



UNIVERSITY OF NAIROBI

INSTITUTE OF DIPLOMACY AND INTERNATIONAL STUDIES

**CIVIL SOCIETY ORGANIZATIONS AND CLIMATE MITIGATION IN EAST
AFRICA.
A CASE STUDY OF KENYA**

BY

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DECLARATION

This research project is my original work and to the best of my knowledge has not been submitted to any other examination body for the award of any academic certification.

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This project has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

Dedicated to my family members and friends

ACKNOWLEDGEMENT

I recognize Almighty God's grace that has been sufficient to me as I undertake this study. I had good health to come this far. I also extend my gratitude to my supervisor Dr Shazia Chaudhry for her guidance that enabled me to come this far in writing this project. Lastly, my gratitude goes to Dr Isaac Tarus, my classmates and the entire fraternity of University of Nairobi for providing a great learning environment.

ACRONYMS

BAPA	Bangladesh Plan of Action
CA	Calcium
CL	Chlorine
CO ₂	Carbon dioxide
COD	Chemistry Oxygen Demand
CS	Cabinet Secretary
CSOs	Civil Society Organizations
CU	Copper
EAC	East African Community
EC	Emulsifiable Concentrate
FDP	Forestry Development Plan
GBM	Green Belt Movement
GCF	Green Climate Fund
GDP	Gross Domestic Product
GHGs	Green House Gases
IBM SPSS	Software package used for statistical analysis
IFAD	International Fund for Agricultural Development
IPCC	Intergovernmental Panel on Climate Change
KCCWG	Kenya Climate Change working groups
KECOFATUMA	Consortium to fight AIDS TB and Malaria
KRCS	Kenya Red Cross
KWS	Kenya Wildlife Service
LTD	Limited
LULUCF	Land Use, Land-Use Change, and Forestry
MW	Molecular Weight
NAP	National Adaptation Plans
NCCAP	National Climate Change Action Plan
NCCRS	National Climate Change Response Strategy

NGO	Non-Governmental Organization
OHCHR	Office of the High Commissioner for Human Rights
PB	Lead
PH	scale used to specify the acidity or basicity of a solution.
SMOs	Social Media Optimization
SNC	Second National Communication
TN	Tennessee
TP	Trispyrazolylborate
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	Reducing Emissions from Deforestation and forest Degradation
URCS	Uganda Red Cross
USAID	United Nations Aid
WCC	World Council of Churches

ABSTRACT

Countries across world are continuing to grapple with the drastic climate change effects. As it stands, Kenya is among the countries in East Africa experiencing climate change challenges to a greater extent. Civil Society organizations serve an integral role in climate change mitigation as they actively take part in reducing or preventing the drastic impacts of climate change on local communities. Knowledge on the challenges that CSOs face in mitigating climate change in Kenya as well as the roles they play is missing. The main objective of this study was therefore to evaluate the roles of CSOs and the challenges they face in mitigating climate change in Kenya. Specifically, the study aimed at assessing the mitigation strategies put up by CSOs in local communities in response climate change and the challenges that impede the success of interventions set up by CSOs to mitigate climate change. The methodological approaches that underpinned the study were descriptive-analytical research design where the qualitative method was used in data collection using questionnaires, focus group discussions, and observations from witnesses as well as secondary data. Primary data were collected from 100 respondents who included officials from Green Africa Foundation, Ministry of Environment and Forestry, and Kenya Climate Change working groups who were sampled through purposive sampling. Data were analyzed using IBM SPSS version 20. The findings of the study revealed that Kenya's climate change profile which includes prolonged and frequent droughts, irregular and unpredictable rainfall, rising temperatures wildfires, snow melting, and rising sea levels impede climate change mitigation. The findings also highlighted that CSOs face challenges such as inadequate financial support from the government, constant mistrust between them and the government, the government setting up regulations that do favor their interventions. The findings further revealed that CSOs in Kenya has set up various strategies to aid in climate change

mitigation such as replanting forests, emphasizing the need to shift to renewable sources of energy, proper land use, retrofitting buildings, and sustainable transport. The findings, therefore, suggest that CSOs have the potential of enhancing local mitigation to climate change through interventions that are tailored to fit the local context. The role of CSOs could be improved if the government rendered them enough support that would enhance their access to resources necessary for the effective mitigation of climate change.

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CHAPTER ONE

1.0 Introduction

Climate change has been identified by multiple scholars as a rising global challenge and has currently been a point of interest of studies. Due to the continuing increases in temperature levels, rising sea levels, floods, and drought spells, countries across the world have started considering the role of civil society organizations in climate change mitigation.¹ At the international level, the UNFCCC serves a significant role in ensuring that countries stabilize the concentrations of greenhouse gases to a level that would not allow for human-induced interference with climate through the Kyoto Protocol.² In addition, the Paris Agreement has also been adopted by nearly every country since 2015 in an attempt to address the negative impacts of climate change. The agreement comprises commitments from all countries which have been identified as major emitters of greenhouse gases to reduce the constant warming of the planet.³ At the international level, the role of civil society organizations (CSOs) in climate change mitigation has been explicitly stated in the Rio Declaration. An example of the stipulated roles includes the representation of disadvantaged and marginalized populations in climate change mitigation plans.

In addition, Africa, and most especially Eastern Africa, emerges as one of the highly vulnerable regions to climate change despite the fact they are among the regions whose

¹ Hitz, Samuel, and Joel Smith. "Estimating global impacts from climate change." *Global Environmental Change* 14, no. 3 (2004): 201-218.

² Horstmann, Britta, and Jonas Hein. *Aligning climate change mitigation and sustainable development under the UNFCCC: A critical assessment of the Clean Development Mechanism, the Green Climate Fund and REDD+*. No. 96. Studies, 2017.

³ Roelfsema, Mark, Mathijs Harmsen, Jos JG Olivier, Andries F. Hof, and Detlef P. van Vuuren. "Integrated assessment of international climate mitigation commitments outside the UNFCCC." *Global Environmental Change* 48 (2018): 67-75.

contributions to global emissions are highly the least.⁴ Climate change in Africa poses a significant threat since most of the countries are dependent on climate related sectors, such as forestry and agriculture, for economic growth. The Intergovernmental Panel on Climate Change (IPCC), which is the principal international body that assesses climate change identifies that land in Africa is experiencing warming as a result of climate change.⁵ In response to this, there is an urgent need to enhance climate mitigation strategies and efforts in Africa due to rising global warming. The role of civil society organizations has been integrated in Africa in agendas that push for the reduction of harmful greenhouse gas emissions. However, the role of CSOs has been impaired by the imbalances in power and resources, especially in developing countries.

The consequences of climate change in Kenya range from reductions in agricultural production which have translated to the problem of food insecurity emanating from irregular patterns of rainfall. In addition, recurrent and prolonged droughts have also been found to potentially bring about conflict between livestock and humans, as well as subject Kenyans to starvation. For instance, the La Nina droughts experienced in 1999-2000 left nearly 4.7 million Kenyans subjected to starvation.⁶ Besides, the continuing rise of temperature has contributed to the spread of vector-borne illnesses such as malaria in parts of the country where it is not known to be endemic. In response to these drastic impacts of climate change, Kenya under the EAC has put up a legal framework, and an enabled policy to aid in addressing climate change issues.⁷ Kenya is very clear on the role that governments have in the protection of natural resources for

⁴ Otter, Luanne, Daniel O. Olago, and Isabelle Niang, eds. *Global change processes and impacts in Africa: A synthesis*. East African Publishers, 2007.

⁵ Madziwa, Farayi, and Carola Betzold. 2014. *20 years of African CSO involvement in Climate Change Negotiations Priorities, Strategies and Actions*. Johannesburg : Heinrich Boll Stiftung.

⁶ Government of Kenya. 2010. *National Climate Change Response Strategy*. Nairobi: Government of Kenya.

⁷ IUCN. 2015. *Strategy and Guidelines for Integrating Climate Change Adaptation Approaches in Trans-boundary Ecosystem Management in East Africa*. Nairobi: Global Water Partnership Eastern Africa.

the benefit of the public. Kenya also recognizes the importance of integrating civil society organizations and therefore makes attempts to provide a good platform to enable coordination and collaboration among various stakeholders in addressing climate change issues.

1.1 Background to the study

Climate change is being experienced across the globe in various degrees as judged by the severity, frequency, and length of the occurrence of extreme events. Countries all over the world are still grappling with the impacts of climate change, especially those experienced locally. There have been intense disagreements between countries regarding the compliance to the climate change mitigation plans in the Paris Agreement and Kyoto Protocol which is an indication of the complex nature of climate change. Meeting the targets of reducing the greenhouse emissions in countries has been slowed down or rather stalled due to disagreements, humongous costs, painful tradeoffs, and the thorny moral and ethical issues involved.⁸ It is much evident that investments, technology, and policies and regulations by governments alone will not be able to provide a solution to the climate change crisis.

Most of the developing countries have implemented climate mitigation strategies that are strongly biased towards the development of natural resources that are managed by the state, infrastructure, and technology. This implies that the climate mitigation strategies are largely dominated by state agencies. Civil society organizations have played a limited role in the formulation of climate change mitigation strategies and policies. Despite the fact that the role of stakeholders and communities as well as of empowered and enlightened citizens are recognized as useful in the implementation of these strategies and policies in Kenya, little thought has been given to provide a framework of their active involvement in an ongoing process. Besides, there

⁸ Canales, Nelly. n.d. *Civil Society and the Integration of Climate Change Risks into Planning and Policy-making*. Washington: World Resources Institute.

are limited to no significant resources which have been set aside for the systemic raising of awareness, capacity building, and for the creation of a framework that could potentially enable policy change and citizen engagement.⁹ As a result, the intended objectives of climate change mitigation may not be fulfilled.

Civil society organizations fill the spaces between private actors, specialized institutions, and national governments by virtue of the role that they play in aiding communities in the reduction of climate change impacts. Given that CSOs are close to the people at the grassroots level, they can help in the determination of the degree of climate change impacts on local communities and offer effective responses. For instance, CSOs can mitigate the effects of drought in rural areas by ensuring strong, equitable sharing of water. Precisely, most of the climate change mitigation strategies can be sustainably managed and effectively enforced by representative local bodies such as CSOs. The focus on climate change has not been on adaptation but on the mitigation of carbon and methane gas emissions.¹⁰

Given the scale and complexity of climate change, there is a need for the pooling of coordinated efforts of various stakeholders in local communities extending to regional, national, and global levels.¹¹ The inclusion of CSOs in climate change mitigation arrangements may facilitate engagement at the community level and improved ownership of climate mitigation measures that are being undertaken. CSOs have also been identified as having the capacity to finetuning interventions and anticipating extreme events, which all form a basis for the establishment of

⁹ Jones, A. "Pro-poor governance of global adaptation funds." *Pro-poor governance of global adaptation funds*. (2009).

¹⁰ Kibe, W.G., 2018. *Effectiveness of Kenya's Climate Change Mitigation Strategies after the Ratification of United Nations Framework Convention on Climate Change (UNFCCC) Protocols* (Doctoral dissertation, United States International University-Africa).

¹¹ Agrawal, Arun. "Local institutions and adaptation to climate change." *Social dimensions of climate change: Equity and vulnerability in a warming world 2* (2010): 173-178.

climate change mitigation strategies.¹² While there are some actions that the Kenyan government has put up in an attempt to reduce greenhouse gas emissions, the most significant aspect of climate change mitigation is the inclusion and support of civil society organizations.

1.2 Statement of the research problem

Environmental issues are most important to the EAC and are part of its foreign policy objectives.

However, data to date suggest that Africa as a continent has not done much to tackle the issue that arise from environmental change. In particular, EAC has not made a significant contribution to curb the factors contributing to climate change especially in terms of greenhouse gas emissions. The magnitude of climate change has been witnessed in major parts of the countries within the EAC which range from famine, floods, deforestation; this has caused destructions for livelihood. With the advent of emerging global issues which include globalization, the world is becoming smaller as the growing population is competing to survive, which leads to more destruction of the environment. In the 21st Century other actors have emerged in the international system and states are not the only actors, non-state actors have taken a key role in the happenings on environmental concern such as the civil society organization. While there are several climate change mitigation strategies formulated by governments across the globe, including the EAC, they seem not to target the most vulnerable populations to climate change, thus calling in for the role of civil society organizations. This study examines the effectiveness of civil society organizations to investigate how they play a part in climate change mitigation in the EAC broadly and more specifically in Kenya.

1.3 Research questions

1. What are the major causes and effects of climate change in East Africa?

¹² Reid, Hannah, Mozaharul Alam, Rachel Berger, Terry Cannon, Saleemul Huq, and Angela Milligan. "Community-based adaptation to climate change: an overview." *Participatory learning and action* 60, no. 1 (2009): 11-33.

2. What are the contributions of civil society organizations in mitigating climate change?
3. What are the challenges and strategies faced by civil society organizations in mitigating climate change in Kenya?

1.4 Objectives of the research

1.4.1 General objective

To investigate how civil society organizations mitigate climate change in Kenya.

1.4.2 Specific Objectives

1. To examine the cause-effect nexus of climate change in East Africa.
2. To assess the contribution of CSOs in mitigating climate change.
3. To evaluate the challenges and strategies faced by civil society organizations in mitigating climate change in Kenya.

1.5 Literature review

1.5.0 Introduction

Climate change is among the most urgent and critical challenges that are facing the world today. Climate change most likely results from emissions of greenhouse gases (GHGs) which emanate from both human and natural factors posing a risk on ecosystems. Civil Society Organizations such as Kenya's Green Belt Movement (GBM) which was formed by Prof. Wangari Maathai in 1977 with its basic activity being tree planting have made significant contributions in aiding with the mitigation of climate change. However, government agencies have also been viewed as potentially hindering the roles of CSOs to a greater extent. Based on the objectives of this study and against this background on climate change, the following

literature review seeks to discuss the cause-effect nexus in climate change and the role that Civil Society Organizations (CSOs) play in the mitigation of climate change. Additionally, it interrogates the challenges that CSOs may face from government agencies. In relation to the existing pieces of literature, knowledge gaps will be identified to make a case for the need to carry out this study in Kenya.

1.5.1 Theoretical Literature Review

This section aims to analyze two key theories related to the role of CSOs and climate change. The two sets of theories are autonomisation and internationalization.

To begin with, internationalization theory raises questions regarding the participation of CSOs at the global level. Dupuits identifies that there are three different dimensions of internationalization of social movements. The first dimension is linked to strategy framing, which refers to the deliberate efforts made by groups to fashion mutual understanding of themselves and of the world in ways that inspire and legitimate collective action.¹³ Martin also identifies that the reliance of CSOs on universal human rights, while they are trying to support their cause, elucidates the idea of reframing through other representations.¹⁴ For instance, CSOs can decide to reframe the universal human right to water into the right to water at the community level in order to acknowledge the important role that communities have in the provision of water in rural areas.¹⁵ It is also worth mentioning that while international norms can be reframed as local, local norms can also be reframed as international, for instance, by gaining an increasing influence in higher arenas of decision making or building a common identity. Appadurai

¹³Emilie, Dupuits. "Building a transnational network standard: community water management and" associativity "in Latin America." *Interdisciplinary Review of Work on the Americas* 7 (2014).

¹⁴Pamela L, Martin. "Global governance from the Amazon: leaving oil underground in Yasuni National Park, Ecuador." *Global Environmental Politics* 11, no. 4 (2011): 22-42.

¹⁵Emilie, Dupuits. "Building a transnational network standard: community water management and" associativity "in Latin America." *Interdisciplinary Review of Work on the Americas* 7 (2014).

identifies those reframing strategies may be significant in situations or contexts where ordinary individuals have been left behind and outside.¹⁶

The second dimension to the internalization of social movements is mobilizing innovative strategies. A common strategy employed by CSOs is integrating themselves into international environmental sectors and regimes that are fragmented. Fragmentation arises when three or more international sectors experience complexity that may be inherently problematic such as having overlapping memberships.¹⁷ On the one hand, actors may decide to play a contributive role in the integration of arenas and regimes that had been previously divided. On the other hand, actors may also decide to intensify the already existing overlaps between sectors and regimes to enable them to strengthen their claims. The third dimension is novel forms of representativeness which have posed a challenge for global environmental sectors.¹⁸ These new forms of representativeness take the form of collective action that is far more direct and at the local or grassroots level. This implies that organizations at the grassroots level may also play crucial roles at the international level.

Additionally, the growing inclusion of CSOs in decision-making processes at the international level implies new autonomisation spaces such as professionalism processes and alternative expertise forms. Staggenborg classifies social movement organizations into professional and classical. On the one hand, professional SMOs are those that depend primarily on conscience constituents as well as paid leaders who offer money contributions and are not active participants but paper members. On the other hand, classical SMOs are those that depend

¹⁶Arjun, Appadurai. "Grassroots Globalization and the Research Imagination." *Public Culture* 12, no. 1 (2000): 1-19. muse.jhu.edu/article/26176.

¹⁷Amandine, Orsini, Jean-Frédéric Morin, and Oran Young. "Regime complexes: A buzz, a boom, or a boost for global governance?." *Global Governance: A Review of Multilateralism and International Organizations* 19, no. 1 (2013): 27-39.

¹⁸Erik, Swyngedouw, and J. Wilson. *The Post-Political and Its Discontents*. Edinburgh University Press, 2014.

on the mass mobilization of constituents who are beneficiaries as active participants.¹⁹ Dupuits also mentions that there has been a growing trend towards the NGO-isation of movements at the grassroots level. For instance, the increase in the inclusion of actors in civil society organizations as central stakeholders in arenas of decision making in issues related to global climate.²⁰ An example of technical expertise is the UN-REDD (Reducing Emissions from Deforestation and forest Degradation), whose objective is fighting deforestation through the creation of financial value for carbon that is stored in trees by employing market mechanisms. The heightened demand for formalized, representative, and articulated CSOs in the processes of decision-making in UN-REDD sheds light on the new professionalization dynamics. Besides, based on the professionalization dynamics, another novel type of expertise is emerging, known as grassroots or local expertise.²¹ Having local expertise implies a broad range of enhanced experience and practical skills without necessarily having formal qualifications.

1.5.2 Empirical Literature Review

1.5.2.1 Cause-Effect Nexus in Climate Change

Numerous studies have established varying causes and effects of climate change. Nwankwoala acknowledges in her study that it is not possible for humans to completely be detached from their environment; hence climate change comes as a result of both human and natural factors. The author also indicates that natural factors that lead to climate change are obviously beyond the control of humans, but the human factors leading to climate change are

¹⁹Suzanne, Staggenborg. "The consequences of professionalization and formalization in the Pro-Choice Movement." *Waves of Protest: Social Movements Since the Sixties* 101 (1999): 99.

