource based conflict among pastoralist communities in Kenya." PhD diss., University of Nairobi, 2013.

Insufficient administration, an absence of or helpless use of ecological guidelines and enactment, and environment changes all add to the Tana Delta's natural corruption concerns.⁷ These sorts of dangers have brought about changes that have extensively harmed the Tana Delta's financial and biological qualities, just as the administrations it gives.⁸ The hidden danger is an inability to perceive Tana Delta's significance as a basic asset whose job in both the local area and public economy jobs is being disregarded daintily. Thus, this examination, which attempts to survey the impacts of ecological crumbling on human security in Tana Delta, Tana River County, Kenya, is important.

1.2 Statement of the Research Problem

The issue of scarcity, whether perceived or actual, is a crucial component of understanding environmental conflicts. Broadly, scarcity conflicts characterise most environmental contestations and disputes addressed in this issue. Environmental degradation occurs in many forms such as land degradation, air pollution and water pollution, and loss of biodiversity. Biodiversity conflicts are conflicts between people about wildlife or other aspects of biodiversity. This also includes conflicts relating to conservation of protected areas, green technologies as well as fair trade and patenting rights in relation to biodiversity and indigenous knowledge linked to natural resources. These conflicts can occur internationally and have serious regulatory and policy implications.

Conflicts and disputes over environmental degradation should be regarded in the perspective of a multifaceted web of demographic change, new development pressures, legal and legal and structural economic inequalities, ethnic and personal differences, sensitive natural

⁷ Bwari, Evelyne. "Climate Change and Environmental Security Management in Kenya: a Case Study of National Environmental Management Authority." PhD diss., University of Nairobi, 2017.

⁸ Ouma, David. "The Influence of Flooding on Fish Species Diversity and Fisheries Patterns in the Floodplain Lakes of Lower Tana River, Kenya." PhD diss., University of Nairobi, 2020.

environment, and the multiple interests of different groups, individuals and organizations from both outside and inside rural communities.⁹ The study also analysed the short-term and long-term impacts of the Pokomo-Orma long-running conflicts, and suggest approaches that stakeholders adopt to deliver a permanent solution to violence over natural resources. The study findings will inform national and county policy on management of natural resources and community conflicts arising from access and use of natural resources as well as generate new discourses for academia in the area of resource conflicts.

1.3 Research Questions

This study will be informed by the following research questions;

- i) What are the causes and impact of environmental degradation on social conflict security in East Africa?
- ii) What are the challenges of social conflict management programs in East Africa within Tana Delta, Kenya?
- iii) What is the efficacy of environmental policy measures can be utilized to mitigate environmental degradation and social conflict within Tana Delta, in Kenya?

1.4 Objective of the Study

The broad objective of this study will be evaluate the impact of environmental degradation on the socio-economic security in Africa.

1.4.1 Specific Objectives

This study will be informed by the following research specific objectives;

⁹ VELANDER, Sara. "Securing Land for Sustainable Livelihoods." (2020).

- i) To explore the interactions between environmental degradation and social conflicts in East Africa generally and Kenya specifically.
- ii) To evaluate the challenges of social conflict management within Tana Delta, Kenya
- iii) To determine the efficacy of policy measures to mitigate social conflict through environmental management programs within Tana Delta, Tana River County

1.5 Literature Review

This section introduces the literature on the main issues that are of focus in this study. This include an overview of environmental degradation and social conflicts.

1.5.2 Causes and impacts of environmental Degradation In East Africa

The degraded state of sub-Saharan Africa's environment and more specifically East Africa has been attributed for the most part to non-standard or man-made occasions, for instance, ecological change, assaulting pariah species, overharvesting, deforestation, charcoal creation and usage, pollution, harmful and untreated wastes, and land cover change.¹⁰ The start or occasion of these scenes or direct drivers is influenced by human exhibitions or prohibitions, which are basically monetary and political in character. These interconnected monetary and political troubles include:

a) Lack of Access to Information and Public Participation

Lack of access to information contributes directly and indirectly to the degradation of the environment in Sub-Saharan Africa.¹¹ It is prompt as in it quells the vulnerable ability to ensure the environment on which they depend for perseverance by harming either their capacity to be incredible performers in biological plan and dynamic cycles that influence them; or their

¹⁰ Phalan, Benjamin Timothy. "Land use, food production, and the future of tropical forest species in Ghana." PhD diss., University of Cambridge, 2010.

¹¹ Nkonya, Ephraim, John Pender, Kayuki C. Kaizzi, Edward Kato, Samuel Mugarura, Henry Ssali, and James Muwonge. Linkages between land management, land degradation, and poverty in Sub-Saharan Africa: The case of Uganda. Vol. 159. Intl Food Policy Res Inst, 2008.

capacity to actuate backing to demand long stretch responses for common troubles. The indirect impact of nonattendance of induction to data about common debilitating is that it adds to the deteriorating of destitution, which, as of late communicated in this article, is the fundamental driver of environmental debasement in Africa. This is evident from the way that the defenceless' ability to make instructed occupation choices is ham

Another critical factor adding to ecological decay in Sub-Saharan Africa is an absence of political will with respect to African governments to authorize natural standards or to sanction new and proactive ecological guidelines that would shield the climate from weakening.¹² This hesitance may be attributable to the financial benefits acquired from the activities of the declining enterprises as cash and open positions. As to last mentioned, it ought to be recalled that many contaminating organizations have undermined work reductions when obliged to agree with ecological standards, for example, changing to cleaner fabricating procedures ,since it would require huge monetary speculation, delivering their exercises unbeneficial.

b) Lack of Access to Justice

Lack of justice has been a great contributor and a cause of environmental degradation in Africa and more specifically the East African communities.¹³ In such cases, natural administration, protection, and requirement associations are often underfunded. At the point when these administrative associations are underfunded, they can't get and keep the essential logical and innovative capacities. Moreover, it might prompt debasement by making a framework in which inadequately paid and deadened specialists have an impetus not simply to misuse holes in rules and guidelines, yet additionally to take hush-money during ecological reviews and the authorization of illegal natural activities.

¹² Ibid.

¹³ Mengisteab, Kidane. "Environmental degradation in the greater horn of Africa." *Predicaments in the Horn of Africa* (2012): 447.

At last, equipped struggle adds to an absence of institutional limit in most of African nations by diverting accounts essentially to war exercises and empowering the deficiency of policemen through death or movement. The key fixings are from Sub-Saharan Africa. This is on the grounds that magnificent administration and compelling financial changes are basic and reciprocal elements in building an empowering climate for the achievement of maintainable improvement objectives incorporate destitution decrease, ecological insurance, and the acknowledgment of the privilege to the climate in Sub Saharan Africa. Impact of Environmental Degradation are;

a) Impact on Human Health

Human health is greatly impacted negatively by environmental degradation.¹⁴ Areas and regions exposed to water, air, and or land pollution are prone to diseases related to pollution such as respiratory diseases for example pneumonia, asthma, water-borne related diseases among many others. Environmental degradation has not only contributed to increased diseases but also contributed to loss of lives in some extreme cases.

b) Loss for the Tourism Industry

Environmental degradation is a bottleneck to the tourism sector, which is a great contributor to Kenya's economy.¹⁵ Local communities directly rely upon tourism activities as a source of economic activity. Activities such as tour guides, showcasing of culture, hotels, fishing among other tourism related activities are directly and indirectly affected by environmental damage in

¹⁴ Chen, M.-J. (2017). Environmental governance: disentangling the relationship between economic growth and rule of law on environmental policy stringency. *Letters in Spatial and Resource Sciences*, 10(1),253-275

¹⁵ Khan, Naushad, Absar Ul Hassan, Shah Fahad, and Mahnoor Naushad. "Factors affecting tourism industry and its impacts on global economy of the world." Available at SSRN 3559353 (2020).

form of air pollution from industries, water pollution and loss of biodiversity discourages tourist activities.

c) Economic Impact

Environmental degradation erodes the country's economic gains as funds intended economic development and growth are diverted for environmental restoration in activities such as undertaking major clean-ups activities, landfills, afforestation, beautification environmental programs as well as protection of endangered species.¹⁶ Economic impact is felt from the individual level as local communities tend to spend a larger portion of their disposable income in treatments resulting from environmental degradation such as land air and water pollution. Economic activities such as fishing and tourism are greatly impacted.

The economic impact can also be in terms of the loss of the tourism industry contributor and a cause of environmental degradation in Africa and more specifically the Tana Delta communities.¹⁷ In such cases, natural administration, protection, and requirement associations are often underfunded. At the point when these administrative associations are underfunded, they can't get and keep the essential logical and innovative capacities. Moreover, it might prompt debasement by making a framework in which inadequately paid and deadened specialists have an impetus not simply to misuse holes in rules and guidelines, yet additionally to take hush-money during ecological reviews and the authorization of illegal natural activities.

¹⁶ Dada, James Temitope, and Taiwo Akinlo. "Foreign direct investment and poverty reduction in sub-Saharan Africa: does environmental degradation matter?." *Future Business Journal* 7, no. 1 (2021): 1-10.

¹⁷ Mengisteab, Kidane. "Environmental degradation in the greater horn of Africa." *Predicaments in the Horn of Africa* (2012): 447.

At last, equipped struggle adds to an absence of institutional limit in most of African nations by diverting accounts essentially to war exercises and empowering the deficiency of policemen through death or movement. The key fixings are from Sub-Saharan Africa. This is on the grounds that magnificent administration and compelling financial changes are basic and reciprocal elements in building an empowering climate for the achievement of maintainable improvement objectives incorporate destitution decrease, ecological insurance, and the acknowledgment of the privilege to the climate in East Africa.

1.5.3 Challenges of social conflict management within Tana Delta, Kenya

There are numerous challenges facing social conflict management within Tana Delta, Kenya. Lack of access to information contributes directly and indirectly to the degradation of the environment in Kenya.¹⁸ It is prompt as in it quells the vulnerable ability to ensure the environment on which they depend for perseverance by harming either their capacity to be incredible performers in biological plan and dynamic cycles that influence them; or their capacity to actuate backing to demand long stretch responses for common troubles. The indirect impact of nonattendance of induction to data about common debilitating is that it adds to the deteriorating of destitution, which, as of late communicated in this article, is the fundamental driver of environmental debasement in East Africa.

Agricultural development projects that are being re-established, such as sugarcane farming, irrigation, aquaculture, and biofuel farming in places such as Hola and Bura, are posing a threat to the degraded environment in the Tana delta.¹⁹ Agriculture, a human activity, needs space and land to re-establish them because they need to be acquired. In the process, some parts of

¹⁸ Nkonya, Ephraim, John Pender, Kayuki C. Kaizzi, Edward Kato, Samuel Mugarura, Henry Ssali, and James Muwonge. Linkages between land management, land degradation, and poverty in Sub-Saharan Africa: The case of Uganda. Vol. 159. Intl Food Policy Res Inst, 2008.

¹⁹ Pickmeier, Ulrich. "Land Acquisitions in Kenya's Tana Delta Region:(Bio-) fueling Local Conflicts? A Youth Perspective." A Delicate Balance Land Use, Minority Rights and Social Stability in the Horn of Africa (2014): 282-308.

the delta area to be cleared to create spaces for irrigation and other agricultural activities, thus affecting the vegetation cover. The forestry part of it has been affected, leading to deforestation. These activities have led to the immigration of species. These activities have led to environmental degradation.

Structures such as dams and houses for settlements are being constructed to aid agriculture and urban domestic usage.²⁰ The process of diverting water sources to aid in all these activities has threatened the delta ecosystem, thus degrading its environment. For example, during the construction of communication lines and roads between Bura and Garsen, many lands were removed to tarmac the road. In the process, a lot of displacement did occur; thus, this led to land degradation, causing effects to the environment.

The mining and exploration of oils and gases from the Tana Delta River also create a huge problem; for example, the Bedford biofuels based in Canada want to lease the land for their company, which will lead to displaced people's organisms from their natural environment. In mining, the gases, oils, and land are left bare and practical, becoming the waterlogging point. This creates an environment for animals to breed. Some of them like the mosquitoes because the diseases since human life cannot be supported in such areas then migration occurs, and thus the environment is degraded.

²⁰ Dawda, A., Kweku, A., Ullah, S., & Ullah, F. (2019). Globalisation, governance, accountability and the natural resource 'curse': Implications for socio-economic growth of oil-rich developing countries. *Resources Policy*, 61(1),128-140.

Rapid increase in population has a lot of impact on environmental degradation in the Tana River delta.²¹ As the population grows, there is a need to create more spaces for agriculture, construction of houses for urbanization, and agricultural irrigation and power supply.

In owning this land, there is the displacement of animals and other essential resources; at the same time, some people are displaced, which leads to conflict between individuals and even the government. Some animals are also displaced; this makes them search for new habitats. This causes a collision between animals and wildlife animals.

Setting up these and opening up places for these agricultural spaces leads to environmental degradation because the animals, plants, and humans bearee displaced from their ecosystems.

Since this is an attractive site, there are a lot of industrial activities such as baking and flour milling and some jua kali in places like Madogo and Bura. This led to the large disposal of garbage on land because some materials do not readily decompose.²² The industries use a lot of chemicals and emit untreated wastes, which causes pollution to water and air, thus causing environmental degradation.

Trade practices such as retail, supply, and banking led to the attraction of many people in the town. This creates more pressure on the available resources such as land, causing a lot of congestions, thus pollution to the environment and overutilization of the resources causing more stress because the carrying capacity is low, thus causing environmental degradation.

²¹ Lahra, S., Howard, D., Mark, G., Nili, S., Lara, K., & Susan, F. M. (2021). Local integration and shared resource management in protracted refugee camps: Findings from a study in the Horn of Africa. *Journal of Refugee Studies*, 34(1),787-805

²² Solomon, N., Birhane, E., Gordon, C., Haile, M., Taheri, F., Azadi, H., & Scheffran, J. (2018). Environmental impacts and causes of conflict in the Horn of Africa: A review. *Earth-Science Reviews*, 177(1),284-290

1.5.4 Management of environmental degradation and social conflicts

Environmental protection refers to control of various use of the environment in order to ensure that the environment is not destroyed²³. It also refers to strategies to avoid vices like pollution, overuse and degradation of the environment. Environment protection best exists where they are policies that promote sustainable resource usage. These policies relate with how resources are accessed distributed and harmful activities prevented. The regulations promote sustainable use of earth's natural resources and prevent harmful practices from damaging and contaminating the ecosystem. The World Bank for instance, offers motivation for developing environmental law to promote people-oriented sustainable practices that are sensitive to environmental protection and thus reduce poverty. Environmental policies provide legal basis for monitoring and evaluating government's socio-economic strategies in protection of the environment²⁴. As such, they are responsible for ensuring human and industrial activities do not distort the quality of water, air, soils and climate.