²⁰Emilie, Dupuits. "Building a transnational network standard: community water management and" associativity "in Latin America." *Interdisciplinary Review of Work on the Americas* 7 (2014).

²¹Katy, Jenkins. "Exploring hierarchies of knowledge in Peru: scaling urban grassroots women health promoters' expertise." *Environment and Planning A* 41, no. 4 (2009): 879-8

largely under the control of humans.²² Human factors include but are not limited to land, water, and air pollutions, deforestation, greenhouse gas production, desertification, and so on. Natural factors include but are not limited to solar variations, plate tectonics, and volcanic eruptions.

Given the broad range of factors that cause climate change, Sodangi identifies in his study that Increased levels of CO₂, deforestation, greenhouse gas emissions and depletion of the ozone layer are some of the major causes of climate change.²³ Deforestation has led to the number of trees that can produce oxygen and absorb CO₂ through the process of photosynthesis to reduce immensely. Deforestation is a human action motivated by the need to clear land for cultivation or settlement. Consequently, the carbon stored in the trees is released into the atmosphere while at the same time reducing the number of trees that can sufficiently aid in the absorption of CO₂. Shahzad also identifies that deforestation is one of the leading causes of global warming as the reduction of the number of trees causes temperatures to get warmer.²⁴

In addition, the ozone layer, which offers protection to both animal and plants life from direct harmful radiation when depleted, causes global warming. The depletion of the ozone layer is caused by the release of air pollutants from vehicles, industries, refrigerators, as well as air conditioning devices. These pollutants contain CO₂, chlorofluorocarbons, Sulphur oxide, among other dangerous gases that deplete the ozone layer.²⁵ Moreover, increased levels of CO₂ are caused by the burning of wood, solid wastes as well as fossil fuels for use as energy.

CO₂ concentration also results from the respiration of animals, volcanic eruptions, and so on. However, Hardy argues that the contribution of the emissions of CO₂ from volcanic

²²H. N. L., Nwankwoala. "Causes of Climate and Environmental Changes: The Need for Environmental-Friendly Education Policy in Nigeria." *Journal of Education and Practice* 6, no. 30 (2015): 224-234.

²³I. A., A. U. Izge, Sodangi, and Y. T. Maina. "Cstagenclimate change causes and effects on African agriculture." (2011).

²⁴Umair, Shahzad. "Global warming: Causes, effects and solutions." *Durreesamin Journal* 1, no. 4 (2015): 1-7.

²⁵Michael D., Mastrandrea, and Stephen H. Schneider. *Preparing for climate change*. MIT Press, 2010.

eruptions is relatively smaller as compared to the emissions that emanate from human activities.²⁶ Further to that is the greenhouse effect which refers to the capacity of greenhouse gases in the atmosphere to trap heat that is emitted from the surface of the earth through human activities such as the burning of fossil fuels. Fossil fuel burning is a human activity that leads to the accumulation of gases such as methane and CO₂ in the atmosphere, thus leading to climate change. There has been an increasing trend towards the burning of fossil fuels for energy, with nearly 80% of all energy needs being met by burning natural gas, coal, and oil.²⁷ The heavy reliance on fossil fuels for energy has made greenhouse gases accumulate dramatically, thus contributing to climate change.

In addition, various scholars have also established several effects of climate change. Rising sea levels are one of the effects of accumulated CO₂ in the atmosphere. The increase in the levels of sea emanates from the added water from melting ice as well as from sea expansion as it warms. When sea level rises, island states in the Pacific and Indian oceans are prone to submerging and valuable beaches and habitats lost.²⁸ Riebeek also identifies in his study that rising sea levels result from the shrinkage of ice sheets, and when the water levels become increasingly high, islands may completely disappear.²⁹ Climate change has also been linked with the occurrence of extreme events such as droughts, landslides, floods, hurricanes, tornadoes, heat waves, and forest fires. Hardy identifies that extreme weather events such as hurricanes and

²⁶John T, Hardy. *Climate change: causes, effects, and solutions*. John Wiley & Sons, 2003.

²⁷U. S., U. M. E. Dibua, Onoja, and A. A. Enete. "Climate change: Causes, effects and mitigation measures-A review." *Global Journal of Pure and Applied Sciences* 17, no. 4 (2011): 469-479.

²⁸Sivakumaran, Sivaramanan. "Global Warming and Climate change causes, impacts and mitigation." *Central Environmental Authority* (2015): 2-4.

²⁹Holli, Riebeek. "Global warming: Feature articles." (2010).

tornadoes utilize the energy that is built through the warming of waters in the oceans or seas; thus, the warmer the waters are, the more intense these extreme weather events become.³⁰

1.5.2.2 Contribution of CSO in Mitigating Climate Change

The failures of governments working alone and acting through international institutions have paved the way for the growth of civil society organizations. These CSOs have since played crucial roles in the effective addressing of the crisis of climate change, with the ultimate aim being to mitigate global warming on the planet. Numerous studies have acknowledged the significant contributions that CSOs make in the mitigation of climate change from various parts of the world. In a certain study conducted by Swarnaka in India -a developing and vulnerable country to climate change impacts- on the role of CSOs in climate change mitigation, CSOs were found to play a crucial role in the formulation and implementation of climate change mitigation policies. For example, the author identifies that CSOs in India advocate for environmental justice where they implement solutions related to climate change mitigation that is inclusive since the population at the lower section of the pyramid are the ones who are most affected by climate change disasters. Besides, these poor people often demonstrate effective practices for adapting and mitigating climate change hence the increasing emphasis of making them the targets of implementation of climate change mitigation policies.³¹ For example, some of the inclusive solutions that these CSOs implement at the community-based level include the conservation of natural resources such as forests which form the essential part of the livelihoods of the poor and which prevent the onset of climate change.

³⁰John T, Hardy. *Climate change: causes, effects, and solutions*. John Wiley & Sons, 2003.

³¹Pradip, Swarnakar. "Climate Change, Civil Society, and Social Movement in India." In *India in a Warming World*, pp. 253-272. Oxford University Press, 2019.

Similarly, in yet another study conducted in Kenya by Muok and Kingiri, it was found out that CSOs serve as the central actors in grassroots innovations that aid in reducing the emissions of greenhouse gases in the atmosphere.³² The study identifies that the CSOs play a crucial role in low-carbon innovations that mitigate greenhouse gas emissions in sectors such as water, agriculture, and energy in order to avoid disastrous climate change impacts. For instance, low-carbon innovations in the energy sector are meant to eliminate the use of fossil fuels which often results in increased greenhouse gas emissions.³³

The Green Belt Movement for instance has played a major role in creating climate resilient communities by restoring and protecting forest watersheds. GBM has been involved in REDD+ activities such as carbon projects in Mau Forest, Mt. Kenya Forest, and Aberdare Forest. GBM has planted over 51 million trees in Kenya since its inception which have resulted to forests that help in the mitigation of the adverse effects of climate change. These authors acknowledge the importance of CSOs giving voice to the vulnerable groups by recognizing them in the public policy through processes of advocacy. For example, the GBM in Kenya empowers communities most especially women who are vulnerable to the effects of climate change.³⁴ In response to the challenges faced by women in rural areas in Kenya such as streams that are drying up, less secure food supplies, and having to walk further distances in search of firewood for fuel, GBM encourages women to plant trees.³⁵ Planting trees provides these women with firewood, stores rainwater, and binds the soil making it more fertile.

³²Benard O. Muok., and Ann Kingiri. "The role of civil society organizations in low-carbon innovation in Kenya." *Innovation and Development* 5, no. 2 (2015): 207-223.

³³Ibid, p.220.

³⁴Maathai, W. (1992). A symbol of hope-Africa's Green Belt Movement. *A symbol of hope-Africa's Green Belt Movement.*, 81-89.

³⁵Maathai, Wangari. "Kenya: The Green Belt Movement." *IFDA Dossier* 49 (1985): 3-12.

Other studies have viewed the role of CSOs in climate change mitigation as being majorly informative. In a particular study, it was identified that the CSOs are tasked with providing environmental information to the government and the public, thus improving the public's access to climate information. By doing so, they educate the government and the public on the causes and impacts of climate change as well as environmental degradation, therefore, creating environmental awareness. However, public awareness alone cannot aid in mitigating climate change, therefore, calling upon the CSOs to offer effective training, especially at the community level, in order to ensure that the beneficiaries know how to make use of the information given to them on how to mitigate climate change.³⁶ Besides, the author also identifies that CSOs also play a constitutive role in which they work alongside the government in setting climate mitigation agenda and developing policies. Another study by Mariam also singles out CSOs whose roles in the mitigation of climate change have been appreciated. The author identifies that BAPA, which is a CSO in Bangladesh, plays a prominent role in the provision of environmental information to the public, contribution to the formulation of environmental agenda, advocating for awareness, as well as lobbying.³⁷ These actions have been viewed to have positive results in the environmental improvement of Bangladesh.

1.5.2.3 Challenges CSOs Faces from Government Agencies

Various studies have also pointed out that despite playing integral roles in climate change mitigation, CSOs still face multiple challenges from government agencies. According to a certain study that was conducted in Kenya on the challenges that CSOs faces, it was established that CSOs are faced with the challenge of insufficient funding for carrying out climate mitigation

³⁶Government of Kenya. 2010. *National Climate Change Response Strategy*. Nairobi: Government of Kenya.

³⁷Kaniz, Mariam. "The Role of CSOs in Dealing with Environmental Issues." PhD diss., University of Gothenburg, 2012.

activities.³⁸ Inadequate funding impedes their ability to undertake their functions effectively and efficiently. Perhaps the inadequate support from the government could be a result of the notion that governments from developing countries have not given much priority to climate change issues as developed countries.

Besides, Muok identifies in his study that CSOs also face the challenge of mistrust from the governments, thus leading to antagonist relations between them and the government. From all these challenges, the outriding challenge that was pointed to be a major one for Africa is the increased mistrust between the CSOs and the government.³⁹ Such conflicting relationships between the CSOs and the government have made the efforts of the CSOs to demand actions on climate change mitigation to be futile. Precisely, the absence of trust between the government and the CSOs has led to the continuation and success of projects that contribute to global warming, such as fossil fuel burning with communities still facing extreme weather conditions. This is because government agencies do not trust the CSOs to deliver on their climate change mitigation projects.

In addition, in another study conducted by Brown on the challenges that CSOs faces, it was identified that their roles are also limited with the establishment of regulations by the government, which are neither coherent, clear, nor support the roles of the CSOs. When regulations are not supportive, CSOs remain defenseless against the rulings as well as intrusions of antagonists or state actors.⁴⁰ The challenge of the absence of supportive regulations from the government can be further heightened by the problems of accountability (BROWN). Given that

³⁸ Benard O. Muok., and Ann Kingiri. "The role of civil society organizations in low-carbon innovation in Kenya." *Innovation and Development* 5, no. 2 (2015): 207-223.

³⁹Ibid, p. 221.

⁴⁰David L. Brown, and Archana Kalegaonkar. *Addressing civil society's challenges: Support organizations as emerging institutions*. Boston: Institute for Development Research, 1999.

the beneficiaries of the activities of CSOs are often different from those who have offered the material support for carrying out the activities, accountability remains a major problem.⁴¹ Most of the CSOs lack a well-developed mechanism upon which their performance may be assessed against standards of performance. As a result, the CSOs remain highly vulnerable of being accused that by the people it was established to assist that they are not accountable in their respective jurisdictions.⁴² Moreover, in countries where the holders of resources are primarily government agencies and are as well the central benefactors of programs that foster developments at the grassroots level, the CSOs may be limited to looking towards the state for effective programs. In situations that the government agencies are the providers of financial resources, the CSOs' priorities, therefore, become subordinated to those of the government agencies.

1.5.3 Knowledge Gaps

Numerous studies have indicated that climate change is caused by a variety of factors ranging from human to natural factors. These factors have significant contributions to the increasing warming of the earth. As a result, the effects of climate change have been viewed to transcend to greater heights, thus calling upon the role of the CSOs in the mitigation of the effects of climate change or alleviate the causes of climate change. The above pieces of literature have made it clear that the role of Civil Society Organizations, especially in developing countries, may be effective in mitigating the already ravaging effects of climate change. The CSOs play an integral role in reducing the adverse effects of climate change, thus reversing the GHG emissions in the atmosphere, which may heighten global warming. However, the CSOs face various challenges from government agencies that impede their work to a certain extent.

⁴¹Mary, Kaldor. "Civil society and accountability." *Journal of Human development* 4, no. 1 (2003): 5-27.

⁴²Ibid, p. 20.

However, in as much as most of the studies have been conducted in developing countries as they remain vulnerable to climate change, few studies have been conducted on the roles and challenges that face CSOs in Kenya.

The above literature was done thematically as per the research objectives. This enabled the study to delve deeper into the study topic and understanding the various studies on the research topic. Few studies have been done to analyze the contribution of civil society organizations in mitigating climate change in the continent of Africa, especially in Kenya. The few available sources gave an overview of the nexus between climate mitigation and civil society. This is very significant to the study as civil society organizations play an important role in environmental issues. The literature reviewed however fails to give an account of how civil society organizations can take an active role in mitigating climate change. This study therefore will aim to fill the knowledge gap in the subject area.

1.6 Hypotheses of the study

H₁: Kenya and civil society organization are contributing perfectly to curb climate change

H₁: The Strategies used by Kenyan government on mitigation of climate change has been ineffective as compared to those of civil society organization,

H₀: Climate change mitigation in Kenya has been ineffective due to numerous challenges it faces

1.7 Justification of the Study

1.7.1 Policy Justification

This study is important as it will aid policymakers concerned with climate change issues in Kenya to integrate the roles of civil society organizations in the formulation and implementation of climate change mitigation policies. The findings of the Study will benefit vulnerable communities that experience the greatest impacts of climate change by shedding light

on various climate mitigation strategies that can be integrated to reduce the impacts of climate change.

1.7.2 Academic Justification

This study will offer significant contributions to the scholarly and academic literature on the roles of civil society organizations in climate change mitigation of a country in accordance with the United Nations Framework Convention on Climate Change. In addition, this study also seeks to offer a broader perspective and understanding of the strategies employed by Kenya in climate change mitigation and how they align with the protocols stipulated in the United Nations Framework Convention on Climate Change.

1.8 THEORETICAL FRAMEWORKS

1.8.1 Institutionalization Theory

The Institutional theory was integrated into the role of civil societies by Emilie Dupuits in 2016. It recognizes that the involvement of CSOs at the international level drives change in relation to global environmental politics. The theory points out that the involvement of CSOs at the global level comprises of reframing existing global rights and norms, the legitimation of representativeness at the international level, and the instrumentalization of the links that are missing between sectors and international regimes.⁴³ It also points out that the involvement of CSOs at the global level increases their autonomy levels through the building of their expertise and professionalization.⁴⁴

There are three main dimensions of the theory of internationalization in relation to social movements and include novel collections of strategies, global framing, and new forms of

⁴³ Dupuits, Emilie. "Actors other than States: The Role of Civil Society and NGOs as Drivers of Change." *Environment, Climate Change and International Relations* (2016): 114.

⁴⁴ Staggenborg, Suzanne. "The consequences of professionalization and formalization in the Pro-Choice Movement." *Waves of Protest: Social Movements Since the Sixties* 101 (1999): 99.

representation at the international level. Global framing is described as the process by which social movements strategize their efforts to produce collective understandings of themselves and of the world, which motivate and legitimate their collective action.⁴⁵ Global framing indicates that CSOs can employ global norms such as human rights, which is a universal norm to help them in defending their cause. For example, if CSOs want to defend their cause of providing water for use by communities in rural areas, they may employ the universal human right to water into the right of communities to have water.⁴⁶ At the same time, local norms also have the potential of being reframed into global norms as a way of gaining more influence in decision-making arenas at the higher level and building a common identity.⁴⁷

The second dimension of the theory of internationalization in relation to social movements is the employment of novel collections of strategies that are innovative. This dimension identifies that civil society organizations may mobilize innovative strategies to serve specific interests.⁴⁸ On the one hand, they can do so by integrating regimes and arenas that were previously not connected. On the other hand, they can also have the intention of exacerbating the overlaps that exist between regimes and sectors as a way of making their claims strong. An example of social actors exacerbating overlaps between regimes and sectors is identifying the existing overlaps between the biodiversity regime and the climate regime, such as an increase in

⁴⁵ Khagram, Sanjeev, James V. Riker, and Kathryn Sikkink. *Restructuring world politics: transnational social movements, networks, and norms*. U of Minnesota Press, 2002.

⁴⁶ Dupuits, Emilie. "Building a transnational network standard: community water management and" associativity "in Latin America." *Interdisciplinary Review of Work on the Americas* 7 (2014).

⁴⁷ Dupuits, Emilie. "Transnational self-help networks and community forestry: A theoretical framework." *Forest Policy and Economics* 58 (2015): 5-11.

⁴⁸ Orsini, Amandine. "Multi-forum non-state actors: Navigating the regime complexes for forestry and genetic resources." *Global Environmental Politics* 13, no. 3 (2013): 34-55.

social inequalities at the local level and the pushing of carbon over biodiverse forests; to serve their interests of regaining territorial rights control and global climate funds.⁴⁹

The third dimension of the theory of internationalization in relation to social movements is new forms of representation that pose a challenge global environmental arena. These forms of representation originate from the local level and collective action forms that are highly direct. It precisely means the participation of grassroots organizations at the global level. Some social actors tend to engage in the reproduction of depoliticization practices. Depoliticization refers to the process of removing political control or political influence resulting in a global regime that is borderless where the formulation of rules is done by technocrats and the framing done neutrally.⁵⁰

Within the context of my study, it supports that civil society organizations play a significant role in global climate issues. It also compliments that civil society organizations have the potential of developing strategies that often target grassroots or local communities as it is where climate change impacts are usually felt to a larger extent. In addition, the theory also explains that CSOs can identify the problems between sectors and regimes that may be contributing to climate change and thus are effective in climate change mitigation. Further to that, the theory acknowledges that the CSOs play a significant role in climate issues both at the international and local levels.

1.9 RESEARCH METHODOLOGY

The methodology of the study will be important in understanding how data and information will be obtained.

⁴⁹ Harrison, Mark E., and Gary D. Paoli. "Managing the risk of biodiversity leakage from prioritising REDD+ in the most carbon-rich forests: the case study of peat-swamp forests in Kalimantan, Indonesia." *Tropical Conservation Science* 5, no. 4 (2012): 426-433.

⁵⁰ Swyngedouw, Erik, and J. Wilson. *The Post-Political and Its Discontents*. Edinburgh University Press, 2014.

1.9.1 Research design

The research design that will be employed in this study is descriptive-analytical. A mixed-methods approach comprising both quantitative and qualitative research will be used. Mugenda and Mugenda contend that descriptive research design on case studies gives an extensive analysis of the issue within a restricted scale and time.

The research will use the descriptive-analytical research design using a mixed approach of both qualitative and quantitative research approaches. According to Mugenda and Mugenda, the use of descriptive research design on a case study provides an in-depth analysis of the problem within a limited time and scale. He further emphasizes that the use of qualitative research design on a case study is the best way to get the true picture of a situation.

1.9.2 Target population

The target population of this study will mainly be officials from Ministry of Environment and Forestry, officials from the Green Africa Foundation in Kenya and Kenya Climate Change working groups (KCCWG). Further, the study will target academicians as well as the general public.

1.9.3 Data collection method

The research will utilize both primary and secondary data. The primary data will be collected through questionnaires. The questionnaires will be self-administered through the method of drop and pick to the research respondents. By doing so, specificity, accuracy, and relevance to the research topic will be achieved. The questionnaires will comprise both open-ended and closed-ended questions. The advantage of using questionnaires is that they are easy to administer, less costly, and there is an assurance of confidentiality. In addition, secondary data will be derived from reliable and credible scholarly sources; both published as well as

unpublished including journals and books. Besides, doctoral theses and reports will also be considered for secondary data collection.

1.9.4 Size and technique

The descriptive-analytical research design will enable the utilization of purposive sampling. This type of sampling involves selecting a sample from the target population that is judged to be informative for research purposes. This study will utilize a sample size of 100 respondents who have been judged as informative for the research.

According to Mugenda & Mugenda, the acceptable range of sample size in descriptive research is between 10-50%. This sample size range is justified when the sample frame is large, meaning that it exceeds 30 respondents, which is the minimum sample size. Mugenda & Mugenda provides an explanation of how to calculate the sample size of the population that is below 10,000 using Fisher's formula as shown below.

$$Nf = \frac{n}{1 + \frac{n}{N}}$$

Where;

Nf is the sample size

N is the sample frame

N is the working sample {10% *sample frame (1000)}

$$0.10 * 500 = 50$$

$$\frac{100}{1 + \frac{100}{1000}}$$

$$= 100 \text{ respondents}$$

There are some factors that were put into consideration when choosing the required sample size for the study. These factors include the desire to minimize costs and limited time. Since a 10% sample size, if well-chosen with the subjects in the sample exceeding 30, is recommended, the

researcher has the confidence that the sample size of 50 respondents will provide a good representation of the target population.

1.9.5 Data Analysis and Interpretation

The data that will be collected in this study will be analyzed using IBM SPSS. Regression analysis will be carried out to determine the relationship between the dependent variable and the independent variable. Since the variables are two, a binary logistic regression model will be employed to determine the variables.

1.10 CHAPTER OUTLINE

Chapter one which is the research proposal has given the introduction of the study, background of the study, the statement of the problem, research questions, objectives of the study, theoretical and empirical literature review, hypotheses of the study, justification of the study, theoretical framework, and methodology of the study.

Chapter two will investigate the links between causes and the effects of climate change in East Africa. In this chapter, the study will provide an understanding of East Africa's climate trends and development, climate change related catastrophes and the causes of the climate changes in East Africa.

Chapter three will assess the contributions of Civil Society Organizations in mitigating climate change in Kenya. The study will give an in-depth analysis of the strategies used by Civil Society Organizations in mitigating Climate change in Kenya and its effects.

Chapter four will evaluate the challenges and strategies faced by civil society organizations in mitigating climate change in Kenya. The study will then come up with recommendations based on the opportunities and challenges examined.

Chapter five concludes the study, this chapter will include conclusions, summaries, and recommendations of the study

CHAPTER TWO

THE CAUSE-EFFECT NEXUS IN CLIMATE CHANGE IN EAST AFRICA

2.1 INTRODUCTION

East Africa contains up to one-fifth of different species of mammals, birds, plants, and also reptiles, and amphibians. These species make up some of the various biological ecosystems like the savannah, freshwater habitats, wetlands, montane, coral reef marine ecosystems⁵¹. All these contribute to the climate of the East African countries and help them in sustaining and providing their basic needs like food shelter and water. Nonetheless, when the climate changes, they threatened the survival of all the above-mentioned species and ecosystems. The intent of this chapter is to spot the causes along with the aftermath of climate change in East Africa, and countries within that region, which are Kenya, Tanzania, Rwanda, and Uganda.

2.2 Causes of East Africa's Climate changes

Deforestation is one of the causes of climate change in East Africa, and its main aim for human beings is to have wood for construction, and paper production. However, logging can potentially bring more harm than good to a land and its environment. Mass deforestation can change a place from being a forest full of animals and birds and water into a dry unhealthy land that is vulnerable to any climate change. One major benefit of having forests is that they produce oxygen at the same time absorb greenhouse gases that might be harmful to human beings. This will in turn catalyst global warming, altering the temperatures and threatening the living conditions of organisms in the ecosystem. According to National Geographic, East Africa is contributing to 70% of Earth's forest. The cutting of trees is destroying the natural living habitats

⁵¹ Change, M.S.S.I.C., 2017. Climate change.

Thornton, P.K., Jones, P.G., Alagarswamy, G., Andresen, J. and Herrero, M., 2010. Adapting to climate change: agricultural system and household impacts in East Africa. *Agricultural Systems*, 103(2), pp.73-82.

of animals, which destroys ecosystems. Many cannot sustain their living if forests keep on getting destroyed⁵².

Climate changes can also be caused by industries, and all these started in the industrial revolution era. There was rapid growth and advancement in the use of technology and manufacturing became the new form in industries. The use of machines led to the emergence of pollution and waste dump into the lands and rivers close by. Before the 20th century, the only pollutant was smoke which was affecting breathing but as of now, we note that there is also water and land pollution being primary. However, during those times there were fewer industries in East Africa that were functional, and this was not a global issue. But with the rise of many factories and industries, the issue of pollution has been of great importance to society.

One example of a company that was later closed due to its bad waste management was the Kamongo Company in Kenya. It was polluting the Nairobi River since they were not treating their wastewater. The Kamongo company was manufacturing paper and also recycling paper. Other companies that followed suit were Modern Lithographic LTD, they were a printing firm. Apex ltd, who were manufacturers of paint, and Thorlite limited, an electrical company dealing with manufacturing of metal fabricators. If the pollution can be traced back to a particular company, this will be known as industrial pollution.

The Nairobi River was next to two residential areas known as Highrise Estate and Langata, It was also next to boys high school known as Sunshine Boys, and next to one of the biggest slum in Nairobi, Kibera. Its effects were harsh to the community surrounding the river and it was also affecting the tourism sector since the Wilson Airport was near the river. Note that most of the pollution can be easily traced back to a particular industry or factory. The only solution is to

⁵² Van Baalen, S. and Mobjörk, M., 2018. Climate change and violent conflict in East Africa: integrating qualitative and quantitative research to probe the mechanisms. *International Studies Review*, 20(4), pp.547-575.

relocate the industry, train them on waste management and if push comes to shove, the local government can decide to close it down⁵³.

In Uganda, their industries also contribute to climate change in a negative way when factories generate a huge amount of solid wastes and their move is to dump them in water⁵⁴. One example is factories located in Nakawa-Ntinda, the industrial area in Kampala. It is believed that their waste contains TP which is Trispyrazolylborate (0.078 - 1.674mg/l), Emulsifiable Concentrate (EC) (212 - 4633 ìScm-1), colour (72 - 958TCU), Chemistry Oxygen Demand (COD) (39 -1351mg/l), Tennesine (TN) (0.45 - 32.63mg/l), Chlorine (Cl) (11.68 - 31.08mg/l), Calcium (Ca) (6.38, Lead (Pb) (0.039 - 0.256mg/l), Copper (Cu) (0.015 pH (3.68, Biochemical Oxygen Demand (16.4 -315.5 mg/l), Cadmium (below detection limit), and Sodium(0.59 - 53.04mg/l), All the above chemical elements are harmful to both animal and human consumption. All the factories had no proper waste management plan. They add all the carbon-based particles into the atmosphere hence affecting the climate which results to warm air and the greenhouse effect which is very disastrous in the long run.

Climate changes can also be caused by mining activities in East Africa. Due to the rise of industrialization, factories need raw materials and mining essentially is the only way to acquire them⁵⁵. When raw materials are mined from deep below the surface to the land itself, it increases the levels of oxidation. The oxidation of materials containing iron and sulfur, when exposed near a water body, creates acidic solutions that can be very harmful for human consumption. During

⁵³ Cilliers, J., 2018. Made in Africa-Manufacturing and the Fourth Industrial Revolution. Institute for Security Studies.

⁵⁴ Rusdi, N. and Syah, R., 2020, July. The Influence of Shooting Conditions during Shot Peening of Stainless Steel on Surface Roughness. In IOP Conference Series: Materials Science and Engineering (Vol. 885, No. 1, pp. 12-20). IOP Science.

⁵⁵ Buss, D., Rutherford, B.A., Hinton, J., Stewart, J.M., Lebert, J., Côté, G.E., Sebina-Zziwa, A., Kibombo, R. and Kisekka, F., 2017. Gender and artisanal and small-scale mining in central and east Africa: Barriers and benefits (No. GWP-2017-0 2).

Haile, G.G., Tang, Q., Sun, S., Huang, Z., Zhang, X. and Liu, X., 2019. Droughts in East Africa: Causes, impacts, and resilience. *Earth-science reviews*, 193, pp.146-161.

mining, toxic substances are obtained from below the earth's surface and that is what contaminates the water. A land that has been mined and left vacant is vulnerable to contribute to drought or flooding. This is because the soil cannot absorb water hence the high-water retention capabilities.

The most famous mining site in Uganda is the Kilembe copper mine and which was discovered in the 1950s. This has contributed to 30% of Uganda's national exports⁵⁶. The copper site contributed to the water contamination in Uganda. Several casualties were reported and for the government to curb this situation they had to seek foreign assistance from Korea. This later caused the rehabilitation of the Kilembe Copper Mine ltd.

2.3 East Africa's climate trends and development

The climate globally has been changing and this has affected the environment, the social, and the economic aspect in very many countries especially those in East Africa. The rise in temperature and precipitation is already some of the trends in East Africa and this affects agriculture significantly. In East Africa, they mostly depend on their agriculture, and their GDP is contributed by up to 40%. The first climate trend in East Africa is the inter-annual rainfall which has led to an increase in drought and floods in some of the areas. One example is most recently in Kenya, in a county called Migori, over 60,000 families have been left homeless due to heavy rains in May 2021. According to the Kenya Red Cross (KRCS), the seasonal heavy rains have impacted a small area known as the Kakelo Kakoth sub-location and it has been reported that over 200 households were affected. The rains have also ruined their crops and paths in the county.

⁵⁶Abraham, M.R. and Susan, T.B., 2017. Water contamination with heavy metals and trace elements from Kilembe copper mine and tailing sites in Western Uganda; implications for domestic water quality. *Chemosphere*, 169, pp.281-287.

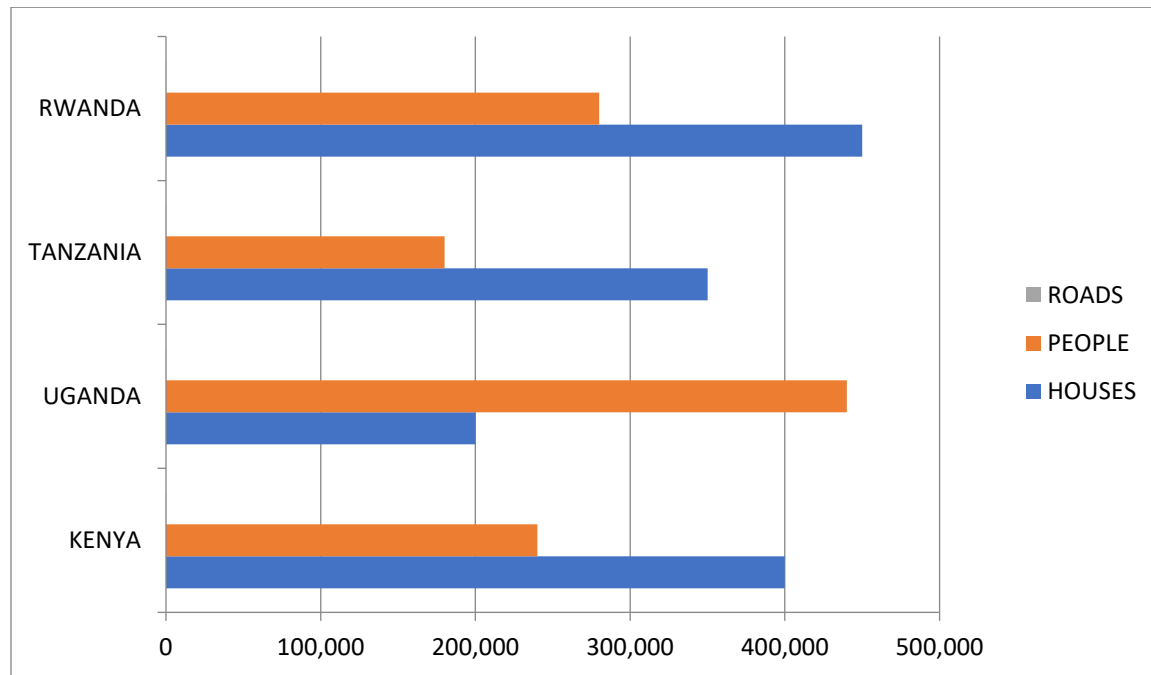
In Rwanda, one of the countries in East Africa, they usually have an annual heavy rainfall accompanied by lightning and thunderstorms, and this usually happens in March. This has been a climate trend in that country for over seven years now⁵⁷. One devastating example of the climate trends in Rwanda was in the 2nd and 4th of March when five individuals lost their lives in floods reported in Kigali and the southern parts of the country. One person also lost his life when he was strike by lightning in a district called Rulindo still in the same country. A total number of 13 individuals got injuries and their houses, bridges, and roads got destroyed on the same day. These heavy rains caused their rivers to overflow hence causing floods in districts like Nyamagabe in the southern part of Rwanda.

In Uganda, their climate trend is similar to the other countries, and this can be due to the geographical location of the countries. We can then conclude and say the climate trends in East Africa are very similar. Just like Kenya and Rwanda, Uganda experiences heavy annual rains in their first quarter of the year and this is between March and April. According to the Uganda Red Cross (URCS), two young individuals died in a landslide in Kilembe, Kasese District, which was caused by heavy rains on 23rd May 2021. One house got destroyed in the landslide. Later on, the URCS reported more casualties consisting of 133 Ugandans who lost their homes in the landslides.

⁵⁷ Chaudhury, M., Vervoort, J., Kristjanson, P., Ericksen, P. and Ainslie, A., 2013. Participatory scenarios as a tool to link science and policy on food security under climate change in East Africa. *Regional Environmental Change*, 13(2), pp.389-398.

Ampaire, E.L., Acosta, M., Huyer, S., Kigonya, R., Muchunguzi, P., Muna, R., and Jassogne, L., 2020. Gender in climate change, agriculture, and natural resource policies: insights from East Africa. *Climatic Change*, 158(1), pp.43-60.

Below is a table illustrating the effects of floods in the East African Countries in the year 2009-2021



Source: Google

In East Africa, they had a surface temperature of 0.8 degrees in the previous century and the past three decades; there was a record of 0.6 degrees as of the year 2006. They based these results on human activities being the main cause of the temperature going down. According to a global research institution based in the US, they recorded that in East Africa, they are currently going through their warmest and this is their first in over 400 years ago. The IPCC projected that if the greenhouse gas leak continues as it is currently, it will lead to climate changing, hence a rise in temperatures by the end of this century. A rise in temperatures will lead to a reduction in the water bodies in East Africa, death in certain animals especially those living underwater, it can cause drought in certain areas, and this leads to mass death in the affected areas.

In the countries located in East Africa, the certain increase in temperatures and drastic switch in precipitation is affecting the ecosystems and the people in East Africa. The climate trends affect the economy of countries and this threatens the water availability of a place together with high sea levels in coastal areas, in places like Mombasa in Kenya, and hence affecting tourism. The climate trends affect the communities that entirely depend on ecosystem services, which affects and threatens their development and their stability as far as the economy is concerned. Predictions have been done and it is projected to be worse than it is right now. This is the rise in temperatures as mentioned above, and the precipitation levels will continue to be unpredictable. The unpredictability of the precipitations is what causes some of the countries not to plan on solutions for future benefits of people, especially in East Africa.

In most regions in Africa, East Africa is the most weak region when it involves the effects, their climate brings and this is mostly due to their economy, development, and institutional capacity⁵⁸. Climate change has the capacity of destroying the already existing development in any country. One example can be when an area experience flooding like in Kenya or Uganda, the roads and bridges get destroyed and this brings the country back to having bad roads and bridges. The landslides end up destroying buildings and homes hence bringing countries to their knees in terms of infrastructure. The climate trends in East Africa can also cause some factors like the rise of poverty, diseases, a high population of people in a specific area that might be considered safe. In these populated areas, there is an increase in the need for food, water, good stable shelters, and livestock.

⁵⁸ Chaudhury, M., Vervoort, J., Kristjanson, P., Ericksen, P. and Ainslie, A., 2013. Participatory scenarios as a tool to link science and policy on food security under climate change in East Africa. *Regional Environmental Change*, 13(2), pp.389-398.

Ampaire, E.L., Acosta, M., Huyer, S., Kigonya, R., Muchunguzi, P., Muna, R., and Jassogne, L., 2020. Gender in climate change, agriculture, and natural resource policies: insights from East Africa. *Climatic Change*, 158(1), pp.43-60.

East Africa's climate trends as of the year 2021 are as follows; The observed changes in climate for East Africa in the 20th century is that there is a warming of over 0.7 degrees for East Africa and Africa in general. There is 0.05 degrees warming for each decade in the 20th century and an increase in precipitation that might cause heavy annual rains in East Africa. The projected changes in climate for East Africa are a warming range of 0.2 degrees in every decade as a low season and 0.5 degrees in every decade as a high season. They projected that there will be wet months from December to February with a 5 to 20% increase in precipitation in East Africa. Chances of having dry months from June to August with a 5 to 10% decrease in precipitation. The wet months mean that most areas with no flooding plans from the government will encounter heavy rains that will lead to flooding and landslides, while the dry months will cause drought in most areas that the government has no solutions to. These projected results will eventually help most countries in finding ways that will help them curb the issues of climate change. This brings the relationship linking the causes and the aftermath of climate change in East Africa.