Keeping track of related human and government activities on the environment thus ensures that sustainable development goals are achieved. Market-based environmental policies are socio-economic laws and statutes that offer incentives to production firms, customers and suppliers to consider environmentally friendly practices and sustainability in their production and consumption patterns, in terms of sourcing labor, capital and raw materials.

Nations with stable political systems such as Kenya have pledged to measure and improve environmental performance in terms of reducing reliance on fossil fuels, reduce emissions and greenhouse gases, limit fuel consumption, promote sustainable use of water and prevent pollution, consistently. Examples of environmental governance policies include market-based

²³ Burke, et al.. Rethinking environmental protection: Meeting the challenges of a changing world. *Environmental Health Perspectives*, 125 no.3

²⁴ Jacob & Fredriksson. Political instability, corruption and policy formation: The case of environmental policy. *Journal of Public Economics*, 87 no.7 (2003):1383-1405

environmental policies, air pollution policy, climate change policy, water pollution policy, hazardous waste and toxic substance policy, solid waste policy, land conservation and management policy and wildlife protection policy²⁵. The formulation, adoption and implementation of these policies require a transdisciplinary methodology that can only be guaranteed by a political stable government²⁶.

Social conflict may result into invariably human suffering and occasion environmental degradation. In principle political instability leads to porous institutions which subsequently sequel to conflicts and clashes between different factions. Indeed, escalation of violence in the context of environmental degradation, political instability is known to result into environmental dislocations. For example, where politics are unstable, the citizens of the country are left for themselves.

At the same time, civil wars that characterizes such politics leads to overexploitation of resources by organized gangs and militias. Even where violence is not present, corruption is order of the day and this impairs with the effectiveness of policy meant to safeguard the environment²⁷. For example, a politically unstable country is likely to experience theft and capture of what would be otherwise protected resources like wetlands, water catchment areas and wildlife.

1.5.5 Gaps in the Literature

²⁵ Portney P. "Public Policies for Environmental Protection Published. Political Science" 2016

²⁶ Aryal, Kishor, Hari Krishna Laudari, Prem Raj Neupane, and Tek Maraseni. "Who shapes the environmental policy in the global south? Unpacking the reality of Nepal." *Environmental Science & Policy* 121 (2021): 78-88.

²⁷ Jacob, S., & Fredriksson, P. (2003). Political instability, corruption and policy formation: The case of environmental policy. *Journal of Public Economics*, 87(7):1383-1405.

Empirical investigations have divergent findings in their quest of bringing forth the impact of environmental degradation on the socio-economic security in Africa and more specifically the Tana Delta. Most of these studies differ in terms of methodology, geographical location considered for the research, and duration covered. However, numerous studies have established that there is a significant negative correlation between environmental degradation and socio-economic security of Tana Delta, while few exhibited positive correlation in addition some showed no correlation between them. The lack of existence of a common stand in these findings of previous studies clearly suggests vagueness in existing literature; this has necessitated more enquiries into the impact of environmental degradation on socio-economic security in Africa; a case study of the Tana Delta in Kenya.

1.6 Hypothesis

This study must test the following hypothesis.

1.6.1 Environmental degradation has a significant impact on socio-economic security in East Africa

1.6.2 Environmental degradation poses significant challenge on socio-economic security in Kenya, Tana River County.

1.6.3 There are adequate policy environmental measures to mitigate social conflicts in the Tana Delta, Kenya.

1.7 Justification of the study

This study is guided by two levels of justification namely academic and policy justification.

1.7.1 Policy justification

Most social conflicts in Africa are often attributed to competition over natural resources.²⁸ In Kenya, Tana Delta Region was selected because the conflict over natural resources has been long dating back to the 17th Century when first settlements happened along the Tana River.²⁹ The scale of conflict may vary from time to time but the most serious fights have been between the two dominant tribes in the Tana Delta that is the Pokomo and Orma. The resolution of this conflict has defied many arguments and the conflict remains unabated to date. The findings will help identify gaps and possible policy solutions.

1.7.2 Academic justification

Several arguments have been fronted to explain the Pokomo-Orma conflict without much empirical evidence. There are many other arguments but most or all seem to revolve around the thinking that the two tribes fight because the Pokomo lay claim to land for cultivation while the Orma want unhindered access to water and pasturelands to prosper their range herding economy. Ownership and access are two complementary natural resources management strategies. Whether these arguments constitute an accurate and comprehensive interpretation of this perennial conflict is still arguable especially because efforts to resolve conflict based on these arguments seem to have failed and the two tribes continue to fight, kill and displace each another. The present study will desegregate the evidence of each possible cause and identify the factors and or drivers of natural resource use conflict in Tana Delta region. The findings of the study are of great importance to policy makers, community members and academicians. The present study will provide a base upon which other studies can be conducted in other parts of the country on natural resources related conflicts and how they can be minimized.

1.7 Theoretical framework

²⁸ Ibid

²⁹ Campbell, Tom. "Climate change policy narratives and pastoralism in the Horn of Africa: new concerns, old arguments?." PhD diss., Dublin City University, 2021.

Homer-Dixon Environmental Security Theory

Homer-Dixon environmental security theory is premised on the argument that scarcity of resources has a potential of creating violent conflicts as people struggle to share the resources³⁰. The resources by virtue of being scarce lead to competition as people have insatiable needs. Homer-Dixon argues that the environmental stress created on natural resources like minerals, land, fishing grounds contribute to violence and this is more pronounced in poor countries. As a result of this violence, ethnic clashes erupt leading to wars, civil wars which can escalate to genocides and terrorism.

Moreover, this theory idealises that not all violence is caused by environmental stress but is specific to insurgencies and ethnic classes³¹. In a nutshell, environmental scarcity theory links violent conflicts from scarcity of resources. There are several pros that emanate from the tenets postulated in environmental security theory. Foremost, Homer-Dixon notes that environmental stress is a natural occurrence that happens when people are struggling to obtain livelihood from the natural resources. This creates scarcity as population grows and in poor countries there is unfair access to such resources and ecological imbalance leading to rebellions.

Secondly, environmental scarcity theory has practical applications. As an example, the competition and environmental stress in Rwanda due to scarcity of land and skewed access to resources fuelled and aggravated the conflicts leading to a genocide³². Environmental scarcity is relevant in this study. The theory relates environmental stress as a cause of violent particularly insurgencies and rebellions. In Somalia, skewed access to resources, scarcity of arable land and poor institutional fishing policies occasioned one of Africa's long outstanding

³⁰ Homer-Dixon, T., Deligianis, T., & Schwartz, D. (2001). *The Environment and Violent Conflict*. New York: Routledge.

³¹ Salehyan & Hendrix, (2014). Climate shocks and political violence. *Global Environmental Change*, 28(1),239-250

³² Mohammed and Ahmed (2019). Relationship between environmental degradation, resource scarcity, and civil conflicts in Somalia. *Journal of Environmental Management and Tourism*, 10(3),640-650.

conflict. In turn, conflicts create more problems to the environment leading to a vicious cycle. This theory presents an interesting concept; violent conflicts such as ethnic classes arise when environmental stress builds up which at the same time lead to environmental degradation, hence it was best suited to social conflict arising from environmental degradation in Tana Delta.

1.9 Research methodologies.

1.9.1 Research design

A rationale that contains practical aspects of data sourcing and analyzing data is known as research design³³. Research design entail structuring of a plan that acts as a route map in data gathering and data analysis. Moreover, research design provides the basis of reporting findings in such a way that the results are valid and credible. The best design to use is descriptive research design considering that this study seeks to assess the nexus between environmental degradation and social conflict. In using descriptive research design, the researcher's main interest is to descriptively explain whether there is a correlation between study variables.

Therefore, the descriptive design enabled holistic investigation of the impact of environmental degradation on socio-economic security in East Africa.

1.9.2 Study Location

Study location refers to a geography for which data is analysed in a report or study.³⁴ The study was conducted at Tana Delta, Tana River County Kenya as Tana River County geopolitical location is crucial to social economic security of Kenyan's communities along the Delta.

³³ Mesa, J. M., Duquia, R. P., Bastos, J. L., Bonamigo, R. R., & Chica, D. A. (2016). Sampling: how to select participants in my research study? *Anais Brasileiros de Dermatologia*, 91(3),326-330.

³⁴ Sekaran, U., & Bougie, R. (2016). *Research Methods For Business: A Skill Building Approach*. New York: John Wiley & Sons Publishers.

1.9.3 Target population

Target population can be defined as the total group of persons from which the study samples might be drawn.³⁵ These are the target research population that the researcher focused on in getting the primary data. They include residents of Tana River County due to their exposure and knowledge to the environmental impact of the Tana Delta, university students due to their in-depth knowledge, ministry of trade, industry and cooperatives officers, in order to capture for the official data, Tana River County staffs who will provide relevant information.

1.9.4 Sample for study

The sample for study will narrow down to international relations students due to their in-depth insight in this international relations topic, Kenya national bureau of statistics officer in order to capture for the official data, Kenya investment Authority KIA staff for the official investment data and Tana River County officials who will provide accurate information in assessing impacts of environmental degradation in the Tana Delta.

1.9.5 Sampling procedure

According to Mugenda and Mugenda, for a population of 10,000, the under listed formula will apply.³⁶

$$nf = n/(1+n/N)$$

1.9.6 Sampling size

Therefore, sample size will be:

$$nf = \frac{384}{1 + \frac{384}{1500}}$$

$$= \frac{384}{1 + 0.256}$$

³⁵ Ibid

³⁶ Mugenda, Olive Mwhaki, and Abel Gitau Mugenda. 2003. Research methods quantitative & qualitative approaches.

$$= \frac{384}{1.256}$$

Target group	Population	Sample size	Sampling technique
Ministry of Environment	750	150	Simple random
Tana River county officials	300	60	Purposive sampling
University of Nairobi academicians	200	50	Convenience sampling
Kenya National bureau of statistics	250	46	Purpose sampling
Total	1500	306	

$$= 305.73 = 306$$

1.9.7 Sampling frame

Table 1.1 Target population, sample size and sampling technique

Source: Researcher, 2021.

Simple random sampling was used to the staff from the ministry of Environment and each member has an equal probability of being chosen and on the other hand simple random sample is meant to be an unbiased representation. Purposive sampling was appropriate towards Tana River County staffs and Kenya bureau of statistics staffs because it enabled to reach a targeted sample quickly such as the experts officials from the county. Convenience sampling was used towards the academicians because the subjects were selected due to convenient accessibility and proximity to the researcher.

1.9.8 Tools for data collection

The researcher gathered Information from a range of sources hence; there are a variety of tools and techniques that were used when gathering primary data. These include questionnaires which were administered to participants from the embassy, and the relevant ministry because of their time limitations, review of existing records and statistics from the Kenya National Bureau as well as focused group discussions for University of Nairobi Academicians, as they saw it fit to engage in debate over the subject matter under research.

1.9.9 Data Collection

This research relied on both primary source of data and secondary sources of information in gathering and measuring information on targeted variables. Primary data was derived from structured interview that is typically formal and organized, unstructured interview and administration of structured questionnaire, unstructured questionnaire, open and closed ended questionnaire. This was conducted on the public, Tana River County staffs, ministry of Environment as well as International studies academicians. Secondary data was sourced from a collection and review of books, journals, academic and research paper.

1.9.10 Data Analysis and Presentation

The results of content qualitative analysis are interpreted in such a way that the research questions are expressly answered. Analysed data will be presented in form frequency distribution tables, pie charts and by use of graphical illustrations.

1.10 Ethical Considerations

Ethical considerations will normally place certain burdens on the researcher. These burdens include ensuring that the respondent is given adequate information to enable him give an informed consent and that the privacy of the respondent is protected while the information he

gives is treated with utmost confidentiality.³⁷ The other burdens include the right of the respondent to remain anonymous without disclosing his identity and the researcher being sensitive to human dignity and well-meaning in his intentions. Bearing these ethical considerations in mind, the researcher will strive to be guided by the highest form of restraint and utmost discipline towards the respondent in the course of the research.

1.10 Chapter Outline of the Study

Chapter One: This will basically be an introductory chapter. Here, the background to the study, statement of the research problem, research questions and research objectives, the justification for the study, literature review, as well as identifying the gaps in literature, the theoretical framework, hypotheses and research methodologies.

Chapter Two: will explore the interactions between environmental degradation and social conflicts in East Africa generally and Kenya specifically

Chapter Three: evaluate the challenges of social conflict management within Tana Delta, Kenya

Chapter Four: It will assess the efficacy policy measures to mitigate social conflict through environmental management programs within Tana Delta, Tana River County. In addition it will entail data analysis of primary and secondary data of all the three objectives of the study.

Chapter Five: This will be the last chapter of the study. It will contain summary of findings, conclusion and recommendations.

³⁷ Krause, Jana. "The ethics of ethnographic methods in conflict zones." *Journal of peace research* 58, no. 3 (2021): 329-341.

CHAPTER TWO

Causes and Impacts of Environmental Degradation in East Africa

2.0 Introduction

Chapter two will entail the causes and impacts of environmental degradation in East Africa in addition the chapter will look into the causes and impacts of the Tana Delta in Kenya.

2.1 Environmental degradation

Degradation is defined as a slow but steady process that involves the wearing down or destruction of natural resources due to the action of water or wind or any other environmental conditions that are either caused naturally or induced by human activities.³⁸ Environmental degradation is the process caused by natural processes or human activities. The resulting action leads to negative effects on the environmental systems comprising biological productivity and leads to unfavourable results. In other words, environment degradation is the loss or reduction of useful utilities that lead to changes in features of organisms. Once the loss has occurred, it is irreplaceable. This, therefore, means that economic, ecological, and cultural sustainability is lost. Therefore, environmental degradation can occur in the fed crop, irrigated land, forest, or woodland areas, leading to contamination of land, soil erosion air, or destruction of vegetation cover on the land surfaces.

³⁸ El-Juhany, Loutfy I. "Forestland degradation and potential rehabilitation in southwest Saudi Arabia." *Australian Journal of Basic and Applied Sciences* 3, no. 3 (2009): 2677-2696.

2.1 Causes of environmental Degradation In East Africa

*The degraded state of sub-Saharan Africa's environment and, more specifically, East Africa has been attributed for the most part to non-standard or artificial occasions, for instance, ecological change, assaulting pariah species, overharvesting, deforestation, charcoal creation and usage, pollution, harmful and untreated wastes, and land cover change.*³⁹ The start or occasion of these scenes or direct drivers is influenced by human exhibitions or prohibitions, basically monetary and political. These interconnected monetary and political troubles include:

a) Deforestation

Forests play a critical role in maintaining the soil structure, soil fertility, soil composition. Also, they supplement the soil with hummus from the fallen leaves or branches that rot and decompose, adding the humus to the soil. Forests also protect the soil from losing a lot of water in evaporation and transpiration; thus, the soil structure and composition are maintained. In Africa, deforestation is becoming one of the greatest problems causing environmental degradation. For example, Ghana and sub-Saharan countries suffer a lot due to the lack of forest cover. In Congo, for example, the land has been cleared to give spaces for agriculture settlements; thus, most of the valuable land is eliminated.