There are certain impacts that East Africa's climate change has contributed to and they include the availability of water. A rise in droughts in subtropical areas in East Africa is caused by warm sea temperatures. There can be a reduction in water especially in dry months which is caused by less precipitation which in turn leads to drought in East Africa. The worse drought ever experienced in the eastern countries was in 2011 and this led to a decrease in milk production due to their livestock dying, and hunger due to their lands not having enough water for their crops⁵⁹.

⁵⁹ Wu, X., Okumura, Y.M. and DiNezio, P.N., 2019. What controls the duration of El Niño and La Niña events?. *Journal of Climate*, 32(18), pp.5941-5965.

Strong La Nina that happened in 2010 caused this major drought. The La Nina shifted the ocean temperatures and increased air pressure across the Indian Ocean hence having a ripple effect on the climate in East Africa. This was the most horrifying drought ever experience in East Africa. It caused over 10,000 deaths. This led to other countries raising over 9 million to help countries like Kenya, Somalia, Ethiopia, and Djibouti. Other impacts that caused the water availability to go down was the change in annual river flow of River Pangani which was 6 to 9% and over 10% reduction flow of river Ruvu. Lastly was in 2015-2020, where the glacier in Mt Kilimanjaro completely disappeared. All the above are effects when East Africa's climate changes over a while.

East Africa's climate changes have caused a great decline in food security, and this was seen in the years between 1996 to 2003 due to a low long cycle crop and a low rainfall in certain parts of the region. This has been among the major effects of climate change and one major cause is the El Nino floods in Kenya from 1997 through to 1998. It caused huge flooding in the northern parts of Kenya and caused a halt in the transportation of foodstuff through road transportation to refugee camps like the Dadaab camp and the neighboring villages. All roads, railways, airstrips leading to the camp were all flooded, and this was hard for the government to curb the pandemic accordingly. The villages close by were already submerged, their latrines overflowed, and this contaminated the good water sources that led to other towns in different counties. The CARE Kenya tried to have onboard foreign donors and the locals from Garissa to come to help the affected individuals. This was through financial assistance, which they managed to solicit over £20,000 from the El Nino response unit. CARE Kenya was able to come up with ways of purifying the water and buying enough anti-cholera drugs for everyone in the communities affected.

In 2018, there was a great cyclone season that caused heavy rains in the southern part of the Arabian Peninsula, which created a conducive environment to harbor the habitation of locusts. The rapid increase in moist and vegetation in semi-arid areas led to a rise in the insects and they migrated to places like Iran, Yemen, and Saudi Arabia⁶⁰. In 2019, the locust being pushed by the winds across the Red Sea landed in Somalia, which is known as the Horn of Africa. During that time, it was during the wet months at the coast and this contributed to them settling along East Africa's coast. In December 2019, they started swarming into Kenya and this led to one of the most devastating locust outbreaks ever occurred in East Africa. The cause of the climate change led to the effect of having desert locust eating up every vegetation they come across. The rains and the crops they found made it even a more conducive area to stay, hence an increase in their reproduction. Currently, the locust threat is far from over since a new breed is hatching bringing more losses to farmers in Kenya. The farmers in Kenya have faced so many catastrophes including the annual floods and drought they have been experiencing.

2.4 Climate change-related catastrophes

Climate changes have affected and led to catastrophes like drought and flooding that have affected the agriculture and the food security of countries in East Africa. The frequent drought has caused wild animals like lions and elephants to go much further in search of water and pasture to sustain their lives. This caused a ripple effect when the wild animals come into contact with people whose villages are near national parks. Elephants with their big size, destroy crops and vegetation while they on their own are in search of food and water. Since 2011, East Africa has been having on and off drought and flood seasons and this has caused deaths of crops and

⁶⁰ Wu, X., Okumura, Y.M. and DiNezio, P.N., 2019. What controls the duration of El Niño and La Niña events?. *Journal of Climate*, 32(18), pp.5941-5965.

people over several years now. The most recent one occurred in the year 2017 to 2020, which led to animals dying, crops failing and families being forced out of their lands while in search of water, food, and better shelter. This in turn leads to more crises in countries.

The most recent catastrophe was the locust infestation in Kenya and this is still an ongoing pandemic where crops and vegetation are being destroyed. This causes the agriculture of the land to decline which in turn leads to famine, hunger, and death of both the animals and people in the area. The main reason the locust came to Kenya was that it was blown off by the winds across the Red Sea and into East Africa's coastal regions. This was due to a cyclone that occurred in the Arabian Peninsula. The heavy rains were making the environment a much conducive area for the locusts to reproduce and increase in numbers. The desert locust saw it fit to settle where there was vegetation. This was where farmers in Kenya had planted their crops either for sale or domestic use. Another major catastrophe was the floods experienced from 2009 to date. In Uganda, this caused landslides and hence destroying homes and roads in villages. Usually, in floods, the water is logged above the surface, lowering the amount of oxygen a plant needs for sustainability. The lack of oxygen in the plants reduces the metabolism and the yield, if not dealt with within the first few hours the plants eventually die.

Climate change can also affect society especially those that are in the semi-nomadic settlers in East Africa. Traditionally the nomads are known for keeping livestock like cattle, sheep, and goats and in dry months, the men are in charge of looking for greener pastures with their domestic animals. The changes in climate in East Africa have caused dry months to be longer than usual, hence causing a rise in animal and human deaths. The most common nomads in East Africa are the Samburu.

When the durations are longer they make the Samburu men stay longer than they anticipated, this affects the women and children who are left behind to defend their homes and still look for food when all their animals are gone⁶¹. Another society being affected is those in Uganda when they have landslides. Due to the climate being unpredictable, their government has no plan to help communities that lose their houses. Roads being destroyed during the process also make it difficult for rescue teams to effectively help those affected. This leads to an increase in deaths anytime there is long precipitation in Kilembe, Kasese district.

Climate change also has a way of threatening human health in so many ways. When floods occur, they tend to destroy homes, roads, bridges, and even sewage lines. The contaminated water then flows to nearby rivers and lakes hence contaminating it. This happened in 1996 in a place called the Dadaab refugee camp in Kenya when they had the El Nino rains. The Kenyan government had to set up camps for treating the refugees who had cholera. This brought about the emergence of CARE Kenya, they were in charge of the food and medical needs of the affected communities. The 1996 to 1998 El Nino crisis in Kenya was the worse climate pandemic ever to be witnessed in Africa. This pandemic led to so many disasters including floods in East Africa and drought in the western and southern part of Africa. The El Nino rains caused a halt in transportation both by road and rail. There was an outbreak of Cholera and Malaria in the Rift valley in Kenya and this affected the health of many communities in the country.

During this time, Kenya had recorded to have received 12 times more long rains than usual. The long rains caused floods and even landslides in the western part of Kenya like in

⁶¹ Salih, A.A., Baraibar, M., Mwangi, K.K. and Artan, G., 2020. Climate change and locust outbreak in East Africa. *Nature Climate Change*, 10(7), pp.584-585.

Ampaire, E.L., Acosta, M., Huyer, S., Kigonya, R., Muchunguzi, P., Muna, R., and Jassogne, L., 2020. Gender in climate change, agriculture, and natural resource policies: insights from East Africa. *Climatic Change*, 158(1), pp.43-60.

Budalangi Town, with harsh effects on agriculture, tourism, transport, socioeconomic, and water conditions⁶². The total loss that the country incurred was amounting to 236 million dollars, which was a tenth of their gross domestic. 1996-1998 El Nino rains had diverse damage caused in the rural parts of East Africa⁶³. One example was that the main cause of landslides was from human behavior like logging on slopes. The aftermath of climate change can be also positive and one major benefit that happened in Ethiopia was that the heavy rains can cause plants to die in highlands. But when it is on low land, they create a place farmers can easily do irrigation from. This occurrence is very uncertain especially in areas that are prone to such climate change disasters. This can be, in places that experience a lot of flooding, they can decide to start fishing and when the water dries out, it leaves the soil more fertile than before.

Climate change has so many effects on water resources and East Africa has lakes and rivers that act as boundaries to each other. The availability of water supports the livelihood of millions of communities as well as the production of hydropower and agriculture. With the unpredictable climate changes, the rise in water competition has been rampant. This is seen when climate change leads to soil erosion due to low vegetation caused by a high populated area. Cutting down of trees that act as water catchment and agricultural or industry practices that pollute the rivers, and mining activities that spoil the fertile soils. When these areas are not well taken care of, they are prone to flood again due to the effects of siltation and erosion. A great intense drought is likely to cause the land to have scarcity in water quantity and quality in the location. Such places can act very well as locations to set up a country's development plans like having a power generation industry.

⁶² Bezu, S., Demissie, T., Abebaw, D., Mungai, C., Samuel, S., Radeny, M., Huyer, S., and Solomon, D., 2020. Climate change, agriculture, and international migration nexus: African youth perspective.

⁶³ Wu, X., Okumura, Y.M. and DiNezio, P.N., 2019. What controls the duration of El Niño and La Niña events?. *Journal of Climate*, 32(18), pp.5941-5965.

Examples of lands that have long period drought seasons are the north-eastern part of Kenya, places like Wajir, Garissa, and Mandera.

CHAPTER THREE

CONTRIBUTIONS OF CIVIL SOCIETY ORGANIZATIONS IN MITIGATING CLIMATE CHANGE

3.1 Introduction

Civil Society Organizations have become important and grown in size all over the globe. These organizations have an obligation in ensuring that vulnerable individuals can easily and freely express themselves and that they have a vital role in the political, social, economic, and constitutional laws and rights in their respective countries⁶⁴. Civil Society Organizations recognize and raise concerns where problem-solving needs to happen. Some of the roles that have been given to the Civil Society Organizations include improving peace and security to nations that constantly have ethnic and religious disagreements that result in war⁶⁵. One example is the 2013 General Elections where various ethnic groups fought for power and this resulted in many lives, property, and land being destroyed and looted. In addition, the civil society organizations improve and encouraged inter-tribal culture exchange and with this, it promoted more understanding and peace between cultures. Another role that the Civil Organizations have is the war against diseases one is due to the climate changes like waterborne and airborne diseases⁶⁶.

An example of a civil society organization dealing with such pandemics is the KECOFATUMA. This informal body helps Kenya in curbing the spread of Malaria, Tuberculosis, and Aids. When there are floods or drought due to climate change, the water gets contaminated and hence the rise in waterborne diseases. The major CSO in Kenya include the United States Agency for

⁶⁴ Van Rooy, A., 2020. The art of strengthening civil society (pp. 197-220). Routledge.

⁶⁵ Banks, N. and Hulme, D., 2012. The role of NGOs and civil society in development and poverty reduction. Brooks World Poverty Institute Working Paper, (171).

⁶⁶ Bosch, T., Chuma, W., Wasserman, H. and Pointer, R., 2019. Creativity and Strategy: How Civil Society Organizations Communicate and Mobilize in Egypt, Kenya, Serbia, and South Africa. In Media, Communication and the Struggle for Democratic Change (pp. 109-131). Palgrave Macmillan, Cham.

International Development(USAID). The African Union, East African Community, Kenya Human Rights, Action Aid, Aga Khan Foundation, UN Women, Mercy Corps among very many organizations⁶⁷. They all come into play especially when there is a pandemic. For example, from May 1997 to February 1998, there was a great heavy rainfall that occurred in Kenya and it affected millions of people and their land. The UN was among the organizations that came to help Kenyans in saving lives⁶⁸.

3.2 Strategies used by Civil Society Organizations in Mitigating Climate change in Kenya

Civil society organizations have set up strategies to help them cope with the climate change challenges that Kenya faces daily. Kenya came up with a certain response mechanism and it is popularly known as NCCRS⁶⁹. The main vision of this organization is to enable Kenya to have the will power in resisting and controlling anytime the climate changes for the worse. The mission of the organization is to give strength and give a countrywide pivot in having actions that are adaptable towards climate change and reduction in Greenhouse Gas (GHG) emission. This will only be a reality when such organizations bring more intense commitment and work in changing the negative while embracing the natural resources that Kenya has as a country.

For any strategy to effectively work, organizations must have objectives that will guide their critical path in having feasible strategies. The NCCRS has objectives that will help them in the cushioning of climate change in Kenya and they include, helping individuals understand and

⁶⁷ Munene, J.W., and Thakhathi, D.R., 2017. An analysis of capacities of civil society organizations (CSOs) involved in the promotion of community participation in governance in Kenya. *Journal of Public Affairs*, 17(4), p.e1668.

⁶⁸ Oyas, H., Holmstrom, L., Kemunto, N.P., Muturi, M., Mwatondo, A., Osoro, E., Bitek, A., Bett, B., Githinji, J.W., Thumbi, S.M. and Widdowson, M.A., 2018. Enhanced surveillance for Rift Valley Fever in livestock during El Niño rains and threat of RVF outbreak, Kenya, 2015-2016. *PLoS neglected tropical diseases*, 12(4), p.e0006353.

⁶⁹ Symons, K., 2014. Anti-politics, apocalypse, and adaptation in Kenya's national climate change response strategy. *Scottish Geographical Journal*, 130(4), pp.266-278.

adhere to the climate change authorities globally⁷⁰. These consist of the agreements done internationally, processes taken while negotiating with other countries, policies, rules, and regulations and lastly making sure that Kenya is benefiting from the climate changes at a maximum level. The second objective is having access to the shreds of evidence that climate change has in Kenya. In addition, the NCCRS has an objective of being able to easily adapt to the mitigation regulations that will help in reducing the climate risks and having an increase in positive opportunities for the country⁷¹. The NCCRS has an objective of making sure that every region in Kenya has a better knowledge of change in climate and its effects in certain vulnerable places across the country. Another objective is recommending regular evaluation on how the country's reaction to climate change and what the country needs to change on. More research and technology improvement on the aftermath of climate change to improve on the avenues the country has in mitigating is another objective. Having a good and workable policy that is legal and institutional to help in curbing climate change and lastly, having a positive action plan in analyzing, evaluating, and mitigating climate change in the country.

The Civil Society Organizations all aim at reducing the greenhouse gas emission into the atmosphere since this is the main cause of global warming⁷². Some of the strategies put in place include the retrofitting of houses and buildings that make them more efficient in terms of energy. Having to adopt a more natural source of energy like the use of solar, wind, and hydro. Having major cities, use a safer mode of transport like the use of buses, electric locomotives, biofuels, and rapid transit. In Kenya, there has been an increase in Sacco that has introduced buses as

⁷⁰Kwena, K., Ndegwa, W., Esilaba, A.O., Nyamwaro, S.O., Wamae, D.K., Matere, S.J., Kuyiah, J.W., Ruttoh, R.J. and Kibue, A.M., 2015. Climate Change Adaptation Planning in Kenya: Do Scientific Evidences Count?. In *Adapting African agriculture to climate change* (pp. 35-42). Springer, Cham.

⁷¹ Baimwera, B. and Wangombe, D., 2018. A reflection on the role of carbon markets in climate governance in Kenya. *International Journal of Critical Accounting*, 10(1), pp.70-96.

⁷² Bryan, E., Ringler, C., Okoba, B., Roncoli, C., Silvestri, S. and Herrero, M., 2013. Adapting agriculture to climate change in Kenya: Household strategies and determinants. *Journal of environmental management*, 114, pp.26-35.

being the primary mode of transportation around major cities like Nairobi. Another strategy has to encourage the effective use of land and forest in the country.

The majority of Kenyans rely on the use of traditional fuels like wood and coal as their basic source of energy especially those located in the rural areas⁷³. This is very harmful to the environment and also it can lead to deaths especially for women and children. By the time Kenya reaches 2035, there will be a rise of over 50 percent in death cases in developing regions. In IPCC, there is an alarming rise in the degrees of warming and urgent action plan and strategies have to be critically taken⁷⁴. They indicate that global emissions will rise as from 2030 and then decrease after 20 years if we successfully curb the issues of climate change in time.

Climate change in Kenya has affected both the natural and the economic state of the country. Take for example the El Nino rains that occurred from 1997 to 1998⁷⁵. It left the country in a very bad state financially and this led to foreign civil society organizations to come to give a helping hand. There was a relationship between the biodiversity, the land being destroyed, forests, the mixing of chemicals and waste from sewage lines into freshwater bodies that later on affect the communities that depend on the infected rivers and lakes. The civil society organizations in Kenya have a new ability to help the natural solutions in coming up with ways that are reasonable enough to the Kenyan environment to gain at the same time reducing chances of duplication and trade-offs across conventions.

⁷³ García, A.M., Gallagher, J., McNabola, A., Poyato, E.C., Barrios, P.M. and Díaz, J.R., 2019. Comparing the environmental and economic impacts of on-or off-grid solar photovoltaics with traditional energy sources for rural irrigation systems. *Renewable Energy*, 140, pp.895-904.

⁷⁴ Field, C.B., Barros, V., Stocker, T.F. and Dahe, Q. eds., 2012. *Managing the risks of extreme events and disasters to advance climate change adaptation: special report of the intergovernmental panel on climate change*. Cambridge University Press.

⁷⁵ Oyas, H., Holmstrom, L., Kemunto, N.P., Muturi, M., Mwatondo, A., Osoro, E., Bitek, A., Bett, B., Githinji, J.W., Thumbi, S.M. and Widdowson, M.A., 2018. Enhanced surveillance for Rift Valley Fever in livestock during El Niño rains and threat of RVF outbreak, Kenya, 2015-2016. *PLoS neglected tropical diseases*, 12(4), p.e0006353.

The civil society organizations aim at having effective measures that will help Kenya in reducing its greenhouse emission and all these must be following the objectives the foreign organizations like the UN Framework Convention on Climate⁷⁶. For this to be a success, the organizations in Kenya have designed a strategy that can go well with having financial sources that can fund any action plan needed when Kenya's climate change occurs, like the Green Climate Fund⁷⁷. The GCF is a board that funds different countries that have disastrous climate change. The GCF gives strength to the disaster management framework in every affected country. They are a very unique body that has a quick response to climate change with their main being reducing emission and having to develop a more resilient climate globally.