This has led to a reduction of rains, thus low food production leading to hunger and starvation, thus creating more poverty that leads to overutilization and over usage of the natural resources to cater for the need. Since forests bind the soil particles together, maintaining the soil structure protects soil from being taken away by the agents of the soil erosion, such as the wind and running water. Cutting the trees for commercial or industrial use leads to the soil being left bare

³⁹ Phalan, Benjamin Timothy. "Land use, food production, and the future of tropical forest species in Ghana." Ph.D. diss., University of Cambridge, 2010.

and exposed to the agents of erosion because the grass cover and vegetation responsible for holding the soil particles intact is affected, thus causing environmental.

b) Poor Agricultural practices

People rely on agriculture for food and other economic aspects. In the process, they may use poor agriculture methods that degrade the environment to the point it cannot support the normal healthy development needed. In Africa, some of the agricultural practices that cause environmental degradation include;

Poor method of application of fertilizers and other chemicals such as herbicides which control unwanted plant, weeds. This causes leaching of the nutrients, and the soil ph. is also affected, leading to stunted or little or completely no growth of the crops, the soil becomes infertile and thus abandoned becomes becoming degraded.⁴⁰

Overgrazing is the method of feeding organisms on natural grass and pastures in intensive capacity. This leads to a high number of organisms in the area then it can support. Thus there is a reduction of vegetation cover, exposing the whole land to an agent of soil erosion leading to environmental degradation. This leads to the land being eroded, and thus, it wastes the natural resource.

Salination is the continuous usage of soluble salts in the soil. For example, in India, there is excess use of fertilizers such as sodium nitrate. This leads to an increase in the alkalinity; thus, the soil becomes less valuable. Poor drainage methods after salts have dissolved in the soil due to irrigation accumulate on the soil surface because drainage is poor, thus making the soil less valuable.

⁴⁰ Alhassan, Hamdiyah. "The effect of agricultural total factor productivity on environmental degradation in sub-Saharan Africa." *Scientific African* 12 (2021): e00740.

After adopting these methods, these countries experience substance agriculture; some countries like Kenya have experienced rural poverty, land degradation, and even depletion of nutrients like Wajir, Garissa, and Marsabit, causing environmental degradation.

c) **Soil erosion**

This is another factor causing environmental degradation in Africa, and about 42 % of the land has been degraded.⁴¹ This erosion is mostly caused by wind and waters; it's more common in an open land field where most of the vegetation cover has been cleared, and the soil is bare due to human activities, and the soil is left not intact. This accelerates environmental land degradation. Soil erosion causes drastic changes in the physical, chemical, and even biological characteristics of the soil, reducing soil fertility; thus, the land becomes less productive, thus environmental land degradation. Soil erosion can be classified into the following;

Wind erosion it's very common in areas where the vegetation cover was eliminated and cleared due to human activities. When strong winds blow, they carry the top layers of the soil particles; thus, the land becomes useless due to its inability to support life, thus environmental degradation.

Water erosion is a common type of erosion that causes severe land degradation. Human activities such as overgrazing, deforestation, and even mining lead to an increase in the rate of soil erosion, accelerating land degradation.⁴² Because the soil is loose and bare, running water carries the top layer and particles, leaving the land unproductive, thus causing degradation mostly in India.⁴³

⁴¹Bardgett, Richard D., James M. Bullock, Sandra Lavorel, Peter Manning, Urs Schaffner, Nicholas Ostle, Mathilde Chomel et al. "Combatting global grassland degradation." *Nature Reviews Earth & Environment* (2021): 1-16.

⁴²Ejersa, Mulugeta Tufa. "Causes of Land Degradation and its Impacts on Agricultural Productivity: A review." (2021).

⁴³Ibid

Also, some countries like South Sudan have experienced soil ph. increasing causing acidity, nutrient exhaustion and thus the place becomes less useful thus causing environmental degradation

d) Increasing Population

In the developing countries in Africa, there is negative growth of the population this has posed the big problem of environmental land degradation.⁴⁴ A high population leads to high demand for resources in the environment. The relationship between the human population and the environment affects the socio-economic, cultural, political aspects. High population leads to high consumption of the resources which occur naturally, causing stress on the biodiversity and pollution on air, water, and land, thus accelerating the rate of land degradation.

High population, for example, in Ghana, leads to overutilization of resources such as the forest and vegetation cover, leaving the ecosystem bare and exposed to the agents of erosion, thus land degradation. Due to the high population, human development activities such as the industries lead to emission of wastes material such as gaseous form or the deposition of the solid materials on land which are non-biodegradable thus causing pollution leading to the environmental degradation.⁴⁵

Also, untreated materials are released to water bodies; this affects the marine water animals decreasing the marine population. Thus, materials block water sources; they compete with the available nutrients and oxygen, killing the animals thus degradation.

⁴⁴ Barbier, Edward B., and Salvatore Di Falco. "Rural populations, land degradation, and living standards in developing countries." *Review of Environmental Economics and Policy* 15, no. 1 (2021): 115-133.

⁴⁵ Ale, Aashish. "Chapter-7 Soil Pollution and Their Management." *Emerging Trends in Agriculture Sciences* (2021): 107.

e) Desertification and climate change

Desertification is the continuous degradation of the dry land ecosystems caused by human and natural climate changes. In Africa, like the Sahara desert, in central Africa Kalahari desert in Namibia has experienced a lot of impact on environmental degradation. This is mainly caused by climatic changes that cause desertification, including drought moisture loss globally.

Human activities include overgrazing, deforestation, and the removal of natural resources. Thus, activities some agricultural activities lead to desertification. Through these activities, the land is left bare exposed, and this causes land degradation.

Climate change is caused by desertification and other human activities such as carbon, nitrogen, and sulphur emissions, which cause global warming, leading to land degradation.

f) Unregulated mining and construction

In Africa, there is plenty of mineral and rocks that are important to economic development. In countries like the Republic of Congo, South Africa, mining is evident since there is high demand for settlement and a need for high economic demand for commercial development.⁴⁶

This leads to the construction of roads, houses, and rails. In the process, some parts of the land are left exposed to agents of erosion and destruction of some resources leading to the land being degraded. People do mine the important minerals, and they leave the land in very a bad state.

g) Lack of Access to Justice

Lack of justice has been a great contributor and a cause of environmental degradation in Africa and, more specifically, the East African communities.⁴⁷ In such cases, natural administration, protection, and requirement associations are often underfunded. When these administrative

⁴⁶ Arneth, Almut, Lennart Olsson, Annette Cowie, Karl-Heinz Erb, Margot Hurlbert, Werner A. Kurz, Alisher Mirzabaev, and Mark DA Rounsevell. "Restoring degraded lands." *Annual Review of Environment and Resources* 46 (2021): 569-599.

⁴⁷ Mengisteab, Kidane. "Environmental degradation in the greater horn of Africa." *Predicaments in the Horn of Africa* (2012): 447.

associations are underfunded, they can't keep the essential logical and innovative capacities. Moreover, it might prompt debasement by making a framework in which inadequately paid and deadened specialists have an impetus to misuse holes in rules and guidelines and take hush-money during ecological reviews and the authorization of illegal aliens' biological activities. At last, equipped struggle adds to an absence of institutional limit in most African nations by diverting accounts essentially to war exercises and empowering the deficiency of police officers through death or movement. The key fixings are from Sub-Saharan Africa. This is because magnificent administration and effective financial changes are basic and reciprocal elements in building an empowering climate to achieve maintainable improvement objectives incorporating destitution decrease, ecological insurance, and acknowledging the privilege to the climate in Sub-Saharan Africa.

2.2 Impact of Environmental Degradation

a) Lack of Access to Information and Public Participation

Lack of access to information contributes directly and indirectly to the degradation of the environment in Sub-Saharan Africa.⁴⁸ It is prompt as it quiets the vulnerable ability to ensure the environment on which they depend for perseverance by harming their capacity to be incredible performers in biological plan and emotional cycles that influence them, or their capacity to actuate backing to demand long stretch responses for common troubles. The indirect impact of nonattendance of induction to data about common debilitating is that it adds to the deteriorating of poverty, which, as of late communicated in this article, is the fundamental

⁴⁸ Nkonya, Ephraim, John Pender, Kayuki C. Kaizzi, Edward Kato, Samuel Mugarura, Henry Ssali, and James Muwonge. Linkages between land management, land degradation, and poverty in Sub-Saharan Africa: The case of Uganda. Vol. 159. Intl Food Policy Res Inst, 2008.

driver of environmental debasement in Africa. This is evident from the way that the defenseless' ability to make instructed occupation choices is ham.

Another critical factor adding to ecological decay in Sub-Saharan Africa is an absence of political will regarding African governments to authorize natural standards or sanction new and proactive ecological guidelines that would shield the climate from weakening.⁴⁹ This hesitance may be attributable to the financial benefits acquired from the activities of the declining enterprises. As to last mentioned, it ought to be recalled that many contaminating organizations have undermined work reductions when obliged to agree with ecological standards. For example, changing to cleaner fabricating procedures would require huge monetary speculation, delivering their exercises unbeneficial.

Human activities cause the following effects to environmental degradation Chemical and physical structure and composition of the soil is affected. There is an increased rate of soil erosion that causes degradation. There is a decline in biodiversity in both land and aquatic places. Some hazardous impacts and materials are released to the environment, thus causing the problem to the environment. The agricultural industry is also affected because the essential land supposed to be fertile cannot support the plants since there is pollution from human activities. , this is a problem for the environment. The displacement of organisms from their natural habitat leads to invasive species encouraging the place.

⁴⁹ Agbese, Pita Ogaba. "Environmental challenges facing Africa: Governmental response." *Governmental Response to Environmental Challenges in Global Perspective* 6 (1998): 63.

c) Impact on Human Health

Human health is greatly impacted negatively by environmental degradation.⁵⁰ Areas and regions exposed to water, air, and or land pollution are prone to diseases related to pollution, such as respiratory diseases, for example, pneumonia, asthma, water-borne related diseases, among many others. Environmental degradation has contributed to increased diseases and contributed to the loss of lives in some extreme cases.

d) Loss for the Tourism Industry

Environmental degradation is a bottleneck to the tourism sector, which greatly contributes to Kenya's economy.⁵¹ Local communities directly rely upon tourism activities as a source of economic activity. Activities such as tour guides, showcasing of culture, hotels, fishing, among other tourism-related activities, are directly and indirectly affected by environmental damage in the form of air pollution from industries, water pollution, and loss of biodiversity discourage tourist activities.

The deterioration of the environment can be a huge setback for the tourism industry that relies on tourists for their daily livelihood. Environmental damage in the form of loss of green cover, loss of biodiversity, huge landfills, increased air, and water pollution can be a big turn-off for most tourists.

e) Economic Impact

Environmental degradation erodes the country's economic gains as funds for economic development and growth are diverted for environmental restoration in activities such as undertaking major clean-ups, landfills, afforestation, environmental beautification programs,

⁵⁰ Rani, Lata, Komal Thapa, Neha Kanojia, Neelam Sharma, Sukhbir Singh, Ajmer Singh Grewal, Arun Lal Srivastav, and Jyotsna Kaushal. "An extensive review on the consequences of chemical pesticides on human health and environment." *Journal of Cleaner Production* (2020): 124657.

⁵¹ Khan, Naushad, Absar Ul Hassan, Shah Fahad, and Mahnoor Naushad. "Factors affecting tourism industry and its impacts on global economy of the world." Available at SSRN 3559353 (2020).

and the protection of endangered species.⁵² The economic impact is felt from the individual level. Local communities tend to spend a larger portion of their disposable income on treatments resulting from environmental degradation such as land, air, and water pollution. Economic activities such as fishing and tourism are greatly impacted.

The economic impact can also be in the loss of the tourism industry contributor and a cause of environmental degradation in Africa and, more specifically, the Tana Delta communities.⁵³ In such cases, natural administration, protection, and requirement associations are often underfunded. When these administrative associations are underfunded, they can't keep the essential logical and innovative capacities. Moreover, it might prompt debasement by making a framework in which inadequately paid and deadened specialists have an impetus to misuse holes in rules and guidelines and take hush-money during ecological reviews and the authorization of illegal aliens' biological activities.

At last, equipped struggle adds to an absence of institutional limit in most African nations by diverting accounts essentially to war exercises and empowering the deficiency of police officers through death or movement. The key fixings are from Sub-Saharan Africa. This is because magnificent administration and effective financial changes are basic and reciprocal elements in building an empowering climate to achieve maintainable improvement objectives incorporating destitution decrease, ecological insurance, and acknowledging the privilege to the climate in East Africa.

⁵² Dada, James Temitope, and Taiwo Akinlo. "Foreign direct investment and poverty reduction in sub-Saharan Africa: does environmental degradation matter?" *Future Business Journal* 7, no. 1 (2021): 1-10.

⁵³ Mengisteab, Kidane. "Environmental degradation in the greater horn of Africa." *Predicaments in the Horn of Africa* (2012): 447.

2.3 Causes of environmental degradation in the Tana River Delta

a) Agriculture

Agricultural development projects that are being re-established, such as sugarcane farming, irrigation, aquaculture, and biofuel farming in places such as Hola and Bura, are posing a threat to the degraded environment in the Tana delta.⁵⁴ Agriculture, a human activity, needs space and land to re-establish them because they need to be acquired. In the process, some parts of the delta area to be cleared to create spaces for irrigation and other agricultural activities, thus affecting the vegetation cover. The forestry part of it has been affected, leading to deforestation. These activities have led to the immigration of species. These activities have led to environmental degradation.

b) Infrastructure

Structures such as dams and houses for settlements are being constructed to aid agriculture and urban domestic usage.⁵⁵ The process of diverting water sources to aid in all these activities has threatened the delta ecosystem, thus degrading its environment. For example, during the construction of communication lines and roads between Bura and Garsen, many lands were removed to tarmac the road. In the process, a lot of displacement did occur; thus, this led to land degradation, causing effects to the environment.

c) Unregulated Mining Activities

The mining and exploration of oils and gases from the Tana Delta River also create a huge problem; for example, the Bedford biofuels based in Canada want to lease the land for their company, which will lead to displaced people's organisms from their natural environment. In mining, the gases, oils, and land are left bare and useful, becoming the waterlogging point. This creates an environment for animals to breed. Some of them like the mosquitoes because the

⁵⁴ Pickmeier, Ulrich. "Land Acquisitions in Kenya's Tana Delta Region:(Bio-) fueling Local Conflicts? A Youth Perspective." *A Delicate Balance Land Use, Minority Rights and Social Stability in the Horn of Africa* (2014): 282-308.

⁵⁵ Maingi, John K., and Stuart E. Marsh. "Quantifying hydrologic impacts following dam construction along the Tana River, Kenya." *Journal of Arid Environments* 50, no. 1 (2002): 53-79.

diseases since human life cannot be supported in such areas then migration occurs, and thus the environment is degraded.

d) Increase in Population

This has a lot of impact on environmental degradation in the Tana River delta.⁵⁶ As the population grows, there is a need to create more spaces for agriculture, construction of houses for urbanization, and agricultural irrigation and power supply.

In owning this land, there is the displacement of animals and other important resources; at the same time, some people are displaced, which leads to conflict between individuals and even the government. Some animals are also displaced; this makes them search for new habitats. This causes a collision between animals and wildlife animals.

Setting up these and opening up places for these agricultural spaces leads to environmental degradation because the animals, plants, and humans bearee displaced from their ecosystems.

e) Industries and trade

Since this is an attractive site, there are a lot of industrial activities such as baking and flour milling and some jua kali in places like Madogo and Bura. This led to the large disposal of garbage on land because some materials do not easily decompose.⁵⁷ The industries use a lot of chemicals and emit untreated wastes, which causes pollution to water and air, thus causing environmental degradation.

Trade practices such as retail, supply, and banking led to the attraction of many people in the town. This creates more pressure on the available resources such as land, causing a lot of

⁵⁶ Mbuvi, Musingo TE, Leila Ndalilo, Paul Matiku, Serah Munguti, and George Odera. "Yearning for an Apple: The Changing Lifestyle of the Tana River Delta Communities in Kenya and Implications on Livelihoods and Conservation of Natural Resources." *Natural Resources* 11, no. 10 (2020): 446.

⁵⁷ Kamau, J. N., S. N. Mwangi, A. Kheir, D. Munga, S. Machua, L. N. Daudi, H. S. Massa et al. "Land-based activities, pollution sources and levels in water and sediment in the coastal and marine area of Kenya." (2006).

congestions, thus pollution to the environment and overutilization of the resources causing more pressure because the carrying capacity is low, thus causing environmental degradation.

2.4 Effects of environment degradation Tana River delta

Displacement of animals and plants during the process of constructing the new places for agricultural activities for example, in Bura and Hola areas, some animals such as the wildlife and other attractive animals do move from their natural habitat to look for new places at the same time the human beings are also displaced in the process.

Conflicts between the individuals, the company owners, and the wild animals as the animals are displaced they even tend to go the small farms within the residential areas.⁵⁸ In this world, animals injure and at the same time cause destruction to the crops. This leads to human beings killing or harming the animals, and thus conflicts do arise. Also, as the individuals lease the land, there are even delayed payments, and this creates even conflict with the individuals owning the companies, and even killings may arise.

Overpopulation due to poverty, some people migrate from villages to towns like Bura and Hola where they think they can have jobs in agricultural and construction areas. In the process, many of these individuals overwhelm the social and other resources due to a high number of individuals than the area can carry due to overpopulation.

Pollution Due to new developmental activities on road construction, agriculture, and even irrigation, chemical compounds are released, polluting the environment. Due to the high number of people within the area, there are many activities such as noise pollution and even many vehicles emitting pollutants that make the environment not too suitable and support life.

⁵⁸ Martin, Pilly. "Conflicts between pastoralists and farmers in Tana River District." Spaces of insecurity. Human agency in violent conflicts in Kenya. Leiden: African Studies Centre. P (2012): 167-193.

2.5 Conclusion

The main causes of environmental degradation in East Africa include; Deforestation In Africa, deforestation is becoming one of the greatest problems causing environmental degradation. For example, Ghana and sub-Saharan countries suffer a lot due to the lack of forest cover. Secondly another cause is Poor Agricultural practices, this entails Poor method of application of fertilizers and other chemicals such as herbicides which control unwanted plant, weeds, overgrazing. In addition was identified as a major cause of environmental degradation. Another cause of environmental degradation is unregulated mining and construction, this leads to land not being used, and thus it's abandoned.

The chapter also looked at the impact of environmental degradation, the study found out that human health was greatly impacted negatively by environmental degradation. Environmental degradation had contributed to increased diseases and contributed to the loss of lives in some extreme cases. Environmental degradation negatively impacted the tourism sector, which greatly contributes to Kenya's economy.⁵⁹ Activities such as tour guides, showcasing of culture, hotels, fishing, among other tourism-related activities, are directly and indirectly affected by environmental damage in the form of air pollution from industries, water pollution, and loss of biodiversity discourage tourist activities. In addition environmental degradation erodes the country's economic gains as funds for economic development and growth are diverted for environmental restoration in activities such as undertaking major clean-ups, landfills, afforestation, environmental beautification programs, and the protection of endangered species.⁶⁰

⁵⁹ Khan, Naushad, Absar Ul Hassan, Shah Fahad, and Mahnoor Naushad. "Factors affecting tourism industry and its impacts on global economy of the world." Available at SSRN 3559353 (2020).

⁶⁰ Dada, James Temitope, and Taiwo Akinlo. "Foreign direct investment and poverty reduction in sub-Saharan Africa: does environmental degradation matter?." *Future Business Journal* 7, no. 1 (2021): 1-10.

Chapter Three

Challenges of social conflict management within Tana Delta, Kenya

3.0 Introduction

This chapter will review the challenges of resource based conflict caused by environmental degradation. This chapter will examine the. Location and topography, causes of environmental degradation in the Tana Delta, challenges of social conflict management in Tana River Delta.

3.1 The Tana Delta Location and Topography

The Tana Delta is situated in the county of Tana River, Tana River Sub-county which is part of the larger coastal Kenyan region. It covers an acreage of 38,378 kilometer square with a projected population of 250,000 persons. The Tana Delta draws its name from the river Tana which happens to be the largest river in Kenya, in addition the river drains its water into the Indian Ocean.⁶¹

As shown in the diagram below, this wetland is located in the coastal region, being the second useful estuarine in the basin covering about 130,000 acres of land. It's important because it provides the best grounds for breeding and feeding birds, thus an important site for a research study, thus a critical zone. The place also has a large number of animals such as wildlife, therefore an attractive location.⁶²

⁶¹ Ibid

⁶² Jenkins, Rhosanna LM, Rachel F. Warren, and Jeff T. Price. "Addressing risks to biodiversity arising from a changing climate: The need for ecosystem restoration in the Tana River Basin, Kenya." Plos one 16, no. 7 (2021): e0254879.

The Delta consists of impressive freshwater, floodplain, estuarine, and coastal areas with various trees like extensive mangroves, intertidal zones, and pristine beaches, tourist attractions.⁶³ Since it's on the north coast of the Republic of Kenya, it has a good supply of savanna with plenty of grassland and water, which intensively supports agricultural farming, livestock wildlife, and some bird species. Because of this, the ecosystem of this place is an excellent danger of degradation environmentally. And these are the factors that cause environmental degradation.

⁶³ Jenkins, Rhosanna LM, Rachel F. Warren, and Jeff T. Price. "Addressing risks to biodiversity arising from a changing climate: The need for ecosystem restoration in the Tana River Basin, Kenya." Plos one 16, no. 7 (2021): e0254879.

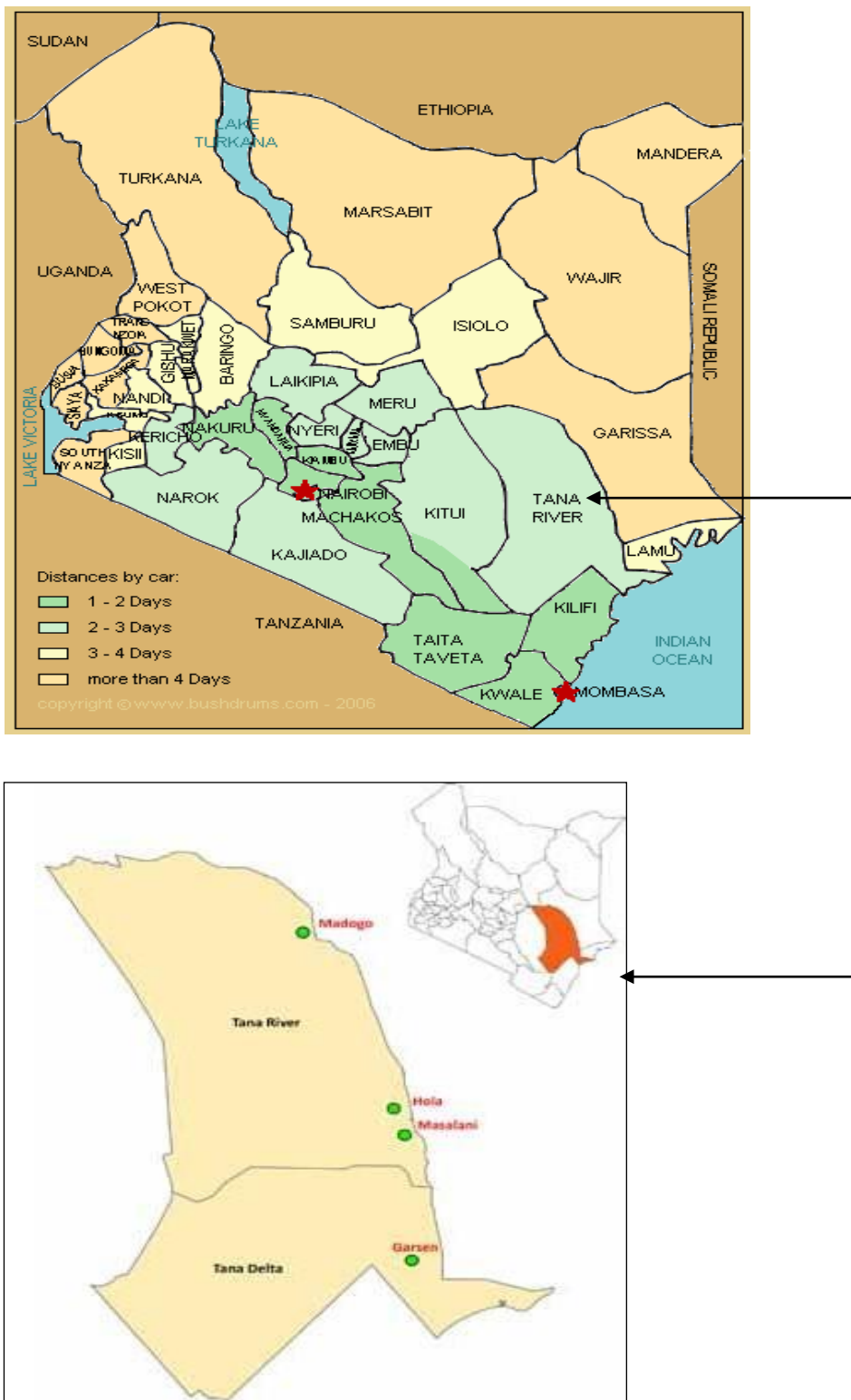


Figure 2.1: Map of Kenya showing Tana Delta region

3.2 Causes of environmental degradation in the Tana River delta

a) Agriculture

Agricultural development projects that are being re-established, such as sugarcane farming, irrigation, aquaculture, and biofuel farming in places such as Hola and Bura, are posing a threat to the degraded environment in the Tana delta.⁶⁴ Agriculture, a human activity, needs space and land to re-establish them because they need to be acquired. In the process, some parts of the delta area to be cleared to create spaces for irrigation and other agricultural activities, thus affecting the vegetation cover. The forestry part of it has been affected, leading to deforestation. These activities have led to the immigration of species. These activities have led to environmental degradation.

b) Infrastructure

Structures such as dams and houses for settlements are being constructed to aid agriculture and urban domestic usage.⁶⁵ The process of diverting water sources to aid in all these activities has threatened the delta ecosystem, thus degrading its environment. For example, during the construction of communication lines and roads between Bura and Garsen, many lands were removed to tarmac the road. In the process, a lot of displacement did occur; thus, this led to land degradation, causing effects to the environment.

c) Unregulated Mining Activities

The mining and exploration of oils and gases from the Tana Delta River also create a huge problem; for example, the Bedford biofuels based in Canada want to lease the land for their

⁶⁴ Pickmeier, Ulrich. "Land Acquisitions in Kenya's Tana Delta Region:(Bio-) fueling Local Conflicts? A Youth Perspective." *A Delicate Balance Land Use, Minority Rights and Social Stability in the Horn of Africa* (2014): 282-308.

⁶⁵ Maingi, John K., and Stuart E. Marsh. "Quantifying hydrologic impacts following dam construction along the Tana River, Kenya." *Journal of Arid Environments* 50, no. 1 (2002): 53-79.

company, which will lead to displaced people's organisms from their natural environment. In mining, the gases, oils, and land are left bare and practical, becoming the waterlogging point. This creates an environment for animals to breed. Some of them like the mosquitoes because the diseases since human life cannot be supported in such areas then migration occurs, and thus the environment is degraded.

d) Increase in Population

This has a lot of impact on environmental degradation in the Tana River delta.⁶⁶ As the population grows, there is a need to create more spaces for agriculture, construction of houses for urbanization, and agricultural irrigation and power supply.

In owning this land, there is the displacement of animals and other essential resources; at the same time, some people are displaced, which leads to conflict between individuals and even the government. Some animals are also displaced; this makes them search for new habitats. This causes a collision between animals and wildlife animals.

Setting up these and opening up places for these agricultural spaces leads to environmental degradation because the animals, plants, and humans beiaree displaced from their ecosystems.

e) Industries and trade

Since this is an attractive site, there are a lot of industrial activities such as baking and flour milling and some jua kali in places like Madogo and Bura. This led to the large disposal of garbage on land because some materials do not readily decompose.⁶⁷ The industries use a lot

⁶⁶ Mbuvi, Musingo TE, Leila Ndalilo, Paul Matiku, Serah Munguti, and George Odera. "Yearning for an Apple: he Changing Lifestyle of the Tana River Delta Communities in Kenya and Implications on Livelihoods and Conservation of Natural Resources." *Natural Resources* 11, no. 10 (2020): 446.

⁶⁷ Kamau, J. N., S. N. Mwangi, A. Kheir, D. Munga, S. Machua, L. N. Daudi, H. S. Massa et al. "Land-based activities, pollution sources and levels in water and sediment in the coastal and marine area of Kenya." (2006).

of chemicals and emit untreated wastes, which causes pollution to water and air, thus causing environmental degradation.

Trade practices such as retail, supply, and banking led to the attraction of many people in the town. This creates more pressure on the available resources such as land, causing a lot of congestions, thus pollution to the environment and overutilization of the resources causing more stress because the carrying capacity is low, thus causing environmental degradation.