The two main strategies used by the civil society organizations to curb the climate changes in Kenya include having mitigation action plans that will reduce the greenhouse gas emission from the country's atmosphere and having efforts that will alter the systems and the communities to easily adapt to the climate changes and its effects⁷⁸. For a long time, communities have received the wrong information and this means the only two options left are adaptation and mitigation of the climate changes. This decision brings a lot of dangerous effects to communities located near the coastal regions, the farmers, and small islands like the Mombasa Town since they are at the frontline in regards to being affected by climate change. One example is when there are floods, the coastal communities and farmers cannot adapt to the changes all they have to do is flee and

⁷⁶ Ford, J., Maillet, M., Pouliot, V., Meredith, T., and Cavanaugh, A., 2016. Adaptation and indigenous peoples in the United Nations framework convention on climate change. *Climatic Change*, 139(3), pp.429-443.

⁷⁷ Cui, L. and Huang, Y., 2018. Exploring the schemes for green climate fund financing: international lessons. *World Development*, 101, pp.173-187.

⁷⁸ Bryan, E., Ringler, C., Okoba, B., Koo, J., Herrero, M., and Silvestri, S., 2013. Can agriculture support climate change adaptation, greenhouse gas mitigation, and rural livelihoods? Insights from Kenya. *Climatic change*, 118(2), pp.151-165.

come back when it is safe⁷⁹. This is due to the damages being caused by a large amount of water with so much force in a particular region. For the farmers, the plants do not get enough oxygen when fully covered by water hence leading to their death.

The objectives and strategies all come up due to the effects climate change has on affected countries. It is recorded that from 2000 to 2050, Kenya will have a rise in temperature as low as 2.5 degrees and this is majorly due to Kenya being very vulnerable to climate change⁸⁰. This was captured in a report in the foreign affairs ministry in the Netherlands. The climate change in Kenya is referred to as vulnerable because of not only the greenhouse gas emissions but also droughts, floods, landslides, and other natural catastrophes. The economy of the country is majorly dependent on tourism and agriculture that relies on the rain, but due to extremes climate changes, it has shifted the economy on a downhill affecting their capabilities of improving the living standards or renovating the aftermath of the calamities⁸¹. The droughts have jeopardized the food security and the deaths of livestock especially in north Kenya. This made the CS of the environment Mr. Keriako Tobiko develop a Green Growth as a civil society organization to help in the cushioning of climate change.

3.3 Effects of mitigating Kenya's climate

The climate in Kenya has already had tangible effects, these include the El Nino floods that happened in 1997 through 1998, this destroyed very many lands, homes, and people lost their

⁷⁹ Quandt, A. and Kimathi, Y.A., 2017. Perceptions of the effects of floods and droughts on livelihoods: lessons from arid Kenya. *International Journal of Climate Change Strategies and Management*.

⁸⁰ Kabubo-Mariara, J. and Kabara, M., 2018. Climate change and food security in Kenya (pp. 55-80). Routledge.

⁸¹ Christian, M., 2016. Tourism global production networks and uneven social upgrading in Kenya and Uganda. *Tourism Geographies*, 18(1), pp.38-58.

lives⁸². Rivers and dams drying out in some parts of the region, the local dams having a rise in water hyacinth and one example is the Nairobi dam and this is mostly due to the chemical and waste from industries that were once located around the dam. Lakes breaking out and trees are flowering very fast than usual. The major impacts that scientists predicted all over the world are not happening, the heat waves becoming more severe and the rise in sea levels rapidly increasing in the coastal regions. Climate change has caused more severe weather patterns that go for a long period exceeding the usual normal pattern and as mentioned above it results in drought, floods, and a rise in temperatures. A rise in temperatures, high drizzle in the arid and the semi-arid regions together with very strong winds has led to cyclones that increase the chances of Kenya having droughts and floods.

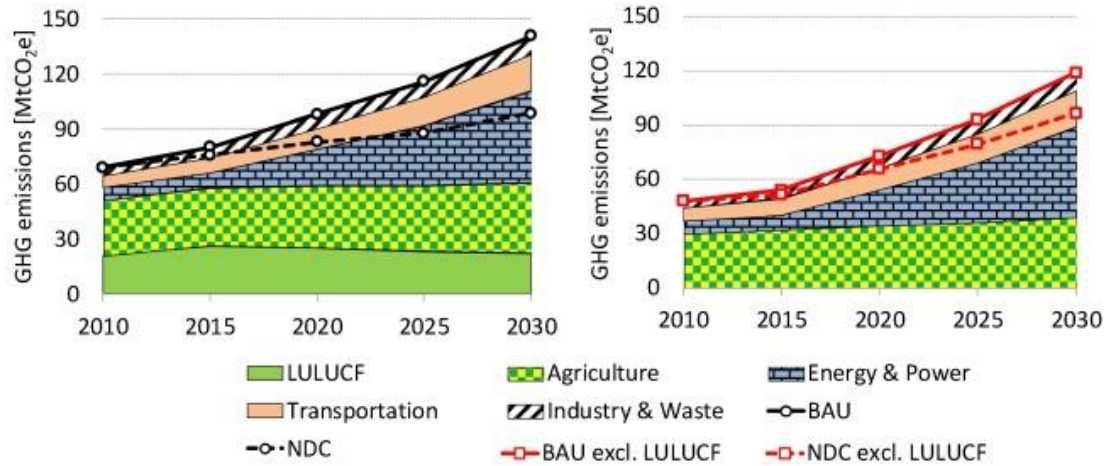
The Kenya Government has set up a program envisioning the 2030 vision for the country and this brings out the aftermath of mitigating climate change. The government decided to have a development of a more reliable system that is a climate-resilient program and it has created a board to oversee the same name, the NCCAP⁸³. Even though Kenya is trying to lower greenhouse gas leak, it will still not be very effective since there is a rise in population especially in the urban areas and this will eventually lead to a rapid increase in emission putting us back to square one. Economically, Kenya is very vulnerable in energy supply, which cause a rise in the temperature in the atmosphere. There is full reliance on hydropower but it is not as effective as it should be. But the government still has in place action plans that revolve around adaptation and mitigation as the solutions. Kenya had the 21st party conference with the UN Framework

⁸² Ochieng, J., Kirimi, L. and Mathenge, M., 2016. Effects of climate variability and change on agricultural production: The case of small scale farmers in Kenya. *NJAS-Wageningen Journal of Life Sciences*, 77, pp.71-78.

⁸³ Kwena, K., Ndegwa, W., Esilaba, A.O., Nyamwaro, S.O., Wamae, D.K., Matere, S.J., Kuyiah, J.W., Ruttoh, R.J. and Kibue, A.M., 2015. Climate Change Adaptation Planning in Kenya: Do Scientific Evidences Count?. In *Adapting African agriculture to climate change* (pp. 35-42). Springer, Cham.

Convention on Climate change in the year 2015 and they agreed on being very committed to low carbon development.

Kenya later decided to pledge on working to have a 30% emission decrease in greenhouse gas and to stop the business as usual way of changing climate⁸⁴. Kenyan's Second National Communication has an inventory that indicates the amount funded for the project of Gas emissions and they have provided the projections up to the year 2030. Below is the projected figure of the GHG emissions according to the SNC (Second National Communication). The left panel includes the land use and forestry while the right panel excludes them.



Source: Google

The projected emissions have been placed into several groups and they consist of land use, agriculture, forestry (LULUCF), transportation, industry, waste, lastly energy, and power⁸⁵. The mitigation of change in climate has led to the discovery of a rise in certain terms in 2030. This is dependent upon the demand Kenya has for sources of energy and the expansion of power supply. This supply goes up due to the rise of population in the country and the economy growing. Other

⁸⁴ Wachiye, S., Merbold, L., Vesala, T., Rinne, J., Räsänen, M., Leitner, S. and Pellikka, P., 2020. Soil greenhouse gas emissions under different land-use types in savanna ecosystems of Kenya. *Biogeosciences*, 17(8), pp.2149-2167.

⁸⁵ Smith, J., 2000. A more realistic assessment of the role of LULUCF projects under the CDM: narrowing the gap between proponents and opponents.

categories have remained constant or slow in growth. The LULUCF has led to the rise of deforestation in Kenya and this has been an effect when the civil society organizations come in to help in mitigating. One major example is the rise in charcoal production has led to the cutting down of trees but on the positive side, it has enabled the creation of cropland. On May 12, the minister of environment came up with an initiative to plant more trees to restore the Greening Kenya Initiative program. This is also an effect caused by civil societies trying to mitigate climate change.

3.4 Environmental threats faced by the CSOs in mitigating climate change in Kenya

Currently, the annual temperatures have been rising across the globe and this has led to the oceans being warmer than usual, the snow slowly decreasing, and the levels of the sea slowly rising⁸⁶. Even though there is proof that the climate is changing, the scientists all conclude that it is due to negative activities. Change in climate is being seen all over the globe, from Bangladesh and Maldives, which are low-lying countries to countries in the arid regions in Africa. Over years now, the temperatures globally have been increasing. This has caused the oceans and lakes to be warmer than usual, the ice caps on mountains slowly disappearing, one example is that in Mt Kenya, and the sea levels keep on rising. There are now physical shreds of evidence that Change in climate is negatively affecting the globe and this is due to bad human activities.

The climate changes have put a burden on governments and mostly the civil society organizations in Kenya, and this is mostly due to the limited resources the country has⁸⁷. Even though they are trying to find better ways of mitigating climate change in Kenya, there are

⁸⁶ Kogo, B.K., Kumar, L., and Koech, R., 2021. Climate change and variability in Kenya: a review of impacts on agriculture and food security. *Environment, Development, and Sustainability*, 23(1), pp.23-43.

⁸⁷ Ojwang, L., Rosendo, S., Celliers, L., Obura, D., Muiti, A., Kamula, J. and Mwangi, M., 2017. Assessment of coastal governance for climate change adaptation in Kenya. *Earth's Future*, 5(11), pp.1119-1132.

certain environmental threats that they face. One threat is trying to change the rain patterns or drought seasons can negatively affect the health of a country, lead to more natural calamities, food security, increase in migration, and insecurity. The most affected communities are those that live with disabilities, the marginalized communities, women, and children⁸⁸. The aftermath of environmental threats posed towards the country include the risk of having inadequate food, shelter, water, and health, and this is according to the OHCHR⁸⁹. Over the years, the UN and other civil society organizations have tried resolving the aftermath of change in climate following the full knowledge of maintaining human rights during the process. They aim at protecting and promoting the health, respect, peace of mind of individuals. The major reason behind the connection between human rights and climate change in Kenya is its effects across the entire country.

It is projected that Africa has the most intense climate change effects due to its subtropical and tropical climates and since they are financially limited, the aftermaths become even more catastrophic⁹⁰. One major region in Kenya that is most common to experience is Turkana County that is next to countries like Ethiopia, South Sudan, and Uganda. This county is commonly known as the cradle of humanity due to ancient archaeological findings in the region.

The county is the least fortunate in the entire country yet the population is rapidly increasing. The county over the past ten years has had a total of over one million individuals living in the area and they are mostly pastoralists. They mostly rely on their livestock for their livelihood. They practice fishing from Lake Turkana and this has led to the rise of towns near the lake. They

⁸⁸ Willett, J.L., 2015. The slow violence of climate change in poor rural Kenyan communities: "Water is life. Water is everything.". *Contemporary Rural Social Work Journal*, 7(1), p.6.

⁸⁹ Schilling, J., Akuno, M., Scheffran, J. and Weinzierl, T., 2014. On raids and relations: Climate change, pastoral conflict, and adaptation in northwestern Kenya. *Conflict-sensitive adaptation to climate change in Africa*, 241.

⁹⁰ Opiyo, F., Wasonga, O.V., Nyangito, M.M., Mureithi, S.M., Obando, J. and Munang, R., 2016. Determinants of perceptions of climate change and adaptation among Turkana pastoralists in northwestern Kenya. *Climate and Development*, 8(2), pp.179-189.

lack the right infrastructure and hence their traditional way of living⁹¹. Turkana County is known for having communities being malnutrition and unhealthy due to their long seasons of drought and famine⁹².

The Kenya government has records of an increase in temperatures in the country and the most affected region in Turkana County⁹³. Globally there is a rise of over 0.8 degrees Celsius while in Turkana County there has been a record of 2 degrees to 3 degrees from 1997 to 2012. The precipitation patterns have also changed and they are now becoming shorter than before hence the occurrence of droughts and famine in the country, while the annual rainfall levels remain to go down over the years. The CSOs, human rights bodies, and the Kenyan government already know that change in climate is currently and will continue to influence Kenya negatively. This hinders the affected communities from enjoying their human rights as they should. The temperatures on the earth's surface are predicted to rise and the heat waves are likely to always occur. These effects are threatening the CSOs and the government financially since Kenya is among the low-income countries in Africa. Especially Turkana County has a large number of poor infrastructures compared to other counties in Kenya. Below is a map indicating the geographical location of Turkana County in Kenya.

⁹¹Rall, K. and Horne, F., 2018. 'There is no time left': climate change, environmental threats, and human rights in Turkana County, Kenya. In *Routledge Handbook of Human Rights and Climate Governance* (pp. 301-311). Routledge.

⁹² Waila, J.M., Mahero, M.W., Namusisi, S., Hoffman, S.J. and Robertson, C., 2018. *Outcomes of Climate change in a Marginalized population: an Ethnography on the Turkana Pastoralists in Kenya*.

⁹³ Heiret, T., 2020. *The Impact of Climate Change Induced Resource Scarcity on Human Security: An Analysis of Experiences by Families in Lokichoggio, Turkana County, Kenya* (Doctoral dissertation, United States International University-Africa).

The Human Rights Watch conducted research and their target audience was the pastoralists, fishermen, students, teachers, civil society activists, clinical health officers, and police officers⁹⁴. Their reports concluded that the county suffers from climate change due to the economic, political, environmental, and social challenges they face. One major environmental threat the social civil organizations face is their ability to get access to the endangered communities in the counties. The extended long period of droughts has caused the communities to lack food, water, shelter, and medical assistance from the CSOs. Another environmental threat facing the county is the high-temperature rise, combined with low rainfall annually together with the population growth, creates threats towards the region the irrigation and hydroelectric projects from the neighboring countries like Ethiopia. When the water levels in Lake Turkana reduce, it will cause an environmental threat to the communities nearby. There will be a low input of fresh water from Omo River to the Lake and this will rise salinity and an increase in temperatures that will harm the water creatures in the lake, decreasing the number of breeding fish. High salinity will lead to a high temperature hence evaporation, which affects the productivity of the fish.

The Kenya government and the civil society organizations have acknowledged the fact that the change in climate will and has negatively affected the country⁹⁵. In September 2014, the president of Kenya in the New York summit urged Kenyans to have a decisive action plan and he branded it as a serious global climate challenge that is affecting the economy in Africa. As indicated above, Kenya has tried to curb the climate change threats by coming up with the Kenya NCCRS in 2010 and 2013 when they introduced the Kenya NCCAP⁹⁶. The government later introduced the climate change council to foresee the program with the ministry and the CSOs to

⁹⁴ Burugu, A.N., 2016. Assessing the impact of climate change on food security of communities in Turkana County (Doctoral dissertation, University of Nairobi).

⁹⁵ Njoroge, J.M., 2014. Tourism, millennium development goals and climate change in Kenya.

⁹⁶ Symons, K., 2014. Anti-politics, apocalypse, and adaptation in Kenya's national climate change response strategy. *Scottish Geographical Journal*, 130(4), pp.266-278.

deal with the environmental threats accordingly. It is clear to say that the government is not alone in mitigating the environmental threats due to climate change. These changes will help the country realize that both human rights and environmental threats go hand in hand when dealing with climate change in Kenya.

3.5 Solutions CSOs have in curbing the climate change problems in Kenya

According to the project done by the IPCC, scientists behind climate change have become even more clear⁹⁷. When climate changes, it is mainly caused by human activities that are negatively contributing. This has made many communities in Kenya, one example is the Turkana County, have a difficult life and impossible. There are certain solutions that civil society organizations can take action upon to curb climate change. The first solution is having secure investment funding from the World Bank to help in the cushioning of climate change in Kenya⁹⁸. The World Bank was on board and they released a grant in July 2021 to go towards extremes weather patterns in the country. The funds given to the government will assist the civil society organizations to mitigate climate change in case of an abrupt catastrophe when it occurs. This funding will be a solution for emergency health services in the country.

The millions given by the bank's international development will help the communities that are vulnerable and easily prone to extremes weather patterns, hence boosting their economy and that of the country. Each year there has been an increase of approximately 2 percent of the GDP as the estimated cost in dealing with the rise of droughts and famine in Kenya according to World Bank records. This will influence the country in a negative path since Kenya is depending on agriculture for their livelihoods but their lands are more semi-arid and arid than green. The civil

⁹⁷ Drijfhout, S., Bathiany, S., Beaulieu, C., Brovkin, V., Claussen, M., Huntingford, C., Scheffer, M., Sgubin, G. and Swingedouw, D., 2015. Catalog of abrupt shifts in Intergovernmental Panel on Climate Change climate models. *Proceedings of the National Academy of Sciences*, 112(43), pp.E5777-E5786.

⁹⁸ Herrero, M.T., Ringler, C., Steeg, J.V.D., Thornton, P.K., Zhu, T., Bryan, E., Omolo, A., Koo, J. and Notenbaert, A.M.O., 2010. Climate variability and climate change and their impacts on Kenya's agricultural sector.

society organizations can choose to work with both the foreign organizations and the national treasury of Kenya to address the economic crisis being caused by the climate change catastrophe, to reduce poverty, and help communities affected. Money is the number one solution to help in mitigating change in Kenya's climate and it is a privilege to have foreign parties like the UN and the World Bank come help⁹⁹.

The change is still an undergoing issue that needs to be dealt with and solutions that work should be implemented. The other solution is by putting a price on carbon systems that helps in the reduction of gas emissions¹⁰⁰. One example is the emissions trading systems that can hold the gas emissions and the charge per ton of carbon taxes. How they work is that they send signals to companies that they ought to reduce their pollution actions on the environment and choose better and cleaner energy that is low on carbon. These systems will help the companies and industries to regulate their chemical and waste management effectively. It creates a more innovative way of decreasing the major climate change causes, which is the Greenhouse gas emissions¹⁰¹. Currently, through the help of civil society organizations and the Kenyan government, over 20 cities are trying to introduce carbon trading systems and carbon taxes into their various industries and luckily, their numbers are increasing. This shows that the carbon trading systems as a solution to mitigate climate change are slowly being accepted and implemented in Kenya.

⁹⁹ Odhengo, P., Atela, J., Steele, P., Orindi, V., and Imbali, F., 2019. Climate finance in Kenya: review and future outlook. Discussion Paper. ADA Consortium.