3.3 Challenges of social conflict management within Tana Delta, Kenya

There are numerous challenges facing social conflict management within Tana Delta, Kenya. Lack of access to information contributes directly and indirectly to the degradation of the environment in Kenya.⁶⁸ It is prompt as in it quells the vulnerable ability to ensure the environment on which they depend for perseverance by harming either their capacity to be incredible performers in biological plan and dynamic cycles that influence them; or their capacity to actuate backing to demand long stretch responses for common troubles. The indirect impact of nonattendance of induction to data about common debilitating is that it adds to the deteriorating of destitution, which, as of late communicated in this chapter, is the fundamental driver of environmental debasement in East Africa.

Social conflict means that there is a disagreement between two or more parties that disagree on social interaction domains that leads to unnecessary opposing forces in the agency or the power in the society. This mostly occurs due to competition and this occurs due to inequitable and unequal distribution of power, resources such as the land and other amenities. The society is a central place where there is a chance of conflict that always leads to a change in the life as the

⁶⁸ Nkonya, Ephraim, John Pender, Kayuki C. Kaizzi, Edward Kato, Samuel Mugarura, Henry Ssali, and James Muwonge. Linkages between land management, land degradation, and poverty in Sub-Saharan Africa: The case of Uganda. Vol. 159. Intl Food Policy Res Inst, 2008.

people live in the place, because after a conflict then there is always a change in the way people will tend to live thus is according to Karl Marx the father of social conflict theory.

Examples of conflicts in the society can; conflict within the education system where the parents disagree with education systems set by the government; criminal justices can have a conflict, i.e. the disagreements between the rulings by different judicial systems, conflict between the rich and poor i.e. the me too movement, conflict between the races where there is discrimination between for example the white and the black in the developed countries, there is a conflict within the cattle keepers and farmers that leads to ethnic fights as the example of Laikipia county.

3.3.1 Agriculture and Climate change

The Tana River Delta the most common wetlands that is so popular within Africa and East Africa supporting individuals close to 300,000.⁶⁹ This region contains mostly the Pokomo and Ormo people both who are farmers that keep animals and others practices agriculture. The Pokomo being the farmers they cultivate different crops such as the rice mangoes and other indigenous crops along the swampy places and also near river banks areas. The Ormo on the other hand do graze their animals on dry areas but during the dry periods and feminine they tend to migrate to swampy and riverbanks to look for pastures and grasses for their animals. The movements may lead to conflicts arising between the individuals. Thus it's a challenge to conflict management in Tana River Delta. Since most of the agricultural activities within the Bura and Hola have also contributed to the continuous conflicts.⁷⁰ The agricultural activities have developed within the place for economical practices they have led to declination of the

⁶⁹ Iseman, T., and F. Miralles-Wilhelm. Nature-based solutions in agriculture: The case and pathway for adoption. Food & Agriculture Org., 2021.

⁷⁰ Nyunja, J. "The importance of flexibility: An analysis of the largescale Tana delta irrigation project in Kenya, implemented..."

fields for these farmers to practice their farming and also fed their animals in the process they trespass to other people's places and this led to aggressive conflicts between them. This is a challenge that is currently affecting the area.

The Tana River delta has conflicts that ever arise due to the lack of water, pasture and grass that is crucial to their animals and farms. Due to the political influences the places become more hostile the Ormo and Pokomo killing each other. This has led to the government to deploy the security personnel. As this was thought it will bear fruits it even did worsens the situation because the military was using more force on solving the problems. This led to raise of more conflicts with the government thus it's a challenge

Climate change is another challenge that has led to the rise of the conflicts within the area. This has been caused by the climatically conditions changing from the usual pattern to different one than the one resident were used to. For example march-May and the October-December is period of droughts and famine.⁷¹ This has resulted to continuous movements that sometimes leads have to destruction of Pokomo crops by Orma cattle and conflicts between the two communities have ensued.⁷² Even recently there has been continuous conflicts within the communities and this is because of unpredictable rains that have occurred due to climate change in such occasion there has been consistent visits to the river banks and swampy places to look for pastures and grasses this has led to an increased conflicts within the Tana river delta this has become a challenge to conflict solving management. Due to this problem of the climatic each group tend to look for the grass and pasture and water for the cattle and other animals at

⁷¹ Jenkins, Rhosanna LM, Rachel F. Warren, and Jeff T. Price. "Addressing risks to biodiversity arising from a changing climate: The need for ecosystem restoration in the Tana River Basin, Kenya." *Plos one* 16, no. 7 (2021): e0254879.

⁷² Wasike, Charles Ndal. "Conflicts in Kenya: Drivers of Conflicts and Assessing Mitigation Measures." In *Decolonising Conflicts, Security, Peace, Gender, Environment and Development in the Anthropocene*, pp. 333-349. Springer, Cham, 2021.

the same time for irrigating the plants. In the process there is disagreement that occurs between them and this led to rise in the conflicts thus becoming the problem and a challenge in society.

3.3.2 Political and lack of well-established land rights

Another challenge facing management of conflict within Tana Delta is absence of political will with respect to national and county governments to authorize natural standards or to sanction new and proactive ecological guidelines that would shield the climate from weakening.⁷³ This hesitance may be attributable to the financial benefits acquired from the activities of the declining enterprises as cash and open positions. As to last mentioned, it ought to be recalled that many contaminating organizations have undermined work reductions when obliged to agree with ecological standards, for example, changing to cleaner fabricating procedures ,since it would require huge monetary speculation, delivering their exercises unbeneficial.

Lack of justice has been a great challenge in managing social conflict not only in Kenya but also in East Africa. Kenya has a robust legal institutional framework that was established with the intention of tackling, mitigating or managing social conflicts. Some of these legal

The politics in Tana River delta are really a challenge to the process of solving the social problems in the area.⁷⁴ This is due to the incitement and influence the politicians play and have to the resident people. For example Governor by then the Galole legislator and assistant livestock minister Mr. Dhadho Godhana did play a great impact in the process in the rise of the conflicts when the Pokomo raiders attacked the Ormo people leading to ten people killed after chickens raised their farm the Dhadho made a statement that led to him to cause more panic

⁷³ Agbese, Pita Ogaba. "Environmental challenges facing Africa: Governmental response." *Governmental Response to Environmental Challenges in Global Perspective* 6 (1998): 63.

⁷⁴ Johansson, Emma. "Participatory futures thinking in the African context of sustainability challenges and socio-environmental change." *Ecology and Society* 26, no. 4 (2021).

and led to death of many people. Thus politics play major role in solving the problem thus it's causing a challenge.

Lack of well-established rights on the possession of wealth and lands in Kenya is another challenge. Land ownership is a challenge in solving the problems. This is due to illegal ways that occurs due to lack of the appropriate issuance of well certified papers that needed by the land commission. Also other bodies such the NEMA and Garbage collections needs to establish the projects that are to be established because some investors do just decide to set up structures without the appropriate stakeholders involved in the process they end up causing conflicts with the resident people. For example in Tana River delta, a place called Tarassa, conflict did arise between the Pokomo and the Ormo resulting to killings of even the police officers. Due to lack of well-established boundaries by lands commission is another challenge that is causing the conflicts thus a challenge in solving the conflicts.⁷⁵

3.3.3 Corruption and land grabbing

Lack of transparency coupled with land grabbing are other challenges that resulted and contributed to social conflict among the communities along the River Tana Delta.⁷⁶ People have grabbed the land for themselves and even subdivided the illegally acquired land leaving the majority of the local communities with less land to cultivate and undertake their economic generating activities such as pastoralists and fishing activities. This has resulted in conflict due competition over scarce resources among the locals. Hence any trigger amongst the local may lead to conflict as they compete amongst themselves.

Corruption by senior government officials, county government and business persons in Tana River delta have contributed to another challenge in the process of solving social conflict

⁷⁵ Lutta, Alphayo I., Oliver V. Wasonga, Lance W. Robinson, Moses M. Nyangito, and Jason Sircely. "Determinants of livestock market participation among pastoral communities of Tana River County, Kenya." *Environment, Development and Sustainability* 23, no. 5 (2021): 7393-7411.

⁷⁶ Nkansah-Dwamena, Ernest. "Can large-scale land acquisition deals improve livelihoods and lift people out of poverty in Sub-Saharan Africa?" *Journal of Agriculture, Food Systems, and Community Development* 10, no. 3 (2021): 1-22.

management. This is because some people have grabbed the land and leased it to the private companies such as the Sugar Company, oil and Grain Company. This has led to displacement of people from their original place of residence and reduction of grazing and farming fields. This has led to competition of small pieces of land left in the process fuelling conflict, as the resources are scarce to satisfy the needs and wants of persons affected.

3.3.4 Pollution

Pollution from the factories and other developmental projects such as the Nunow grain companies sugar and other related companies have caused a huge problem in solving the social conflict management. This is because the residents are never happy with the environmental problems that is directed to the environment that has caused pollution that led to change of the climatic conditions exposing them to the unnecessary drought that led to lack of water and pastures to feed the animals despite of the complains to the government and related environmental bodies such as the NEMA nothing is being done this led unnecessary demonstration that results to conflicts.

Some of the agricultural activities such as the intensive cropping and also the massive loss of the top soil for farming of fish have led to destruction of biodiversity this led to establishment of catchment areas which led to climatically changes posing a threat to food insecurity.

The manner in which licenses and environmental assessment certificates are issued without proper due diligence has been questionable; this led to private investors ignoring the law of controlling the pollution or investors using the shortcuts this causes pollution that is directed to environment where the human life thrive.⁷⁷ This causes chaos because even the locals are not involved in the process issuing or leasing the land. Due to this these investors even tend to envisage the lands that belong to the people of the residential places sometimes after the

⁷⁷ Gitau, Peter, Stéphanie Duvail, Dirk Verschuren, and Dominique Guillaud. "Geomorphological and vulnerability analysis of a coastal delta under increased hydrological alteration over the past two centuries: Tana River delta, Kenya, East Africa." In EGU General Assembly Conference Abstracts, pp. EGU21-15404. 2021.

contract has ended the investors tend to leave the place without proper compensation in the delta thus people tend to get frustrated and this results to conflict thus it becomes a challenge to social conflict management in the Tana River.

3.3.5 Colonial policies, change in social life and cultural life

The Tana River has been the place of farmers and cattle herders between the Pokomo, Ormo and the Turkana. The communities lived with harmony peace and love for each of them during this era structure such as the grazing fields watering points were being shared without the conflicts during the pre-colonial era. During colonial times, the British came with up the rules that led to separation like they set up the boundaries that led to marginalization on economic and political within the people.⁷⁸ They even discouraged cattle keeping because they had major goal in producing goods for their countries and they relied on the agriculture. Due to this people who were cattle herders were used as the labourers in the farming fields through this they could not access grazing fields.⁷⁹ This led to change of social life and the cultural life they had before. This till now not all it caused problems that led to conflicts even today but they also caused territorial conflicts and at the same time ethnical conflicts.

When the colonies left, the new system of governance did adopt the same method and type from of the British government that created more of the problems such as the divisiveness and also encouraging the territorial system causing more drastic change in the social and cultural life among these tribes apart from that the local method of solving was discouraged and court ruling system was encouraged this till is on progress this has created more problems to conflict solving management.

3.5.6 Poverty and lack of alternative sources of earning the living

⁷⁸ Cockerill, Kasmira, and Shannon Hagerman. "Historical insights for understanding the emergence of community-based conservation in Kenya: international agendas, colonial legacies, and contested worldviews." *Ecology and Society* 25, no. 2 (2020).

⁷⁹ Musyoka, Victor Volisi. "Agro-Pastoral Conflicts And Cooperation In Kenya: The Case Of Orma And Pokomo In Tana Delta, 1992-2017." PhD diss., University of Nairobi, 2019.

Tana River delta is an area that is characterized with pastoral lives, mixed farming and marginal mixed farming in places such as the Bura region, the Hola areas and of course the Garsen area that is inhabited with Pokomo, Ormo and Wardei residents. Due to underdeveloped structures such the roads, social amenities and poor communication technology with the droughts that are experienced by the place makes them be poor. At the same time the wildlife and tourism sector is affected during the droughts and that means that the tourism cannot support the entire people in provision of the employment.

Those who depend on farming the major source of rains is from floods from the river which only occurs during the rainy season so therefore this means during the dry periods there is not enough food and water to support the people around and at the same time the animal. The area is also characteristics with widow and widowers orphans and disabled that occurred due to the conflicts that led to people dying, injured and at the same losing the properties they used to own.

In this communities they tend to believe a poor person has no cattle, has no sheep has no goats and even the camels. And since the areas surrounding they live has no places where they can be employed and achieve all the required needs, the agricultural itself is not able to support the life, then they end up looking for other methods of getting the wealth, they end up cattle raiding and practicing the illegal activities that led to lose of life and more damage to the wealth. For example the Ormo can still from the Pokomo and in the process conflict occurs thus a challenge to the social conflict management.⁸⁰

3.5.7 Insecurity and poor governance

⁸⁰ Lawrence, Asige M., John N. Kungu, Phillip K. Chemelil, and Vitalis A. Ngore. "Community based approach to sustainable national development: A panacea for negative ethnicity in Kenya." (2021).

Poor governance and rules that govern the entire thing of the governance has never been followed, this is due to ignorance and the bodies governing the entire law amendments not serious or failing to implement the laws, this is the major reasons as to why there are the serious cases of conflicts towards election. This is evidenced during the 2013 where the candidates from both the Pokomo and the Ormo did go for the election this caused the tension because they thought that the elites would arrange the attacks between the rivals and this leads to fierce attacks from the both sides.

Due to insecurities there has been even funding of the retired army officials to train the villagers from the Pokomo people thus is a problem that results threat to the national security because some prominent business and politicians are involved in the conflicts for their personal gains in the process there are a lot of endless fights

Despite of the Tana River being the ecological significance with mangrove trees, woodlands and delta forming the ox-bow lakes, the Pokomo and Ormo people are sedentary and cattle travellers and they do so to look for pastures and grass for their animals.⁸¹ The new place where they inhabit they may cause more conflicts because they are too tending to displace other people or animals that live in the new places. During the returning home of their original places there areas maybe inhabited with other groups this cause more of the conflicts.

The inadequacy of proper response and action by the relevant authorities such as the army or the police is another challenge that has ever led to the constant fights and conflicts in the delta between the Pokomo and the Ormo. Lack of immediate tensions and panics brings about conflicts.