¹⁰⁰ Maina, I., Newsham, A. and Okoti, M., 2013. Agriculture and climate change in Kenya: climate chaos, policy dilemmas. *Future Agricultures*, 70.

¹⁰¹ Ortiz-Gonzalo, D., de Neergaard, A., Vaast, P., Suárez-Villanueva, V., Oelofse, M. and Rosenstock, T.S., 2018. Multi-scale measurements show limited soil greenhouse gas emissions in Kenyan smallholder coffee-dairy systems. *Science of the Total Environment*, 626, pp.328-339.

Another solution is by ending the fossil fuel subsidies, which encourage the use of, recycle, waste, and discourages the use of carbon¹⁰². This action plan of reducing the use of fossil fuels has led countries like Kenya to concentrate more on useful ways to curb climate change. In 2013, over 13 million dollars was directed to the fossil fuel subsidies across the globe, which led to a rise in the GDP in countries to help them with the usage of low carbon energy. The project behind fossil fuel reduction is not only for the poor countries to act upon but also for the wealthy countries who are trying to benefit from the consumption of fossil fuel subsidies. Trying to change and have the use of clean energy in Kenya is never an easy task. The population must be properly educated on the use of clean energy to support their own lives. The World Bank decided to fund the country to have the subsidies effectively work for vulnerable communities.

The third solution to help the CSOs is by having cities that are mainly built upon low carbon, and that is by getting the correct pricing in the market¹⁰³. The other part of the equation is by having a future for the country since everything occurs in the area of the country's climate change. There will be more development in major cities in the next 6000 years and Kenya should expect population growth in the process. With careful considerations and planning from both the Kenya government and the CSOs, they should aim at introducing cleaner energies and blocking off any substance that will not contribute to sustaining the country in the future. The planning process includes better means of transportation and land use, which will create more job opportunities for citizens¹⁰⁴. While at it, the existence of air pollution will be outdated. Having funds for an entire country to be sustainable can be a difficult task since 5 percent of countries in the world are

¹⁰² Simberg-Koulumies, N., 2021. The Political Economy of Ending the Fossil Fuel Era: Lessons from the Lake Turkana Wind Power Project in Kenya.

¹⁰³ Rashidi, K., Stadelmann, M. and Patt, A., 2017. Valuing co-benefits to make low-carbon investments in cities bankable: The case of waste and transportation projects. *Sustainable Cities and Society*, 34, pp.69-78.

¹⁰⁴ Kitha, J. and Lyth, A., 2011. Urban wild escapes and green spaces in Mombasa and their potential contribution to climate change adaptation and mitigation. *Environment and Urbanization*, 23(1), pp.251-265.

considered credit-worthy. The rest all live on foreign loans like Kenya has over Billions of dollars in debt. This can act as a hindrance from it being sustainable in the future. The temporary solution for Kenya's financial position is with the help of the World Bank Group that helps the country in their strategic planning in regards to climate change mitigation. Lastly, Kenya can adopt a climate suitable agriculture program that will help them nurture landscapes¹⁰⁵. This is both an adaptation and mitigation solution the civil society organizations can opt to embrace. One major example is the farmers in Isiolo who practice agroforestry. Kenya has benefited from their practices especially during the drought and famine seasons. They helped in reducing the effects of extreme droughts and floods events.

Key Recommendations

The first recommendation is to the Kenyan government to make sure that the adaptation plans are up to par with the regulations and policies set by the UNFCCC and the human rights board internationally¹⁰⁶. These human rights laws include the rights to food security, shelter, security, health, and water. These plans when taken into consideration should effectively help the country to curb the change and its impacts. The implementation of these plans should help in reducing the burdens communities, marginalized groups like the children and women in Kenya face during severe climate change. Another recommendation to the government is that they ought to eliminate any form of discrimination through their policies, action plans directed to mitigate change in Kenya. The strategies should be applicable and beneficial to everyone in the country.

To the foreign donors like the World Bank, the major recommendation to them is that they need to take due diligence in knowing which organization needs their funds more. This will eliminate

¹⁰⁵ Quandt, A., 2020. Contribution of agroforestry trees for climate change adaptation: narratives from smallholder farmers in Isiolo, Kenya. *Agroforestry Systems*, 94(6), pp.2125-2136.

¹⁰⁶ Ochieng, J., Kirimi, L. and Mathenge, M., 2016. Effects of climate variability and change on agricultural production: The case of small scale farmers in Kenya. *NJAS-Wageningen Journal of Life Sciences*, 77, pp.71-78.

bad organizations from misusing foreign funds that might not be under human rights. They should always assess every organization that calls for their financial help. One major issue in Kenya is corruption and this is when organizations ask for funding but their motives are not to help the vulnerable and affected communities but for their selfish gain. Corruption and poor governance are the number one cause of countries not developing or growing economically. The World bank should only approve projects once they have fully verified that there is no trace of violation of human rights in Kenya and that it will be of great benefit not just in Turkana county but the entire country¹⁰⁷.

Other recommendations are directed to the county government of Turkana to conduct an evaluation with the affected communities around the county and find out what their views are on the adaptation plans implemented or suggested to them by the CSOs¹⁰⁸. They are in a better position to decide what works best for them and what does not. They might have better ideas than the government since they know the effects of the change in their region. The county government of Turkana in Kenya should ensure that there is full participation from the marginalized groups in curbing climate change. With the help of the locals, the implementation will be easier and faster since no resistance will be faced. County government can try to have an adaptation strategy that will assist the Kenyan government to distribute resources without the element of discrimination towards the vulnerable communities.

¹⁰⁷ Nthambi, M., Markova-Nenova, N. and Wätzold, F., 2021. Quantifying Loss of Benefits from Poor Governance of Climate Change Adaptation Projects: A Discrete Choice Experiment with Farmers in Kenya. *Ecological Economics*, 179, p.106831.

¹⁰⁸Heiret, T., 2020. The Impact of Climate Change Induced Resource Scarcity on Human Security: An Analysis of Experiences by Families in Lokichoggio, Turkana County, Kenya (Doctoral dissertation, United States International University-Africa).

In conclusion, all the state parties like the UNFCCC, should effectively make and implement strategies that aid in adapting good climate change measures¹⁰⁹. The measures must always be following human rights mostly towards the local communities in Kenya. They should also see that obligations to human rights should be included in regards to climate change and that associate parties have to protect human rights especially when agreeing on future sustainability programs for the country. The UNFCCC should set up accountability paths for the climate change policies to be analyzed, evaluated, and monitored in a way that the marginalized communities in Kenya are protected and their needs are met accordingly. It is clear to say that the Civil society organizations in Kenya can work together with the government of Kenya, The county governments in different counties, and foreign parties like the World Bank and the UNFCCC to help mitigate the change in Kenya.

The Kenyan government and the civil society organizations are well knowledgeable of the aftermath of climate change has on the country and they have tried to mitigate it for the vision they had for 2030. According to Mrs Wakhungu, the cabinet secretary in ministry of environment and natural resources tried to develop a strategic plan in 2010 and it was dubbed NCCSR¹¹⁰. This is the NCCRS¹¹¹. The ministry has an action plan that was to take place in 2013 and 2017 with the help of civil society. The CSOs aim at using the National Adaptation Plan marks another year of them trying to make Kenya less vulnerable and more resilient to climate change. The NAP was formulated by organizations from the government and civil society

¹⁰⁹Stokke, O.S. and Thommessen, O.B., 2013. United Nations Framework Convention Climate Change (UNFCCC). In Yearbook of International Cooperation on Environment and Development 2001-02 (pp. 87-93). Routledge.

¹¹⁰ Symons, K., 2014. Anti-politics, apocalypse, and adaptation in Kenya's national climate change response strategy. *Scottish Geographical Journal*, 130(4), pp.266-278.

¹¹¹ Beddington, J.R., Asaduzzaman, M., Clark, M.E., Bremauntz, A.F., Guillou, M.D., Howlett, D.J.B., Jahn, M.M., Lin, E., Mamo, T., Negra, C. and Nobre, C.A., 2012. What next for agriculture after Durban?. *Science*, 335(6066), pp.289-290.

together with funding from foreign organizations. Two counties already using this adaptation plan include Wajir and Makueni¹¹².

All these external bodies continue to assist the country in having effective adaptation actions implemented. The effectiveness of NAP relies fully on the government changing the climate change act, which was made a law by the President of Kenya in 2016. The climate change goals will only be met when the civil society organizations work following the climate change act. This will help the sub-Saharan regions in Africa and Kenya to be specific, in reducing poverty and adapting to agriculture¹¹³. The government of Kenya and the civil society organizations are very committed to mitigating climate change together with showing good leadership in fighting against climate change to enforce good health, not only in Kenya but also across the continent¹¹⁴.

¹¹² Chaudhury, M., Summerlin, T. and Ginoya, N., Mainstreaming Climate Change Adaptation in Kenya: Lessons from Makueni and Wajir Counties.

¹¹³ Nzuma, J.M., Waithaka, M., Mulwa, R.M., Kyotalimye, M. and Nelson, G., 2010. Strategies for adapting to climate change in Sub-Saharan Africa: a review of data sources, poverty reduction strategy programs (PRSP), and national adaptation plans for agriculture (NAPAs) in ASARECA member countries.

¹¹⁴ Omungo, P.A., 2011. A review of the role of civil society in advocacy and lobbying for enforcement of health policy in Kenya. *African Population Studies*, 25(1).

CHAPTER FOUR

KEY CHALLENGES AND STRATEGIES FACED BY CSOs IN MITIGATING CLIMATE CHANGE IN KENYA

4.0 Introduction

The following chapter presents detailed findings from the data which was collected through focus group discussions with experts which included officials from Green Africa Foundation, Ministry of Environment and Forestry, and Kenya Climate Change working groups. Other sources of primary data that the researcher used included; magazines and newspapers, witnesses' reports, and reports from church leaders. The researcher sought to collect data from the aforementioned primary sources since the area of research in science and therefore requires data from experts. The primary data that was collected was analyzed using coding. The findings from the research have been presented thematically in the form of a narrative employing descriptive statistics and in charts, tables, and graphs. The presentation of the findings has been guided by the specific objectives that underpinned the study. The chapter has been divided into five sections. The first section reports on the challenges faced by CSOs in mitigating climate change. The second section reports on the key challenges to climate change mitigation. The fourth section reports on the strategies employed by CSOs in mitigating climate change and their effectiveness. The fifth section reports on the potential areas for improvement to enhance CSO's role in climate change mitigation. These key findings shall inform changes in policy necessary for supporting the roles and contributions of CSOs in climate change in Kenya.

4.1 Key Challenges to Climate Change Mitigation

The researcher sought to investigate from the respondents the key challenges that impede climate change mitigation. Based on the research findings, a majority of the respondents (30.2 %) identified drought as a major challenge to climate change mitigation. 22.6 % of the

respondents identified temperature rising as the main challenge to climate change mitigation, while 18.2 % pointed out irregular rainfall patterns as the main challenge to climate change mitigation. In addition, 11.2 % of the respondents identified rising sea levels as the main challenge to climate change mitigation while 16.2 % identified wildfires as the main challenge to climate change mitigation. Furthermore, 1.6% of the respondents identified snow melting as the main challenge to climate change mitigation as indicated in the figure below.

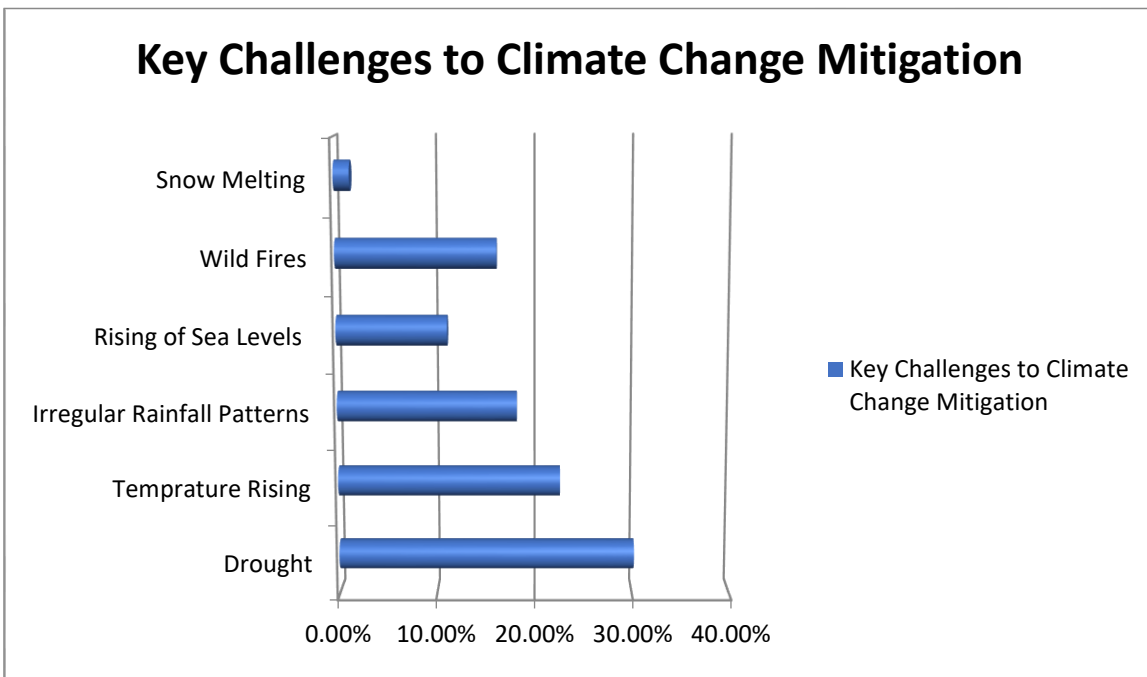


Figure 4.1 Key Challenges to Climate Change Mitigation

Source; Researcher, 2021.

The above figure 4.1 is a presentation of the summary of the key challenges that impede climate change mitigation as per the responses offered by the respondents. Temperature rising, droughts, wildfires, unpredictable and irregular patterns of rainfall, melting of snow, and rising sea levels were all identified by the respondents are key challenges to climate change mitigation but to different degrees. These climate change impacts as identified by the respondents have affected the critical resources to the prosperity of Kenya. As a result, the situation is posing a

challenge to climate change mitigation which involves resource-intensive measures. The climate change impacts have drained the economy of Kenya immensely and with the continuing of GHG emissions unabated, the already precarious situation could be intensified in the future, reported one of the respondents. The following is a more detailed comprehensive discussion that critically analyzes the findings from the research as pointed out by the respondents.

4.1.1 Drought

The most cited challenge to climate change mitigation as per the respondents was droughts which affect most parts of the country especially northeastern regions. Droughts in Kenya have become a frequent occurrence due to the increases in the average temperatures. Days have become hotter and nights have become colder. Prolonged and frequent drought affects the critical resources to the prosperity of Kenya thus posing a challenge to climate change mitigation which involves resource-intensive measures. Quoting one of the responses who mentioned that he is from the Maasai community, the respondent mentioned that;

”Our homes have become unlivable since we cannot get access to adequate food and water.”

Another respondent added that;

“It is so cold in the night and so hot during the day, and the nights are even longer because most of the time we go to bed without eating.”

Most of the responses cited the extreme weather patterns in northeastern regions and the struggle to find water and food. Such responses reflect the worsening situation of drought in Kenya and the effects that they have on livelihoods. According to a 2010 report by NCCAP, the La Nina droughts which took place in 1999-2000 led to the starvation of over 4.7 million Kenyans while the 2006-2009 episodes of drought lead to starvation of 10 million Kenyans

which accounted for over a fourth of the population in Kenya.¹¹⁵ The findings from the study corroborate the responses from the study participants who highlighted the worsening of an already precarious situation.

The researcher also sought to generate primary data from a report made by a witness. The essence of doing this was to generate a point of view that develops rich insights into how the effects of prolonged drought have impeded climate change mitigation. Nice Nailantei Leng'ete narrates how the drought has covered most regions in Kenya and the resulting effects¹¹⁶. From her perspective, Nice recounts how Serengeti and Amboseli where Maasai pastoralist is feeding their cattle have dried up as a result of prolonged drought. She adds that when the rain sets in it is usually intense and cause immense damage to communities and cattle. The prolonged droughts usually lead to a lack of grass for the pastoralists to feed their cattle.

Leng'ete mentions that it is now a common thing to encounter dead cattle all over the regions. She also indicates that being that the community she emanates from relies on cattle for livelihood; the lack of grass often results in conflicts with crop growers who raise complaints about cattle that feed on their crops. The pastoralists even embark on cattle rustling and raiding over grazing lands with one another. Besides, the witness adds that drought has led to women and girls spending most of their time during the day looking for water over long walking distances. This is because the usual places that had water have dried up as a result of an extended period of drought. Moreover, the prolonged droughts have forced numerous families to fall into

¹¹⁵ Government of Kenya. *National Climate Change Response Strategy*. Executive Brief, Nairobi: Government of Kenya, 2010.

¹¹⁶ International Minority Rights Group. *Minority and Indigneous Trends 2019*. London: Minority Rights Group International, 2019.

desperate hunger situations with young girls from the age of 12 being forced into marriage in exchange for cattle.



Figure 4.2; A young Maasai girl exchanged with cattle as bride price

Source: International Minority Rights Group, 2019.

Furthermore, elders from the Maasai pastoralist community also indicate that the days are becoming hotter and the nights colder. The cold nights have resulted in frost covering the grass over which their cattle are feeding on which they identify as posing a health risk to their livestock.

4.1.2 Temperatures Rising

In addition, rising temperatures were also among the top challenges to climate change mitigation as opined by the respondents. This portion of respondents agreed that the country has been warming recently which was a cause of worry. The respondents mentioned that some of the

reasons why temperatures have risen thus far include the cutting down of trees for charcoal, emissions from vehicles and factories, and land-use changes. Citing some of the responses from the participants, one of the respondents indicated that;

” We have contributed so much to the warming of the country as humans due to our sense of irresponsibility. We cut down trees we did not plant yet do not consider replanting others.”

Another response from another respondent who identified the transport system as one which heavily contributes to the emissions causing warming of the planet mentioned that;

“The transport system of the country has evolved in such a way that most people are inclined to using private vehicles than public transport. The inclination to private transport means more cars are on the roads hence more emissions.”

Moreover, citing from one of the respondents who highlighted land-use changes as being a significant cause of rising temperatures, the respondent asserted that;

”Due to rapid growth in population, people have resorted to cutting down trees to set up homes which is a factor that significantly contributes to global warming.”