Sometimes those who are involved are arrested and later released i.e 2013 some of the Perpetrators were rarely arrested and almost immediately released, at the same time the police

⁸¹ Langat, Philip Kibet, Lalit Kumar, and Richard Koech. "GIS-based geomorphometric analysis for potential applications in reversing land and biosystem degradation." *Environmental Monitoring and Assessment* 192, no. 10 (2020): 1-14.

ignored warnings of local residents about the intended and upcoming inter-ethnic conflict between the Pokomo and Ormo people in the late and 2012- 2013 respectively. Despite of the other law and order agencies like General Service Unit (GSU), a paramilitary wing in the national deployed there was a lot of complains of the excessive use of force this escalated the conflicts even more because they used more force in the process neutralizing the armed pokot and Ormo people as they felt isolated and due to this there intended to protect themselves this brought a lot tension that results to conflicts.

Even the individual who are caught with the law they tend to be charged and jailed however this tends to create more of the problems to the society because they tend to encourage inclusion of the other stakeholders such as the community piece community, the community council of elders, regions leaders and even gold the public community barazas this to solve the problems locally and not involve the government when the government try to enforce the law they cause more tension rising more problems in the process of solving conflicts this is due to the notion that the notion the society have develop that the formal justices referred to as the :quasi-judicial forums : is more just than the governments justice thus causes the disagreement. Through this then causes a challenge to conflict solving management.

3.5.8 Low education and high level of illiteracy

Tana River delta has experienced a series of the conflicts resulting into destabilizations in the normal way of people behaves and carry themselves within the given society.⁸² Since education plays a lot of key role in solving the conflicts lack of it in the place it's causing more problems even now. During this clashes the learning intuition are affected and destroyed. This makes education accessibility a problem to these areas. The Pokomo and the Ormo are travellers that

⁸² Kipkemoi, Shadrack. "Natural resources based conflict, A case sudy of Tana river county, Kenya." PhD diss., University of Nairobi, 2018.

go around looking for the pastures and grass for their cattle at the same time they look for water as they move they cause the distraction to learners. During the clashes the children are affected, the girl child is raped this led to unplanned pregnancy, contracting the diseases and other physical harm that discourage one from schooling.

One of the reasons for schooling is to know we can solve problems, we learn the effects of the ethnic clashes through the education, we as well learn on how we can live in harmony and peace within ourselves. The places that can provide this basic knowledge is schools and the moment they learners are enrolled the system is affected in between and this disrupts. Those even cause teachers not to teach effectively because they are always worried of their security.

What happens is the boy child introduced to be taking care of the cattle and practicing cultural norms rather schooling. This process leads to illiteracy level increasing in the area. This means that the appropriate method of solving a problem is to follow some steps and logic to get the agreement when there is a disagreement and not always revenging and taking illegal measures on their hands. Due to lack of civilized knowledge a lot of conflicts are arising and this is a problem to the conflict solving management.

3.5.9 Population Explosion

In the Tana River delta the population increase on an alarming rate and this has led to the conflict increase due to the competition on between the Pokomo and the Ormo people as they are competing with the insufficient resources land and pastures and water.⁸³ This has also caused people to rationalize the lands into the private and public sectors that has led to complexity and overdue use of the land rights leading to misunderstanding on the rules that govern the land leasing, usufruct and even freehold rights and this causes a problem to conflict solving problems because the Pokomo claim the land is there's for farming and the Ormo also

⁸³ Etefa, Tsega. "Neither Malkas Nor Shambas: Oromo and Pokomo Conflict, 1991–2013." In *The Origins of Ethnic Conflict in Africa*, pp. 161-185. Palgrave Macmillan, Cham, 2019.

claim that the land is there's for cattle feeding this led to violence eruption when herds are driven onto cultivated land.⁸⁴ Due to insufficient funds and high population even the Ormo people have also started practicing the farming in order to satisfy their needs and this has caused a lot of competition between the land and conflicts is at high alarming rate thus a problem to conflict management in Tana River delta.

Due to the rise in population on the delta that has frequently caused the conflicts, some agencies have been developed such as the land commission adjudication whose aim was to look for ensuring the conflict ending in the areas, they decided to privatize the lands these even escalated the conflict because the owners knew their land were to be grabbed and taken leading to the tension in the processes a lot of conflict did arise and this was a total problem.

Because of the wetlands and being attractive even the international and potential investors have probed in the delta in the name of doing the investments they have occupied some section and high percentage for private investments such as the biofuel crops, farming the food in intensive scale this has led to an increased conflicts in the area.

In Tana River there are too many important aspects that will always make an area to be useful or important for many people to get attracted there for investments and economical. In the river delta, there has been an increase in habitation of the land due to availability of land for agricultural activities especially in the upper part of the delta.

Tana delta experiences low and unevenly distributed rains, but despite of these this people do cultivations and they keep animals which are important to their daily and economy development. Due to availability of the animal products and agricultural produce and a lot of people are practicing the common activity, it results to competition for ready markets, and also competition from other sectors of the economy this may led to individuals experience tension

⁸⁴ Seter, Hanne, Ole Magnus Theisen, and Janpeter Schilling. "All about water and land? Resource-related conflicts in East and West Africa revisited." *GeoJournal* 83, no. 1 (2018): 169-187.

that can lead to conflicts. Because of the favorable conditions, this leads to attraction of more people to migrate from their rural area of residence to urban to practice agriculture. Due to high demand of the resources which is not sufficient enough to support all the people, the competition for everyone to earn a living, pressure do rise and this causes tensions that lead to conflicts in the society. This is a challenge that to conflict solving management

3.5.11 Inadequate infrastructure

Infrastructure in Tana delta region is not properly developed. This poses a challenge to the area because people do not access the necessary required services. For example accessibilities to social amenities like the hospitals and schools are somehow affected because structures on the area are not well established. During the rainy season there is limited accessibility towards ready market because essential services are not easily transported this may result to agricultural perishable goods to get spoiled. During the emergency the transportation for the necessary services are not easily provided. These include emergency medical assistance, and as well the securing services

Due to underdevelopment of these roads, there are high chances of insecurities within the area and even unnecessary attacks from the lazy people and the bandits. Communication satellites are not yet established so due to this factor, provision of essential services such as the communications and networking becomes a challenge. Due to this series of undeveloped infrastructure within this places, the individuals feels rejected, isolated and discriminated, due to this people get frustrated and unnecessary demonstration can take place that leads to destruction of other facilities and this causes tensions that led to conflicts thus becoming the challenge to problem solving management in Tana delta.

3.5.12 Unregulated Mining and exploration activities

This is one of the developmental activities that are required for the economy to grow and at the same time create and generate the employment for the residents, however, this activity creates

a lot of challenges that are either affecting the environment and to the individuals, and this causes displacement of people and wildlife.⁸⁵ In the process there arise the conflict between the human and the animals on the wildlife and this leads to people try to defend themselves from the attacks in the process a loss of lives occurs. This creates conflicts to bodies like the KWS and the individual s. At the same time the open ditches left mining becomes the natural site for breeding grounds for insects that causes the diseases such as the Malaria this causes the disease to the individuals.⁸⁶ This results to people feeling sick and even some of them dying due to the sickness and unavailable hospitals. This makes the process of solving the conflict became a challenge because the residents are angry over the county and national government this causes conflicts because if one has to obtain the medics then he/ she has to incur the cost this is evident in places that are far end to Garsen and interior parts of Bura and Hola.

Due to unemployment problems the individuals go looking for the jobs in these mining fields. Some of them get accidents and are not compensated in the process this leads to conflicts sometimes the companies that run the mining may experience financial setbacks this in the process causes the delay to the payments to the workers and in the process they start conflicts During the establishment of the places where mining is to occur, the companies do not involve all the stakeholders involved at the same time the individuals are left without being involved. When the structures were started for example the Bura areas where oil company is established, causes the displacements of the animals and human beings this leads to conflicts within the individuals and the company this has becomes a challenge in solving the social conflict management in Tana River Delta.⁸⁷

3.5.12 Perennial Flooding

⁸⁵ Hanshi, Nasra. "An analysis of local dynamics in conflicts over use of natural resources in the Tana delta region, Tana river county, Kenya." PhD diss., University of Nairobi, 2017.

⁸⁶ Mulambalah, Chrispinus Siteti. "An evolving malaria epidemic in Kenya: A regional alert." (2018).

⁸⁷ Ibid

During the rainy season there is a lot of flooding taking place expect in the month of March and May October and December the rest of the times is rainy in Tana River Delta. These causes displacement of the Ormo and Pokomo individuals and animals in the process. Conflict may arise in resettlement process due to the fact that the floods continue to eat away the already limited resource especially farming and grazing areas reduces. In the process they occurs disputes and conflicts arise.⁸⁸

Misuse of emergency funds is another problem that is real escalating the conflicts issues between the Pokomo and the Ormo. But due to corruption the money may be diverted to do a different thing. During the emergency the developmental fee is converted to help the situation. The developmental projects are delayed the people starts complaining thus conflicts do arise. During this flooding some individuals suffer from diseases such cholera and malaria can lead to death and the sufferings. Since the individuals cannot access the social amenities like the dispensaries and the hospitals these leads to residents annoyed and may start causing the conflicts. These natural calamities cause instabilities that cause conflicts thus making it challenging for the social conflict within Tana River Delta

3.6 Conclusion

From this chapter it's evident that there are numerous causes of environmental degradation in the Tana Delta. For example industrial pollution which causes the degradation of the quality and quantity of natural resources such as air, land and water. Different kinds of human activities

⁸⁸ Kuso, H., Benards Okeyo, and Hilda Ongayo. "Determination of the status and factors influencing occurrence and adequacy of *Panicum maximum* (Guinea grass) in Tana Delta, Kenya." *Journal of Natural Sciences Research* 8, no. 18 (2018).

are the main reasons for environmental degradation.⁸⁹ Activities such as deforestation along the river tana has been ma major contributor of environmental degradation accelerating the level desertification. This high rate of clearing the forests and vegetation leads to the natural habitat being destroyed, affecting the natural habitats for wildlife and even some species being extinct at the same time valuable herbs for medicine are affected thus the land becomes degraded.⁹⁰ Forest clearance results in global warming, thus desertification leading to the land being degraded. This causes of environmental degradation result into limited resources which are available natural resources that is land for suitable for agriculture is reduced, pasture lands for livestock shrinks while water pollution leads to reduced fishing activities. Limited resources in turn leads to conflict among the local communities; who scramble and protect the scarce resources fiercely. Environmental degradation in the Delta is both a trigger and catalyst to social conflict amongst local communities.

⁸⁹ Chopra, Rajiv. "Environmental degradation in India: causes and consequences." *International journal of applied environmental sciences* 11, no. 6 (2016): 1593-1601.

⁹⁰ Anyinam, Charles. "Ecology and ethnomedicine: exploring links between current environmental crisis and indigenous medical practices." *Social science & medicine* 40, no. 3 (1995): 321-329.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS OF RESULTS

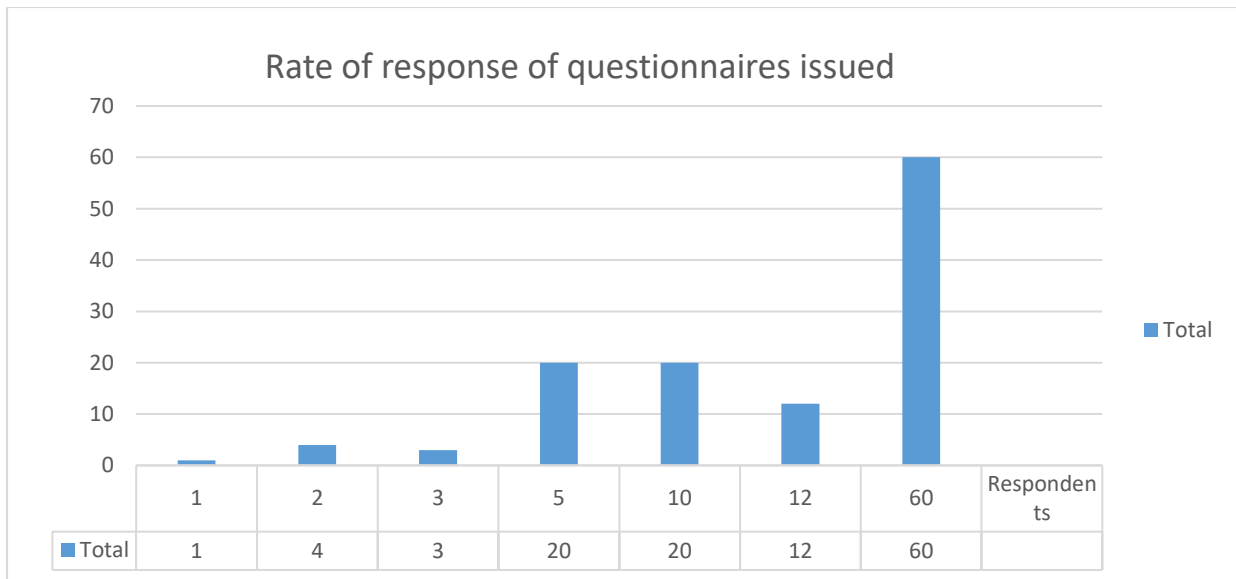
4.1 Introduction

This chapter presents the analysed data and discusses the interpretation of the findings. The data analysed was presented both using frequencies and percentages using frequency tables. The data related to the factors that influenced conflicts between communities was also analysed and tested using the Chi-square to test for its correlation with the dependent variable. Lastly, discussions were made based on the data presented and analysed.

4.2 Response Rate

60 questionnaires were distributed to respondents through email and thereafter followed up through telephone to confirm receipt of the same, 50 were properly filled and emailed back, and 10 were filled through telephone conversation thus giving 100% response rate in this study. The questionnaires were analysed and constituted to the discussions made in this study report.

Category of Respondent	issued to respondents	returned from Respondents	Response rate
Provincial Administration	5	5	100%
Security Personnel	3	3	100%
Intelligence officers	2	2	100%
Political Leaders	5	5	100%
Commissioners	1	1	100%
Civil Society Organizations	5	5	100%
Human Rights Organizations	5	5	100%
Faith Based Organizations	2	2	100%
IDPs	12	12	100%
Village elders	10	10	100%
Women leaders	10	10	100%
Total	60	60	100%



In this study, the questionnaire response rate was quite recommended and therefore acceptable for analysis.

4.3 Demographic profile

The demographic history of the respondents was analysed and presented in this part. Eleven (11) categories of respondents were involved in this study and respondents were chosen by virtue of their correlation with the subject under review in order to take part in the study. This study sought to find out the age, gender, marital status, family size and the employment status of the respondents. An account of the analysis was summarized and below. Table 4.2 depicts that 53.3% of the respondents involved in this study were males with 46.7% being females. The analysis of study is indicative of the female representation in sharing of opinions of the subject under review. Since the effects of the conflicts had a negative impact on the women, it was possible that opinions made available from the respondents represented issues relating to diverse community categories.

Gender	PA	Security personnel	Intelligence Officer	Political leaders	Commissioner	Organizator	IDPs	Opinion leaders	%
Male	5	2	2	4	1	7	5	8	53.30%
Female	0	1	0	1	0	5	7	12	46.70%
Total	5	3	2	5	1	12	12	20	100%

4.3.1 Distribution of respondents by Gender

Gender determination was analysed and reported as follows;

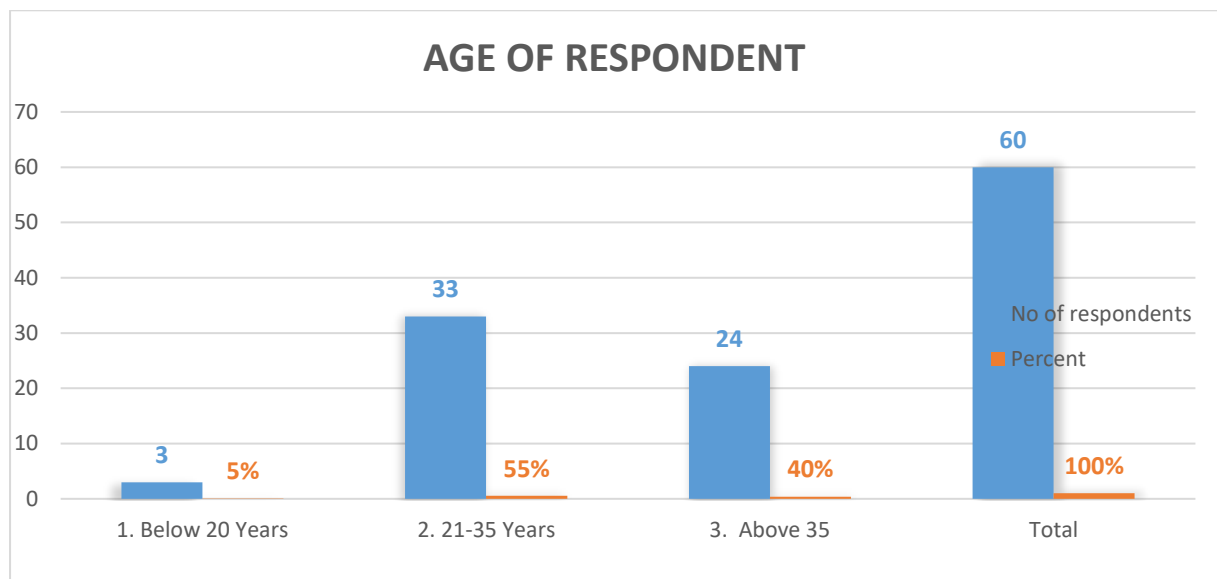


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4.3.2 Age representation in the study

Table 4.3 below shows the distribution of respondents by age.

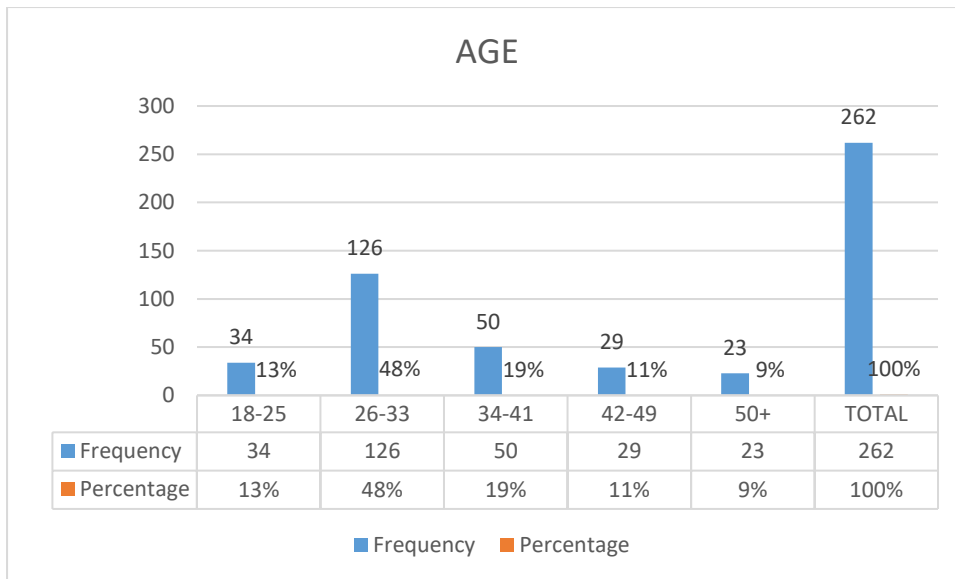
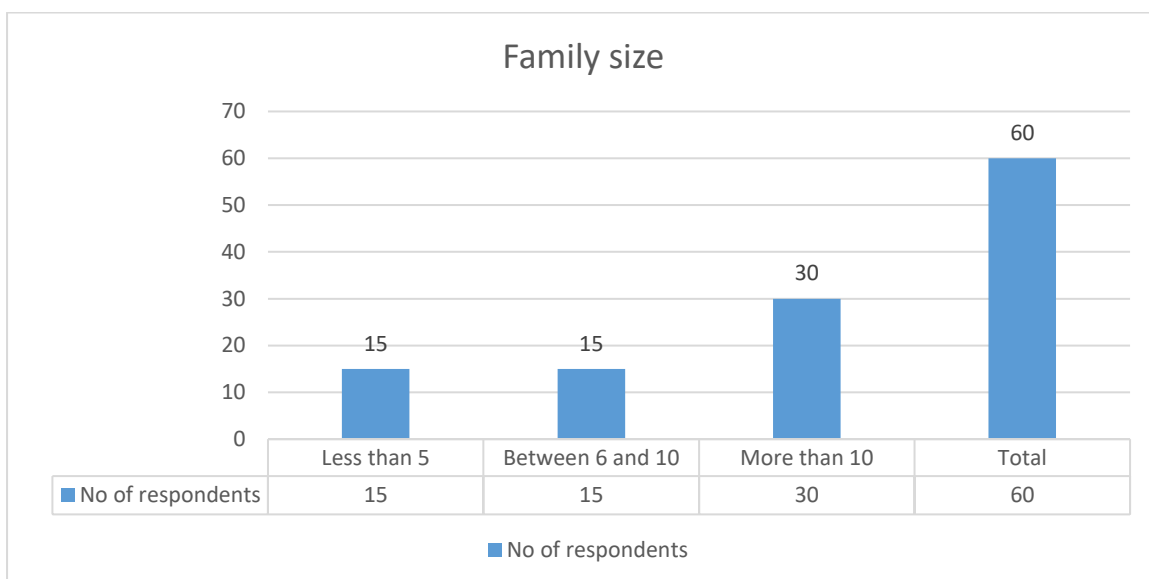


Table 4.3 above shows that majority of the respondents were between the youthful ages of 21 to 35 years. The fact that the study reached youthful respondents could clearly be indicative of the fact that information would greatly be availed since conflicts were more profound within this youthful age. It was however important to note that 40% of the respondents were above 35 years of age.

4.3.4 Determination of family size of the respondents

Analysis of the family size gave rise to the following findings.



The table above shows that the majority of the respondents had a huge number of dependants behind them with 50% (n=30) having more than 10 members in their families. This analysis showed the intense of family responsibilities in the area and thus a tip of violence that affected the household head was relative to the suffering of many of family members.

4.4 Causes and Impacts of environmental degradation Causes

a) Inadequate land tenure policies

The Tana River Delta has featured a lot in this blog, but not recently. As a Researcher, I have received updates from Helen Byron who, as the RSPB’s Senior International Site Casework Officer, has been working closely with our partners, BirdLife Kenya in their campaign to save the Delta. The updates have concentrated on how land along the Delta has had some conflicts especially when it came to utilization on the entire social integration.

The research purposely had to validate these updates and came up with an analysis of findings as discussed.

4.5.1 Determination of land as a source of conflict in Tana Delta

The study sought to find out if land was one of the factors that influenced and contributed to violence and conflicts in this area and findings were as shown in table below.

Table 8: **Determination of land as a source of conflict**

Response category	No of respondents	Percentage proportion
Yes	52	86.7%
No	5	8.3%
Don’t Know	3	5%
Total	60	100.00%

It seemed was evident that land was a source of conflict as reported by 86.7% majority of the respondents covered in this study with only 8.3% reporting the contrary. It should also be noted that a minority of 5% did not know if land was a source of conflict. It could possibly be concluded that land in Tana Delta had its own challenges and thus conflicts were inevitable.

4.5.2 Community land ownership and use

<i>Do most of the community members own land?</i>		
Response category	No of respondents	Percentage proportion
Yes	55	91.7%
No	4	6.7%
Don't Know	1	1.6%

<i>Is the land owned by the community enough for their use?</i>		
Yes	48	80%
No	12	20%
Total	60	100.00%

The study sought to find out the extent of community ownership on land and findings tabled below. The table above indicates that depicts a majority of 91.7% of the respondents indicating that the community owned land while only 6.7% minority denied. It was however noted that 1.6% did not know if the community owned land or not.

An in-depth interview on whether the land owned was enough for their use was made and findings recorded as below. 80% of the respondents express community satisfaction of their land use while the remaining 20% reported that the community land was not sufficient for their use. It was however noted that majority of the community members who reported to have enough land for their use were the Pokomo community while in the other case, the Orma, who moved from one place to another were not contented with the size of their land. Further analysis

of the findings revealed a significant proportion of 58% respondents reporting that the Pokomos' land was quite fertile and ample for their agricultural use, produced enough pasture which in most cases tempted the Ormas to graze on their lands, thus conflicts.

4.5.3 The main land use in Tana Delta

It was important to establish the main use of land in Tana Delta and the study revealed the following findings from the interviews conducted.

Table 10: Main land use

Land use	No of respondents	Percentage proportion	Cumulative Percentage
• Crop production	26	43.3%	43.3%
• Pastoralism	23	38.3%	81.6%
• Homesteads	10	16.7%	98.3%
• Wild life	1	1.7%	100%
Total	60	100.00%	

The analysis above indicates that crop production was the main land use in Tana Delta as reported by 43.3% majority while pastoralism was reported by 38.3% of the respondents in this study. It was important to note that crop production and pastoralism formed the basic land uses in Tana Delta since it represented of 81.6% coverage. This could be attributed to the fact that majority of the communities living in the area were the Pokomos and Ormas who were farmers and herders respectively. 16.7% of the respondents were of the opinion that land in the area was mainly used for homesteads while a minority of 1.7% indicated that wild life was main.

4.6.1 How the Pokomos and Ormas were governed

The study sought to find out how the communities within the Tana Delta were governed and the following was reported. Majority of the respondents (91.7%) reported that the traditional

governance system for the communities in the Tana delta comprised of the lower ranked village elders who were rooted at the community. 83% of the respondents added the Chief's administration besides the village elders while the upper ranked provincial administration.

It was noted that some of the respondents recognized the governance of religious leaders. This comprised of 12% of the respondents while 3.1% did not have any idea about the traditional governance system.

Earlier inferences revealed in the literature inferred that chiefs and the village elders within the communities had a stake in the conflicts that saw over 100 people dead and loss of livestock in the Tana Delta. This prompted the study to establish how the chiefs and village elders formed the traditional governance within Tana Delta.

4.6.2 Strength of Chiefs and Village Elders

The study sought to find out whether the chiefs and village elders within Tana Delta were strong enough to manage conflicts at the community level and findings of the same recorded in the table below.

Table 13: Determination of whether the Chiefs were strong enough

Response category	No of respondents	Percentage proportion
Yes	38	63.3%
No	22	36.7%
Total	60	100.00%

The analysis above depicts that majority of the respondents represented by 63.3% retorted that chiefs and village elders within the community were very strong. When asked how they thought the chiefs were strong, the respondents had this to say;

1. Disputes within the communities were easily solved at the chief's and village level by the traditional leaders.
2. Conflicts were detected and mitigated at the same level before they erupted.

3. The chiefs and village elders were centre of any development initiatives and the community members respected them since they represented the government at the lowest level.

However, 36.7% of the respondents were of the opinion that the chiefs and village elders were not strong at the community level since they were corrupt, not educated, not development conscious as well as greedy and self-centred. They did not earn respect at the community level. While these respondents raised sentiments contrary to others, it should be noted that the dissatisfaction was raised by the fact that some of the conflicts that were experienced within the community level were as a result of the incapacity of the chiefs and village elders.

4.6.3 Part played by the religious leaders

The study revealed that the religious leaders took part in manage conflicts within the Tana Delta area. Some of the efforts made by the religious leaders were recorded below.

45% of the respondents reported that they had been involved in forums called upon by the religious elders to reconcile the two communities while a significant proportion of 32% indicated that the religious leaders had been an important partner in sensitizing the community on the fear of God to solve conflicts.

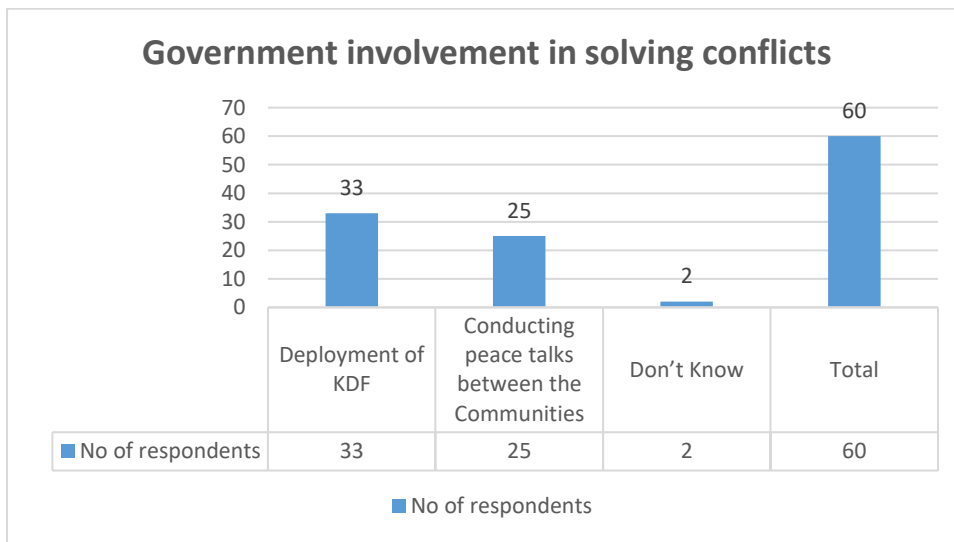
It was important to note that 23% of the respondents had not seen any effort made by the religious leaders in the conflict management in Tana Delta. The foregoing analysis indicates that religious leaders formed a very key component in the community governance especially in conflict management.

Further analysis of the findings revealed that other partners including the local organizations help in mitigating the conflict by organizing forums and meetings to discuss on lasting solution on the conflicts.