A certain report by **IFAD** on the management of natural resources indicates that increased population growth brings about overt pressure regarding the demand for land for agricultural purposes and for human settlements.¹¹⁷ The above are just some of the responses that the participants offered and it is worth mentioning that the provided insights could be explored further. The respondents mainly indicated that the rising temperatures were mainly fueled by human activities. Studies have also shown how Kenya has been warming. According to the NCCAP report, it is identified that temperatures have risen to a greater extent in all parts of the country. There has been an increasing warming trend for both maximum daytime temperatures

¹¹⁷ IFAD (2012). International Fund for Agricultural Development. Upper Tana Catchment Natural Resource Management Project (UTaNRMP). Nairobi: UTaNRMP/IFAD.

and minimum nighttime temperatures. Minimum nighttime temperatures have generally from 0.7 to 2.0 degrees Celsius while maximum daytime temperatures have risen from 0.2 to 1.3 degrees Celsius depending on the region and season. The report further identifies that the regions which are situated near large water bodies experience rising maximum temperatures much like other regions. However, the minimum temperatures in these regions have either become slightly lower or not changed.

4.1.3 Wild Fires

Moreover, 16.2 % of the respondents who cited wildfires as a key challenge to climate change mitigation indicated that such fires were a significant threat to forests and wildlife. The respondents indicated that when a wildfire occurs, a lot of disruptions take place. While some of these respondents articulated that wildfires disrupted water supplies, transportation systems, and power lines, other respondents mentioned that wildfires often deteriorate the quality of air, and lead to massive loss of lives of animals, people, and property. According to a 2016 study by Wafula, the author identifies that wildfires bring about immense destruction which varies from severe deaths of animals and people, as well as the destruction of livelihoods and infrastructure.¹¹⁸ The findings of this study confirm the sentiments of the 16.2 % of respondents that were derived from the study.

According to the respondents, most of the wildfires occurred as a result of human activities. The respondents lauded that wildfires began as a result of accidental ignitions, smoking of cigarettes, sparks from railroads, arson, power lines, campfires, and fireworks. The researcher also collected primary research from newspapers and magazines to generate rich insights on wildfires as an impediment to climate change mitigation from an expert point of

¹¹⁸ Wafula, Andrew Wanjala. "The Role of County Government in disaster risk reduction: A case study of Lower Majengo in Narok County Kenya." (2016).

view. The primary data from the magazine gave rich insights into how wildfires have been posed a serious challenge to climate change mitigation in Kenya corroborating the responses from the participants. According to a Kenyan magazine known as *the International Association of Wildland Fire*, a majority of wildfires in Kenya are driven by prolonged drought. Several counties in Kenya in the northern regions including Turkana, Garissa, and other counties neighboring them have over experienced a long period of drought. Besides, other counties in Central Kenya such as Kirinyaga, Nyeri, and Meru have also experienced extreme drought. The prolonged drought in these regions as identified in the magazine has led to numerous wildfires as well as in the region around Mount Kenya which lies in the northern part of the Equator.¹¹⁹ The Kenya Wild Life Service (KWS), Kenya Red Cross Society (KRCS), and Mount Kenya Conservation have reported that as of 2020, nearly 80,000 hectares have been brought down by wildfires. These findings suggest most parts of the country are already facing drastic wildfires encounters. The causes of wildfires as highlighted in the magazine enrich the responses from the 16.2 respondents who highlighted wildfires as a threat to climate change mitigation.

4.1.4 Rainfall Patterns

Additionally, 18.2% of the respondents further indicated that currently there has been a trend towards inconsistent rainfall. Rainfall is a source of water for use in domestic activities and also for agricultural practices. Farmers in Kenya generally depend on the availability and predictability of rainfall. Whenever there is an irregularity in the patterns of rainfall, farmers are at risk of running losses due to crop failure. One of the respondents indicated that;

¹¹⁹ Ngunjiri, Jose, and Wako Abgudo. *Drought-Driven Wildfire in Kenya Strain Response System*. April 30, 2021. <https://www.iawfonline.org/about-magazine/> (accessed October 8, 2021).

“Back then it was easy to predict if it was going to rain by just seeing rain clouds. These days it is very rare to see rain clouds and even if you see, it is no guarantee that there will be a downpour.”

Another respondent lauded that;

“Irregular patterns of rainfall leads to low crop yields which mean poor communities are prone to starvation and families may be unhealthy due to insufficient food.”

NCCAP reports also depict that for a considerable period of time, rainfall patterns have become unpredictable and irregular.¹²⁰ Even if it rains, the downpour is usually highly intense. Rainfalls greatly vary from year to year and during the year. On the one hand, there has been a general decline of rains during the major season of rainfall which usually occurs in the season of March to May. The season usually records long rains but this is now not the case since frequent and prolonged droughts is now occurring during the long rains season. On the other hand, there is a general positive inclination or rather a positive trend to more rains during the season of short rains which takes place from September to February. This is an indication that short rains which used to occur between October and December are now extending into months of January and February which used to be known as dry periods. In addition to that, NCCAP also indicates that the volume of rainfall as measured within a period of 24 hours suggests that there is an occurrence of more intense rainfalls with high frequency over the northern parts and coastal strip of the country.¹²¹ This is an indication that such areas may experience a frequent manifestation of severe floods. The findings from the study, therefore, elaborate on the irregularity and unpredictability of rainfall as lauded by the respondents.

¹²⁰ Government of Kenya. *National Climate Change Response Strategy*. Executive Brief, Nairobi: Government of Kenya, 2010.

¹²¹ Ibid.

4.1.5 Sea Level Rising

Moreover, 11.2 of the respondents identified that rising sea levels have become a major challenge to climate change mitigation in Kenya. Kenyan coastline is facing rising sea levels. The coastal towns which include Kwale, Mombasa, Lamu, and Malindi are low-lying and therefore are at huge risk of being submerged due to rising sea levels. The coastline is a region that attracts tourists from as far as Canada, Europe, Asia, Australia, and Canada due to the white sandy beaches and hidden gems that give them valuable and rich experiences of culture and history.¹²² This implies that the coastal region in Kenya is a significant contributor to the country's economic development. Major fisheries and ports are also situated along the coastal region. However, the rising sea levels resulting from global warming poses a threat to the country's dependence on tourism as well as the livelihoods of the coastal population.

A majority of the respondents also exhibited similar sentiments as they depicted that rising levels would potentially cause flooding in the coastal region since it is low lying. The respondents also mentioned that rising sea levels would threaten not only the precious and valuable tourist attraction sites but also human settlements and lives. Besides, Okemwa indicates that the coastal region is the richest with regard to natural resources. The author however mentions that sea level in the coastal region has been fluctuating as a result of the melting of snow caps, geological processes, movement of the earth crust, and more rapidly due to the greenhouse effect.¹²³ The findings of the studies, therefore, corroborate the responses that were derived from the respondents.

¹²² Rotich, Kevin. *How rising sea level threatens livelihoods at Kenyan Coastline*. News, Nairobi: Business Daily, 2021.

¹²³ Okemwa, E. (1992). *The Implications of Climate Change and Sea Level Rise in the East African Coastal Region: a Study of Kenya*.

4.1.6 Snow Melting

Furthermore, 1.6% of the respondents pointed out snow melting as a major challenge to climate change mitigation. Based on the findings, the respondents mentioned that the ice on Mount Kenya is slowly melting away. As a result, the rivers that flow from the glaciers to the nearby communities' land are not as full as they were initially. The respondents also mentioned that at first when the snow started melting on Mount Kenya, the flows in the rivers were very high since the water levels had increased. However, as time went by, the flow subsequently reduced since the glaciers do not recover like they use to be before the reality of climate change set in.

The researcher sought to enrich their findings with other primary data sources. Media reports from newspapers and magazines also indicate that the snow on Mount Kenya and Mount Kilimanjaro are gradually melting away. This is the reason why recently floods have become a common incidence. The melting of the snow caps of these mountains is a result of global warming. Professor Jesse Mugambi who is part of the World Council of Churches working group (WCC) on climate change has reported on the situation of the melting snow on Mount Kenya and Mount Kilimanjaro. The professor who has been at the center of debates on climate change globally has referred to the region around Mount Kenya as having lost most of the ice that covered it as a result of global warming.¹²⁴ He mentions that the rivers at the slopes which used to be fed by Mount Kenya's thawing ice are gradually drying up. He says, "That is how serious the problem is".¹²⁵ As a result, communities living around the streams are at a greater risk of lacking adequate water for agricultural and domestic purposes. As of now, the communities living around these mountains are competing for water, farms, and pasture. In addition to that,

¹²⁴ Nzwili, Fredrick. *Melting ice caps on Mt Kenya and Kilimanjaro need action now*. May 24, 2007. <https://www.oikoumene.org/news/melting-ice-caps-on-mt-kenya-and-kilimanjaro-need-action-now> (accessed October 10, 2021).

¹²⁵ Ibid.

Seth Kitange who is a co-secretary of a project supported by the Evangelical Church in Tanzania reports on the situation at Mount Kilimanjaro. Kitange indicates that canal irrigation which has been used by communities around the rivers near the mountain has gone into extinction since water in the rivers has dried up.¹²⁶

4.2 Challenges Faced By CSOs in Mitigating Climate Change

A discussion with experts offered the researcher rich insights that enhanced the understanding of the current situation of challenges faced by CSOs in mitigating climate change mitigation. 60 % of the respondents lauded that the major challenge that was faced by CSOs is inadequate funding. Muok & Kingiri identifies that insufficient funding to CSOs makes it a huge impediment to carrying out their functions in an efficient and effective way.¹²⁷ The respondents added that CSOs should be receiving funding from the government to support their activities but the amount of funding received is often not adequate. This could be because Kenya is still a developing country and therefore has not given climate change mitigation a priority in its agenda.

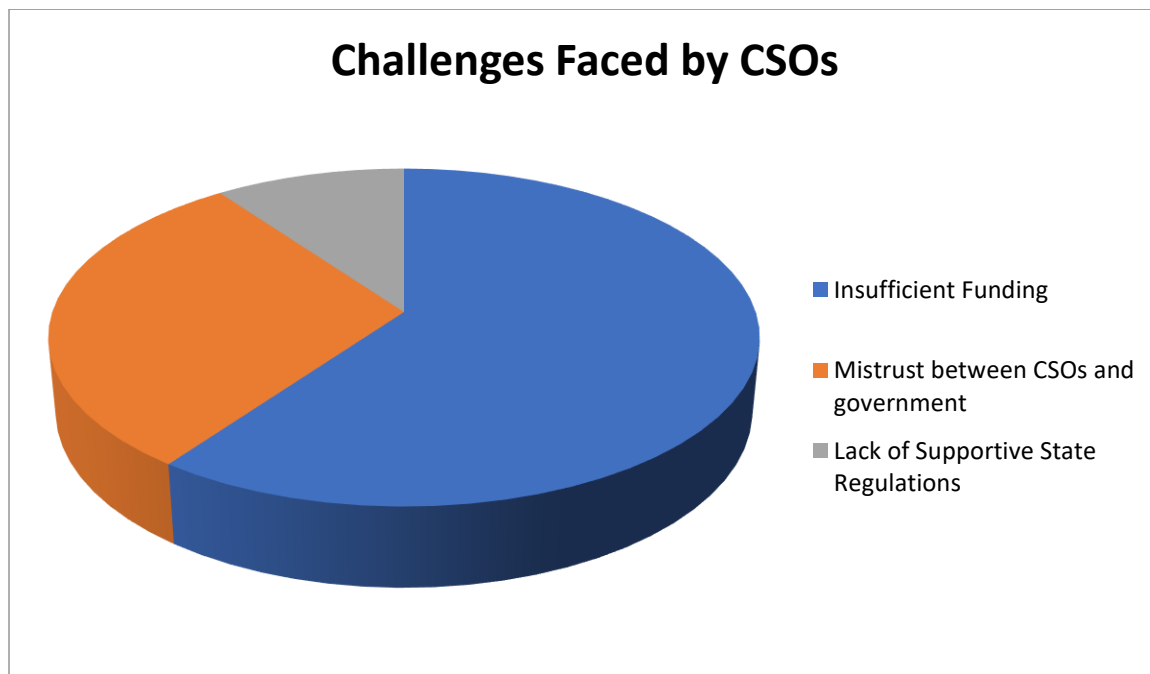
In addition to that, 30% of the respondents indicated that their major challenge was that there is a prevalent mistrust between them and the government. Muok & Kingiri identifies that when there is an antagonist relationship between the government and CSOs, no matter the efforts that CSOs make their actions become futile.¹²⁸ These respondents mentioned that such kind of mistrust prevented them from either starting a new project or continuing with an already started project. The government at a time does not trust that CSOs can deliver projects related to climate change mitigation.

¹²⁶ Ibid.

¹²⁷ Muok, Benard O., and Ann Kingiri. "The role of civil society organizations in low-carbon innovation in Kenya." *Innovation and Development* 5, no. 2 (2015): 207-223.

¹²⁸ Ibid.

In addition, 10% of the respondents raised sentiments that the government sometimes sets up regulations that do not favor or support their roles as CSOs. Brown & Kalegaonkar indicates that when the government imposes regulations that do not factor in the roles of CSOs, the CSOs remain defenseless as there is nothing much that they can do about it.¹²⁹ Sometimes when the CSOs do not provide adequate accountability of how they have used the resources that the government has provided them with, the government may impose regulations that do not support their roles. It is also worth mentioning that accountability remains a challenge since the people who are supported to carry out climate change mitigation projects are not the ones who benefit from the activities. Based on this, the respondents mentioned that they lacked standards of performance upon which their roles can be assessed to confirm whether they are on track with their roles or not. The findings from the studies therefore can be viewed to substantiate the responses from the participants.



¹²⁹ Brown, L. David, and Archana Kalegaonkar. *Addressing civil society's challenges: Support organizations as emerging institutions*. Boston: Institute for Development Research, 1999.

Figure 4.3 Challenges Faced by CSOs

Source; Researcher, 2021

4.3 Strategies Employed by CSOs in Mitigating Climate Change in Kenya

4.3.1 Replanting Forests

33. 5 % of the respondents working under the Ministry of Environment and Forestry identified that there is a Forestry Development Plan (FDP) which has been put in place with the aim of growing more trees. One of the respondents mentioned that;

“The plan is aimed at pushing social institutions to grow billions of trees in the next 10- 15 years.”

According to the plan, it is projected that in the next 20 years 7.6 billion trees will have to be grown to set up forests. According to a 2010 report by the Government of Kenya, tree growing will be done by 35,000 schools, 16,350 youth groups, and 4,300 women groups.¹³⁰ Given that certain parts of the country like Mandera do not have adequate supply of water, another respondent indicated that schools in these areas will have to be supplied with 10,000 liters of water tanks. This will be done with the aim of supporting water harvesting to aid in establishing and managing tree nurseries and the watering of seedlings that have been planted out. Moreover, another respondent indicated that youth groups and women groups are being pushed to acquire land for the construction of dams. These dams will aid in the harvesting and storage of rainwater to support irrigation of private forests.

4.3.2 Renewable Sources of Energy

Other respondents (20. 8%) mentioned the use of renewable sources of energy as an effective strategy employed by CSOs to mitigate climate change. Experts from the Green Africa

¹³⁰ Government of Kenya. *National Climate Change Response Strategy*. Executive Brief, Nairobi: Government of Kenya, 2010.

Foundation mentioned that current efforts are being channeled towards taking advantage of abundant sources of renewable energy in Kenya. Steam reserves from geothermal power are equivalent to 7000 MW.¹³¹ Parts of the country such as areas in the northeastern have also been marked as ideal areas where wind power can be generated. Northeastern regions have a type of wind known as Class 1 which is effective in generating wind power. In addition to that, weather forecasts from Kenya Broadcasting Channel indicated that throughout the year, the arid and semi-arid regions experience long periods of sunshine. The long periods of sunshine are recognized as being effective for the capturing and utilization of solar energy. Further to that, according to an expert from the Kenya Climate Change working group, biofuels can be produced from the growing of non-food crops such as sweet sorghum and sugarcane, among others. While these strategies have not yet been maximized by CSOs according to the respondents, exploitation of these strategies maximally could enable Kenya to significantly reduce global greenhouse gas emissions and shift its reliance on fossil fuels.

4.3.3 Proper Land Use

Further to that, 20.7% of the respondents who had farming knowledge indicated that proper land use is also an effective strategy that has been employed by CSOs in the mitigation of climate change. Given that 75% of the Kenyan population depends directly on natural resources and land to support their livelihoods CSOs in Kenya have seen proper land use as an effective strategy of climate change mitigation.¹³² People who are living in crowded places are the most vulnerable to the effects of improper land use as they do not have the opportunity to carry out agricultural activities. In response to the current situation of improper land use, officials from the

¹³¹ Government of Kenya. *National Climate Change Response Strategy*. Executive Brief, Nairobi: Government of Kenya, 2010.

¹³² Adimo, Aggrey Ochieng, John Bosco Njoroge, Leaven Claessens, and Leonard S. Wamocho. "Land use and climate change adaptation strategies in Kenya." *Mitigation and adaptation strategies for global change* 17, no. 2 (2012): 153-171.

Green Africa Foundation mentioned that the utilization of biotechnologies to increase the food produced per unit area should be introduced as Kenya economically depends on agriculture. The production of huge amounts of food in a small area of land also limits GHG emissions while also increasing Kenya's food security. In addition to that, the use of manure also aids in increasing food production and simultaneously reducing GHG emissions. The responses from the respondents, therefore, generate insights into how small portions of land can still be effectively used to support livelihoods and reduce greenhouse gas emissions.

4.3.4 Retrofitting Buildings

Respondents from the Green Africa Foundation (14.7%) highlighted the efforts that have been put in place to ensure that buildings have designs that are environmentally friendly. The institution has established "Green Mark" standards for buildings and offers guidelines for effective practices for designs that are environmentally friendly.¹³³ The current standards provide that green buildings should have indoor air quality, energy efficiency, operation and maintenance, water conservation, and innovation. The Green Africa Foundation respondents indicated that plans are in order to begin offering green building certification. A respondent indicated that;

"We cannot be talking about conservation of energy while not factoring buildings, because most people spend nearly all their daily time in buildings which generate carbon emission up to 40 percent."

The officials from the institution mentioned that new buildings are required to embrace the green mark standards and old buildings also need retrofitting in order to conserve energy and improve energy efficiency.

¹³³ Wanzala, Justus. *Green building design takes root in Kenya*. News, Nairobi: Thomson Reuters Foundation, 2014.