4.6.4 Government involvement

The study sought to find out how the government intervened in solving the conflicts within the area and findings recoded as shown in the table below.

Table 14 Government involvement in solving conflicts



4.8 Government policies and conflicts between communities The extent of the conflicts within the two communities

The study sought to find out how the conflict started and the findings revealed during the interviews were as discussed below. A tribal conflict between the Orma and Pokomo began when Ormas livestock strayed in to the shambas and destroyed the crops where the Pokomos had to confront the Ormas and injured one person with an arrow. Ormas retaliated and drove the Pokomos away leaving the livestock to destroy their crops as quoted below;

“The problems between farmers and pastoralists have arisen when cattle belonging to Orma herdsmen strayed into Pokomo farmlands.” Ibrahim Dola – youth mobilizer and resident in Tana Delta.

The same sentiments were echoed during the interviews with majority of the stakeholders such as the Provincial Administration and the IDP in the camps. In addition, Pokomos solicited for support from their clan members and went back for revenge and the Ormas escaped for fear that they would be injured. The Pokomos killed livestock with Pangas and arrows, which accelerated the conflict.

“While Ormas were away, they amassed guns and support and came back for real battle; they invaded Kau Village belonging to the Pokomos, drove the Pokomos away, stole Household items, burnt houses, shot people killing 2 people and leaving 7 seriously injured and the conflicts took another course.” Narrates Red Cross Boss in Tana River.

4.9 The government security policy and conflict in Tana delta

The study sought to find out if the government policy had contributed to the conflicts in the area. 40% of the respondents confirmed that the government was to blame but a majority of 60% declined. Of those who declined, 55% were of the opinion that the government could not contribute to any conflict since it had mechanisms of protecting its citizens and that firing conflicts would be unconstitutional.

The fuel conspired by the politicians during the campaign period was presumed by a major factor that brought the government in the spot concerning the conflicts in the area as quoted; “Politicians come up with empty promises such as job provision and creation whenever an electioneering year is near, only for them to disappear or underperform, thus sowing a seed of hatred and hopelessness among the electorate, of whom a majority happen to be youths,” Local Opinion Leaders.

4.10 Government intervention to manage the conflict in Tana Delta

The study sought to find out if there had been any efforts by the government to manage the conflicts in Tana Delta and the findings were as discussed below;

a) Arrests and prosecution

90% of the respondents conformed that the government had intervened in mitigating the conflicts while 10% declined. It was further established that the 10% who declined comprised of the IDPs who thought the government had not satisfactorily responded to help them and rather left them at the mercies of nongovernmental organizations such as Red Cross among others. A proportion of 30% of the respondents reported various charges including incitement to violence and possession of illegal weapons having been made against the remaining suspects who had been arrested for various offenses.

b) Deployment of KDF

80% of the respondents reported that security in the area has been increased and a permanent detachment of the paramilitary General Service Unit (GSU) has been stationed in the conflict zones. The remaining 20% reported Check-ups at various road blocks having been beefed up leading to a thorough scrutiny of every vehicle and passenger travelling into the Tana Delta. Further analysis of the findings revealed that these check-ups were meant to ascertain that travellers do not carry guns into the conflict zones.

4.11 Discussions

Inferences drawn from this study give an account of the main factors that accelerated conflicts within Tana delta. In the analysis of the findings, the discussions could be summed up as follows;

Crop production and pastoralism formed the basic land uses in Tana Delta since it represented of 81.6% coverage. Several factors could have attributed to this. Some of these factors included

majority of the communities living in the area were the Pokomos and Ormas who were farmers and herders respectively. It clearly shows that the uses of land in the area would easily aggravate scramble for the same resource and thus conflicts were bound to happen to some extent especially on cases when land was not enough for their use as reported in this study report.

Cattle rustling on the other hand were considered as a culture within the Tana Delta, a factor that was confirmed by a majority which indicates that we could not reject the null hypothesis. While we accept the fact that cattle rustling is a culture as well as an indicator of conflict within the communities, it should be noted that the same act is encouraged by some communities especially those without cattle. It is therefore safe to conclude that rustling fills our list of the factors that accelerated conflicts in Tana Delta.⁹¹

Conflicts were highly caused by availability of weapons. The results clearly depicted that the availability of small weapons in the community significantly accelerated conflicts. Selling of small weapons in Tana Delta was inevitable due to the fact that the government had failed to control the inflow of the same. This study was informed further that it was quite easy to get weapons as majority of the members of the communities; both the herding and farming communities used weapons to guard their resources. In as much as weapons were used to guard the resources, it was worthwhile noting that the same could be used in times of conflicts and thus contributes to the massive deaths and loss of property as reported somewhere in this study.

It was important to note that while conflicts were rampant in the area, the government had made efforts in one way or the other to ensure there was enough security for the residents as

⁹¹ Kipkemoi, Shadrack. "Natural resources based conflict, A case study of Tana river county, Kenya." PhD diss., University of Nairobi, 2018.

well as ensuring that the conflicts was brought to a dead end. All the same, the government was on the spot for allegedly fuelling conflicts within the area and thus confirming fears from the public that its hand had great influence on the violence, deaths and loses.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.0. Introduction

This study sought to establish the impact of environmental degradation on social conflicts in East Africa , with the main focus being Tana delta in Kenya. In order to attain this end, the study was guided by three objectives, and these were, to explore the interactions between environmental degradation and social conflicts in East Africa generally and Kenya specifically; to evaluate the challenges of social conflict management within Tana Delta, Kenya and, to determine the efficacy of policy measures to mitigate social conflict through environmental management programs within Tana Delta, Tana River County. Moreover, three hypotheses also guided the study, and these were, Environmental degradation has a significant impact on socio-economic security in East Africa: Environmental degradation poses significant challenge on socio-economic security in Kenya Tana River County: There are adequate policy environmental measures to mitigate social conflicts in the Tana Delta, Kenya.

5.1 Summary

This summary will go by analysing objective by objective that guided this study. The first objective was to explore the interactions between environmental degradation and social conflicts in East Africa and more specifically Tana Delta in Kenya. The main causes of environmental degradation in East Africa include; deforestation this is becoming one of the greatest problems causing environmental degradation. For example, Ghana and sub-Saharan countries suffer a lot due to the lack of forest cover.⁹² Secondly another cause is poor agricultural practices, this entails Poor method of application of fertilizers and other chemicals

⁹² Haile, Gebremedhin Gebremeskel, Qihong Tang, Siao Sun, Zhongwei Huang, Xuejun Zhang, and Xingcai Liu. "Droughts in East Africa: Causes, impacts and resilience." *Earth-science reviews* 193 (2019): 146-161.

such as herbicides which control unwanted plant, weeds, overgrazing. In addition was identified as a major cause of environmental degradation. Another cause of environmental degradation is unregulated mining and construction, this leads to land not being used, and thus it's abandoned.

The chapter also looked at the impact of environmental degradation, the study found out that human health was greatly impacted negatively by environmental degradation. Environmental degradation had contributed to increased diseases and contributed to the loss of lives in some extreme cases. Environmental degradation negatively impacted the tourism sector, which greatly contributes to Kenya's economy.⁹³ Activities such as tour guides, showcasing of culture, hotels, fishing, among other tourism-related activities, are directly and indirectly affected by environmental damage in the form of air pollution from industries, water pollution, and loss of biodiversity discourage tourist activities. In addition environmental degradation erodes the country's economic gains as funds for economic development and growth are diverted for environmental restoration in activities such as undertaking major clean-ups, landfills, afforestation, environmental beautification programs, and the protection of endangered species.⁹⁴

The second objective of this study was to examine the challenges experienced in environmental degradation in the Tana Delta. From this objective it's evident that there are numerous causes of environmental degradation in the Tana Delta. For example industrial pollution which causes the degradation of the quality and quantity of natural resources such as air, land and water. Different kinds of human activities are the main reasons for environmental degradation.⁹⁵ Activities such as deforestation along the river tana has been ma major contributor of

⁹³ Khan, Naushad, Absar Ul Hassan, Shah Fahad, and Mahnoor Naushad. "Factors affecting tourism industry and its impacts on global economy of the world." Available at SSRN 3559353 (2020).

⁹⁴ Dada, James Temitope, and Taiwo Akinlo. "Foreign direct investment and poverty reduction in sub-Saharan Africa: does environmental degradation matter?." *Future Business Journal* 7, no. 1 (2021): 1-10.

⁹⁵ Chopra, Rajiv. "Environmental degradation in India: causes and consequences." *International journal of applied environmental sciences* 11, no. 6 (2016): 1593-1601.

environmental degradation accelerating the level desertification. This high rate of clearing the forests and vegetation leads to the natural habitat being destroyed, affecting the natural habitats for wildlife and even some species being extinct at the same time valuable herbs for medicine are affected thus the land becomes degraded.⁹⁶ Forest clearance results in global warming, thus desertification leading to the land being degraded. This causes of environmental degradation result into limited resources which are available natural resources that is land for suitable for agriculture is reduced, pasture lands for livestock shrinks while water pollution leads to reduced fishing activities. Limited resources in turn leads to conflict among the local communities; who scramble and protect the scarce resources fiercely. Environmental degradation in the Delta is both a trigger and catalyst to social conflict amongst local communities.

5.2 Conclusions

Inferences drawn from this study give an account of the main factors that accelerated conflicts within Tana delta. In the analysis of the findings, the discussions could be summed up as follows; Crop production and pastoralism formed the basic land uses in Tana Delta since it represented of 81.6% coverage. Several factors could have attributed to this. Some of these factors included majority of the communities living in the area were the Pokomos and Ormas who were farmers and herders respectively. It clearly shows that the uses of land in the area would easily aggravate scramble for the same resource and thus conflicts were bound to happen to some extent especially on cases when land was not enough for their use as reported in this study report.

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⁹⁶ Anyinam, Charles. "Ecology and ethnomedicine: exploring links between current environmental crisis and indigenous medical practices." *Social science & medicine* 40, no. 3 (1995): 321-329.

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Conflicts were highly caused by availability of weapons.⁹⁷ The results clearly depicted that the availability of small weapons in the community significantly accelerated conflicts. Selling of small weapons in Tana Delta was inevitable due to the fact that the government had failed to control the inflow of the same. This study was informed further that it was quite easy to get weapons as majority of the members of the communities; both the herding and farming communities used weapons to guard their resources. In as much as weapons were used to guard the resources, it was worthwhile noting that the same could be used in times of conflicts and thus contributes to the massive deaths and loss of property as reported somewhere in this study. It was important to note that while conflicts were rampant in the area, the government had made efforts in one way or the other to ensure there was enough security for the residents as well as ensuring that the conflicts was brought to a dead end. All the same, the government was on the spot for allegedly fuelling conflicts within the area and thus confirming fears from the public that its hand had great influence on the violence, deaths and loses.

5.3 Recommendations

The study recommends that, in a bid to address the social conflict linked to environmental degradation the government of Kenya should put in robust measures to ensure that the current existing laws of environmental conservation and protection are fully implemented by the relevant institutions under the Ministry of Environment so as to ensure the activities around and along River Tana are regulated. The County government of Tana River in conjunction with

⁹⁷ Latham, Andrew. "Light Weapons and Human Security—A Conceptual Overview." *Small Arms Control* (2019): 11-36.

the National government should address the high level of unemployment through creating alternative sources of economic activities so as to avert vices such as cattle rustling, resource based conflict.⁹⁸ Persons in elective and in the local leadership position should take an active role in sensitizing the communities the advantages of environmental conservation and peaceful co-existence. The leaders should advocate and champion for socio-economic programs and development projects such as roads to enhance the living standards of their communities. Local leaders should take charge of community conflict management resolution mechanisms, by engaging the community from the grassroots level.

The government should undertake a disarmament program among the conflicting communities and take out all the illegally acquired arms from the wrong hands. Lastly the government should secure porous borders to ensure illegal firearms are detected and seized before they fall into wrong hands. The Government should encourage community policing and work closely with the locals so as to obtain timely and reliable intelligence that may assist to deter future conflicts.

⁹⁸ Kipkemoi, Shadrack. "Natural resources based conflict, A case study of Tana river county, Kenya." PhD diss., University of Nairobi, 2018.

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Appendix 1 Questionnaire

Questionnaire :

PART A : Demographic characteristics

Tick as appropriate

i. Age

- (i) {18-31} []
- (ii) {32-45} []
- (iii){46-60} []

ii. Gender

- (i) {Male}
- (ii) {Female}

iii. Level of Education

- (i) PhD []
- (ii) Master []
- (iii) Bachelor’s Degree []
- (iv) Diploma []

iv. Years of Experience

- (i) 1-3 []
- (ii) 4-6 []
- (iii)7-10 []

v. Career

-
- iv) To explore the interactions between environmental degradation and social conflicts in East Africa generally and Kenya specifically.
 - v) To evaluate the challenges of social conflict management within Tana Delta, Kenya
 - vi) To determine the efficacy of policy measures to mitigate social conflict through environmental management programs within Tana Delta, Tana River County

PART B: the interactions between environmental degradation and social conflicts in East Africa generally and Kenya specifically.

6) What are the major causes of conflict in Kenya?

.....
.....
.....
.....

.....

7) Are you familiar with any environmental policies?

Yes []

No []

If yes give three examples of environmental policies in Kenya

a)
...

b)
....

c)
....

8) Does Kenya political class (legislature) include all actors in passing environmental laws

.....

PART C: Challenges of social conflict management within Tana Delta, Kenya the challenges of social conflict management within Tana Delta, Kenya

9) How effective is the use of the existing local traditional conflict resolution mechanism in enhancing environmental governance?

.....
.....
.....
.....
.

10) Are there any environmental local or external non-governmental organization in Kenya?

Yes []

No []

If yes name at least two

a)

b)

11) What is the role of environmental activism in enhancing environmental governance in Tana Delta?

.....
.....

.....
.....

Does political Instability affect environmental conservation in Kenya?

Yes

No

12) Does Kenya have the institutional, financial and political capacity to address environmental governance?

.....
.....
.....
.....

13) Does Kenya have a comprehensive regional peace and security framework that addresses the fundamental roots of political Instability?

.....

PART D: the efficacy of policy measures to mitigate social conflict through environmental management programs within Tana Delta, Tana River County

14) Are you aware of any environmental institution in Kenya?

Yes

No

If yes list at least two environmental institutions in Kenya

- a)
- b)

15) What are the major challenge hindering environmental institution in Kenya?

- a)
- b)
- c)
- d)
- e)

16) How effective are the environmental institution in implementing and enforcing environmental related policies?

Adequate

Not sure

Inadequate []

17) What are the recommendation measures to enhance environmental governance through institutional and environmental policies?

.....
.....
.....
.....

18) What should be done to strengthen the Peace and political stability in Kenya

.....
.....
.....
.....
.....
.....

Thank You