4.3.5 Sustainable Transport

Another section of the respondents (10.3 %) acknowledged sustainable transport as a strategy that has been employed by CSOs in the mitigation of climate change. Respondents from the Kenya Climate Change working groups highlighted various ways in which CSOs have encouraged the use of sustainable transport. One of the expert respondents mentioned that the use of low-cost public transport in mass transportation is effective. The respondent explained that using mass transportation which is cost-effective aids in proper urban planning which is not only efficient but also is a mode of transportation that lowers GHGs. Another expert respondent from the institution indicated that the encouragement of pedestrian walkways and bikeways on roads has played a part in decongesting roads and encouraging modes of transport that are non-motorized. In addition to that, other respondents also mentioned unanimously that the putting up of Standard Gauge Railway has also helped in the decongestion of traffic. In a report by (source) improving the railway network of the country has significantly facilitated low-carbon and low-cost long-distance transportation of passengers and cargo.

STRATEGIES USED BY CSOs IN CLIMATE CHANGE MITIGATION	NO. OF RESPONDENTS	PERCENTAGE
Replanting Forests	33	33.5
Renewable Sources of Energy	21	20.8
Proper Land Use	21	20.7
Retrofitting Buildings	15	14.7
Sustainable Transport	10	10.3

Figure 4.4 Strategies Employed by CSOs in Mitigating Climate Change in Kenya

Source; Researcher, 2021.

4.4 Summary

In summary, the CSOs have established their roles well but the challenges of climate change and the antagonist relationship between them and the government impedes their success. there are so many climate change effects that impede climate change mitigation such as rising temperatures, snow melting, unpredictable and irregular rainfall patterns, drought, wildfires, and rising sea levels. The major challenges as highlighted by the CSOs who are trying to fight against climate change are linked to the government. If CSOs in Kenya can receive the much-needed support for their projects, then Kenya could head in a positive direction towards preventing and reducing the adverse effects of climate change. As a result, livelihoods would be restored, food production increased, amongst other key drivers of Kenya's economy.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

The following chapter presents a summary of the findings that were derived from the study and a general conclusion of the main findings in relation to the objectives of the research. The chapter also presents a recommendation for further study is also highlighted.

5.1 Summary of Main Findings

The findings of the study were derived from respondents who gave out their opinions from an expert point of view. However, the opinions vary in percentages yet still reveal informative insights. The respondents included experts working in Green Africa Foundation, Ministry of Environment and Forestry, and Kenya Climate Change working groups. Other sources of primary data that the researcher used included; magazines and newspapers, witnesses' reports, and reports from church leaders. The results highlight Kenya as a country that is highly vulnerable to climate change effects. The current climate change profile of Kenya impedes CSOs from integrating climate change mitigation actions into developmental activities. The findings indicate that the causes and effects of climate change differ regionally. This is to say that the effects of climate change in foods and water, livelihoods, infrastructure, ecosystems, and so on differ across regions in the country. Increases in the frequency of drought have presented the country with huge challenges of water availability and food security, especially in arid and semi-arid areas. Drought is an extreme event that exposes millions of Kenyans to starvation. Prolonged droughts have also left pastoralists with little to no green pastures to feed on their cattle. As a result, dead cattle have been a routine in a similar fashion as the conflicts among pastoralists over grazing land. At the same time, drought has had a huge toll on the lives of young girls in the Maasai community. Young girls have to trek over long distances in search of

water. Worse still, drought has left numerous families in desperate situations of hunger in these regions thus forcing them to send their girls into marriage so that they gain cattle as bride price in exchange.

In addition to that, constantly rising temperatures are also among the identified climate change effects from the findings. The rising of temperatures has been linked to the cutting down of trees, improper land use, and emissions emanating from factories and vehicles. At the top of the list is deforestation which has contributed to the warming of the country to a greater extent. Nighttime and daytime temperatures have increased in equal measure which is a cause of alarm as it reflects the severity of the situation of climate change. Besides, climate change has also contributed to vast wildfires across the country. The wildfires have been caused by humans to a greater extent. Wildfires burn more trees which implies that they significantly contribute to the amount of carbon that accumulates in the atmosphere thus resulting in global warming. A spread in wildfires, therefore, impedes the roles of CSOs in Kenya in mitigating climate change.

Apart from that, from the findings, it is also evident that rainfall patterns have become irregular and unpredictable. Gone are the days when we could just look up the sky and point out that rain is forthcoming, Rainfall patterns vary from one year to another. The long rains season is not experienced as it used to be several decades ago since a prolonged period of drought extends into the season. In contrast, short rains experience more rain as the rains start from September and extend into January and February which are months that were previously recognized as dry months. Moreover, the findings have also revealed that several parts of the country are experiencing rising sea levels, especially along the coastline. The rising sea levels threaten rich tourist attractions, livelihoods of people, and even lives due to flooding. Further to that is the challenge of melting snows on the caps of Mount Kilimanjaro and Mount Kenya. The gradually

melting snows on these mountains have left the nearby rivers that support communities with water levels that are on the verge of drying up. The water from the nearby rivers has been playing an integral role in aiding the community to irrigate their crops and providing water for domestic use. With the rivers nearly going into extinction, the livelihoods of communities in these regions are highly threatened.

On the challenges that CSOs face in Kenya, the findings have provided three major challenges. The first major challenge is insufficient funding which most of them linked to inadequate financial support from the government. This aspect has hugely affected most of the projects of CSOs in Kenya since they may either start a project but not manage to finish it or may not be able to start a project altogether. The second major challenge that the CSOs identified as serving as an impediment to the success of their climate change mitigation agenda is the constant mistrust between them and the government. This is a huge challenge for them since they can come up with a good project that could contribute to climate change mitigation but due to such mistrust, they are not given the go-ahead to deliver by the government. Further to that, another challenge that was highlighted by the CSOs was that the government sometimes set up regulations that do not act in their favor. When this happens, they remain defenseless and have no choice but to act within the regulations which may not effectively support their climate change mitigation interventions \.

The analyzed findings indicate that the CSOs in Kenya have established their role in various ways that aid in the mitigation of the drastic effects of climate change. They have put up strategies such as replanting forests, emphasizing the need to shift to renewable sources of energy, proper land use, retrofitting buildings, and sustainable transport. On replanting forests, CSOs in Kenya have put up a Forestry Development Plan which is aimed at growing more trees,

the project not only aid in the setting up of new forests but also aid in climate change mitigation. The planting of more trees drives sustainable growth as it regulates the ecosystem and plays an integral role in the carbon cycle by absorbing carbon that would otherwise lead to global warming. In addition, the findings suggested that homes are the place that people spend nearly 90% of their time thus contributes significantly to the release of carbon into the atmosphere. In relation to this, CSOs have also put up strategies to ensure that new buildings take into consideration sustainability standards during construction. These standards are aimed at enforcing the construction of green buildings that address both energy and water efficiency. Old buildings are yet to get support to renovate their buildings by integrating the green building sustainability standards.

Moreover, the findings suggested that CSOs have put up strategies to enable the country to shift to the use of renewable sources of energy. From the findings, it is evident that currently, Kenya has rich reserves of generating steam, water, and solar energy. It is only that these reserves have not yet been exploited to maximum potential. Geothermal power has been pointed out as a major source of steam power. Other regions in the northeastern part of Kenya have also been marked as ideal for the generation of wind power. Besides, given that most parts of the country experience long periods of sunshine throughout the year, the findings depicted that this sunshine could be captured and utilized as solar energy. Moreover, the production of biofuels could be done through the growing of cash crops such as sugarcane and sweet sorghum. It is worth noting that these strategies have not yet been fully exploited to help in the mitigation of climate change. CSOs may need adequate resources to aid them in the exploitation of these rich reserves.

Another strategy that was evident that CSOs employed to aid in the mitigation of climate change in Kenya is proper land use. CSOs have been viewed to connect with local communities that directly depend on land as their means of livelihood. They have highlighted that the major problem with land use is where many people rely on a small piece of land to sustain their livelihoods. CSOs have played a significant role in response to this by implementing the use of biotechnologies. The utilization of biotechnologies enables communities to increase food production within their small pieces of land. This strategy not only heightens the food security of the country but also limits greenhouse gases emissions.

The findings also elucidate that sustainable transportation is yet another strategy that CSOs in Kenya have put up to aid in the mitigation of climate change. The analyzed findings reveal that CSOs have pushed for various alternatives of transport to limit the amount of carbon that is released by motorized vehicles. Some of the alternatives include but are not limited to encouraging walking through pedestrian walkways, cycling through bikeways, and using mass transport instead of private transport. The standard gauge railway (SGR) has also aided in reducing traffic congestion and is also a low-carbon and low-cost form of long-distance transportation. These strategies have played even if not to a greater extent, a substantial role in reducing congestion on roads thus limiting the release of carbon into the atmosphere that would otherwise build up to increase global warming.

5.2 Conclusions

The purpose of this study was to investigate the roles and challenges that CSOs encounter in mitigating climate change in Kenya. The reality of climate change has been viewed to hit countries in the EAC including Kenya. Bottom line is that climate change has occurred and is still projected to occur even in the future. In relation to this, it is evident that it has never been so urgent and crucial to reducing the accumulation of greenhouse gases into the atmosphere. It is

with no doubt that CSOs play a significant role in climate change mitigation in Kenya. By putting up measures that effectively reduce the accumulation of greenhouse gases, CSOs have significantly established their commitment to mitigation in accordance with the goal of the master plan on climate change of the EAC whose goal is to strengthen cooperation among the countries in responding to climate change.

Despite the fact that CSOs still face huge problems especially in relation to the government, they have continued to embed sustainability values that aid communities in curbing the effects of climate change. With regard to one of the objectives of the study which is analyzing the causes and effects of climate change, the study has revealed that Kenya has worrying trends. The causes and effects of climate change are so severe that they impede the efforts of curbing climate change. The cause-and-effect nexus of climate change in Kenya reveals how it may be challenging for CSOs to implement interventions in regions whose states are gradually deteriorating. Deforestation, improper land use, non-sustainable buildings, and transport systems, are all major causes of climate change in Kenya. The effects of climate change in Kenya vary in type and in severity. It is indisputable that climate change has become a reality in Kenya as evidenced by the intensified and prolonged droughts. Other manifestations of climate change in Kenya include irregular and unpredictable rainfall patterns where some areas face intense downpours while other areas experience less to no rain. Melting of snows only fed rivers nearby the mountains only for a short period but as the snow kept reducing, the rivers began drying up. The fluctuations in water levels in seas and lakes with mostly rises in water levels have also posed threats to the survival of humans and the ecosystem. Wildfires have also proved to be a menace which when not controlled can sweep major sectors that support livelihoods.

With regard to another specific objective of the study which was to investigate the challenges that CSOs face in Kenya, the study has revealed that despite the integral roles that CSOs play in climate change mitigation, they still face numerous challenges from governmental agencies. Some of the challenges include inadequate funding for enacting their activities. CSOs generally require support from the government more specifically financial support to enhance their ability to carry out their functions in an effective and efficient manner. The antagonistic relationship between the government and the CSOs resulting from mistrust between the two parties has made the efforts of the CSOs remain futile. Besides, since accountability is often an issue among CSOs as they are needed to account for the services that they provide to the communities, most of the government regulations do not factor in their roles. The consequence of these challenges is that communities especially at the local level will still continue experiencing the drastic effects of global warming.

With regard to another objective of the study which is to investigate the strategies that CSOs in Kenya undertake to mitigate climate change, the study found insightful and detailed results. They have put up strategies such as replanting forests, emphasizing the need to shift to renewable sources of energy, proper land use, retrofitting buildings, and sustainable transport. The mentioned strategies indicate that mitigation of climate change mitigation is being practiced at a higher rate across the country. The study, therefore, concludes that even though CSOs promote climate change mitigation practices, for their roles to remain relevant and more impactful, climate change nexus, inadequate resources, and other forms of support still remain a huge challenge.

5.3 Recommendations

Grounded on the results and the objectives of the research, several recommendations are made to address the roles and challenges of CSOs in climate change mitigation.

5.3.1 Recommendations on Strategy

There are several ways in which CSOs can improve their roles in mitigating climate change.

1. To begin with, CSOs need to employ workshops at the community level so as to educate communities all over the country about the existence of climate change as well as its impacts on them and the ecosystem. This will make it easy for CSOs to work in conjunction with the community so as to successfully implement climate change mitigation practices.
2. In addressing the issue of drought, CSOs need to implement facilities that could aid the harvesting of rainwater in communities. The water harvested could be used for domestic purposes, livestock, and for irrigation purposes.
3. In addressing the issue of rising temperatures, it is recommended that CSOs engage more in programs linked to re-forestation. Besides, they should also put a halt to any form of activity that may heighten the increase in temperatures as a result of climate change such as the burning of charcoal.
4. In addressing the challenges related to land use, CSOs can consider integrating programs that aid in restoring original grasslands by controlling bush management.
5. CSOs can also consider integrating capacity-building activities for communities that play an integral role in supporting livelihoods and in establishing communities that are resilient to climate change effects.
6. CSOs can slowly move from overly depending on government agencies for financial support by seeking financial capital from SACCOs, banks, and credit facilities.
7. To effectively implement the modern strategies of mitigating climate change, there is a need to incorporate the traditional strategies for use in conjunction with the modern strategies.

5.3.2 Recommendations on Policy

1. Communities and other stakeholders should be maximally integrated into climate change mitigation activities as they are the ones who are the most vulnerable to the effects of climate change. Communities should be considered in the decision-making processes of interventions that are intended to protect them from the drastic impacts of climate change. Such decisions should also take a bottom-up approach and not a top-down approach since the beneficiaries are at the bottom, not the top.
2. The government needs to consider including the mandates of CSOs into their regulations to aid CSOs in undertaking their activities. As a result, CSOs will be open to more opportunities for expansion of their activities in mitigation.
3. There should be increased awareness of the government regarding climate change issues. When the government is made to understand that the reality of climate change has donned on us as a country and the effects are far stretching ranging from loss of lives and valuable ecosystems, they would consider CSOs functions in their regulations.
4. The government should allocate enough resources to the CSOs to aid them in carrying out their functions effectively and efficiently. Resources are central to the roles of CSOs and when not provide in sufficient quantities, their functions are impeded.
5. To address the challenge of accountability on how CSOs utilizes the resources allocated to them by the government, the government needs to establish policies that would offer guidance on how to utilize the given resources. This would also 5tnaid in diminishing the constant mistrust between the government and the CSOs.
6. There should be an institutionalization of engagement of stakeholders in climate change mitigation among all the institutions that take part in mitigation. This would be even more effective if done across countries in East Africa as it will be in accordance with the

master plan on climate change of the EAC whose goal is to strengthen cooperation among the countries in responding to climate change.

5.4 Suggestions for Future Studies

The findings of the study revealed potential areas where future studies may consider for further investigations. Future studies may consider the following areas as opportunities for further investigations.

1. There is a need to document the causes and effects of climate change for specific communities in Kenya such as the Maasai, Luo, and so on. Taking such an approach would offer comprehensive details of how specific communities struggle with climate change issues thus leading to more focused and insightful conclusions.
2. Future studies that would like to assess the impacts of climate change on various regions should conduct a vulnerability assessment study.
3. There is a need for future studies to investigate whether there are any forms of evidence of traditional strategies that communities in Kenya have been using in an attempt to reduce the drastic impacts of climate change.

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APPENDIX 1

QUESTIONNAIRE

This study aims at understanding THE CHALLENGES AND STRATEGIES FACED BY CSOs IN MITIGATING CLIMATE CHANGE IN KENYA. The findings and recommendations of this study aims at contributing to a deeper knowledge of understanding what CSOs’ face as challenges and the different strategies in mitigating the climate change in Kenya. The information collected in this study will be for academic purposes only and such will be treated with top-notch confidentiality. Kindly provide the appropriate answers below.

Tick the appropriate answers.

1. GENDER

- Female
- Male
- Prefer not to say
- Other

2. AGE

- 18-30 Years
- 31-40 Years
- 41-70 Years
- Above 70 years

3. LEVEL OF STUDIES

- Primary
- Secondary
- College
- Undergraduate
- Graduate Degree
- Post Graduate
- Others

4. Comment on the challenges you face in mitigating climate change.

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

5. Why do you think the climate mitigation process has been low?

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

.....

 6. What are the key challenges to climate change mitigation?

	Strongly Agree	Agree	Moderately Agree
Temperatures rising			
Drought			
Wild fires			
Rainfall patterns			
Glaciers			
Sea Level rising			
Snow melting			

7. Explain your above answers in details.

.....

8. What is your understanding of climate change mitigation in Kenya?

.....

9. Do you think CSOs can effectively mitigate climate change in Kenya?

.....

10. What are some of the strategies used by CSOs in mitigating climate change in Kenya?

	Strongly Agree	Agree	Moderately Agree
Retrofitting buildings			
Renewable sources			

of energy			
Sustainable transport			
Replanting forests			
Proper land use			

11. Explain your above answers in details

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12. What is your understanding on the strategies used in mitigating climate change in Kenya?

.....
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.....

13. Do you think the strategies will effectively help CSOs in mitigating climate change?

.....
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14. In your opinion, has the COVID-19 virus played a part in the mitigation of climate change in Kenya?

.....
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15. What is the current stand of CSOs in climate change mitigation in Kenya?

.....
.....

16. What can be done better by CSOs to curb the climate change in Kenya?

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.....

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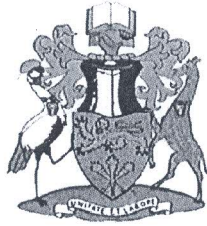
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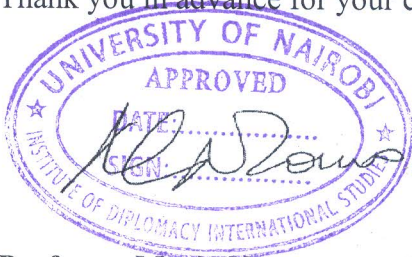
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This is to confirm that the above-mentioned person is a bona fide student at the Institute of Diplomacy and International Studies (IDIS), University of Nairobi pursuing a **Master of Arts Degree in International Studies**. She is working on a research project titled, **“CIVIL SOCIETY ORGANIZATIONS AND CLIMATE MITIGATION IN EAST AFRICA. A CASE STUDY OF KENYA”**.

The research project is a requirement for students undertaking Masters programme at the University of Nairobi, whose results will inform policy and learning.

Any assistance given to her to facilitate data collection for her research project will be highly appreciated.

Thank you in advance for your consideration.



Professor Maria Nzomo,
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