



# Rethinking the Climate Change and Conflict Linkage: Towards a Co-Evolutionary Approach

Caleb M. Wafula

**December 2022**

This publication was produced for review by the United States Agency for International Development. It was prepared by SSG Advisors d/b/a Resonance.

# Rethinking the Climate Change and Conflict Linkage: Towards a Co-Evolutionary Approach

**Authored by:** Caleb M. Wafula

This publication was produced for review by the United States Agency for International Development by SSG Advisors (d/b/a Resonance), through Contract # 7200AA20C00065

Resonance Headquarters  
1 Mill Street, Suite 301  
Burlington, VT 05401

Resonance D.C. Office  
1121 12<sup>th</sup> St NW,  
Washington D.C. 20005

**resonance**  
Frontier Market Solutions

Resonance Contact:  
Johanna Schneider  
Senior Analyst  
Tel: (609)240-9952  
Email: [jschneider@resonanceglobal.com](mailto:jschneider@resonanceglobal.com)

The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

# TABLE OF CONTENTS

<b>ACRONYMS</b> .....	<b>i</b>
Introduction.....	2
I.            Conceptual and Theoretical Clarity.....	3
Understanding Climate Change.....	3
Understanding Conflict.....	3
Understanding the Co-evolutionary Approach .....	3
II.           The Climate Change and Conflict Co-evolutionary Landscape in Kenya .....	4
III.          Climate Change and Conflict Policy Legislative Frameworks in Kenya .....	6
Climate Change Policy and Legislative Frameworks in Kenya .....	6
<b>References</b> .....	<b>10</b>

# ACRONYMS

ASAL	Arid and Semi-Arid Lands
CCCCF	County Climate Change Funds
CCF	Climate Change Funds
CIPD	County Integrated Development Plans
COP	Conference of Parties
DRR	Disaster Risk Reduction
EMCA	Environmental Management and Coordination Act
ICRC	International Committee of the Red Cross
IPCC	Intergovernmental Panel on Climate Change
LAPSSET	Lamu Port-South Sudan-Ethiopia Transport
LMIC	Low- and Middle-income Countries
LTWP	Lake Turkana Wind Project
NCCC	National Climate Change Council
NCCRS	National Climate Change Response Strategy
NDC	Nationally Determined Contributions
NEMA	National Environment Management Authority
SDG	Sustainable Development Goals
UNEP	United Nations Environmental Program
UNFCCC	United Nations Framework Convention on Climate Change

## Introduction

The alarm bells are deafening, and the evidence is irrefutable: climate change is the “the mother of all risks” (Powers, 2015). At 1.1 degrees of average warming, the world is increasingly moving towards the brink of a climate crisis that serves as a major drawback to the hard-earned development gains of the past decades and impedes the progress towards achieving the sustainable development goals (SDGs), the Paris Agreement, and the Sendai Framework for Disaster Risk Reduction (DRR) among other global conventions and commitments as underscored in the Intergovernmental Panel on Climate Change’s (IPCC) 2022 report (Pörtner et al., 2022) on impacts, adaptation and vulnerability, described as an “atlas of human suffering” by UN Secretary-General António Guterres (Ibid).

Importantly, there is broad consensus in both public and scientific discourses that while no one is safe from the risks presented by climate change, the effects of climate change are not equal – they disproportionately impact people living in low- and middle-income countries (LMIC), as a result of high vulnerability and low adaptation capacity (Pörtner et al., 2022). Home to a diverse cultural population, of small-scale agriculture, fishing, nomadic, pastoral, and agro-pastoral communities who heavily rely on rainwater and pastureland, communities in LMICs are highly prone to more frequent and more intense multifaceted climate risks including erratic rain cycles, prolonged drought and associated famine, floods, mudslides, and most recently locust infestations (Salih et al., 2020) that have overtime outpaced the capacity of local communities to adapt to and cope with these effects.

As climate change unfolds in the LMICs, what is particularly striking is that it is not happening in isolation, but coinciding with other unprecedented pressures and stressors, key among them conflicts (Dalby, 2018; Sitati et al., 2021). As (Remling, 2022) puts it, the overall conflict trend is unmistakable: the world is becoming less safe and secure for a large proportion of its inhabitants. That said, and measured by almost any criteria, most of the climate hit LMICs can only be seen as a textbook example of fragile and conflict-affected states (FCS) (Quevedo & Cao, 2022), often marred by serious internal conflict that also has the potential of destabilizing neighboring states and providing ungoverned territory that can provide safe havens for militants, militias, and gangs among others (François & Sud, 2006). In recent years, the data demonstrates this fact, and the International Committee of the Red Cross (ICRC) report notes that 14 of the 25 countries most vulnerable to climate change are experiencing violent conflict (ICRC, 2020).

The key word here is vulnerable. Frankly speaking, given the depth, scope, multiplying and amplifying nature of the impacts of climate change and conflicts (Nordås & Gleditsch, 2015) both in the immediate and long term, the net effect is a population that, at best, is faced with temporary interruption to lives and livelihoods. At worst, families are separated, communities dislocated, human and social capital destroyed, and poverty reduction gains reversed, thus undermining the resilience, well-being, and development prospects to create conditions of perpetual vulnerability (Connolly-Boutin & Smit, 2016; Koubi, 2019; Rao et al., 2019).

This is not to say that there has been no progress: on the contrary, climate change and conflict have become key areas of research and practice, which have attracted considerable interest among scholars and practitioners from different disciplines who have devoted considerable efforts in understanding and addressing these two volatile trends. It is however arguable that a lot of interest in this topic is spurred by the notion of causality, thus impeding more systemic and ultimately effective interventions.

Fundamentally, the key question for researchers, policymakers, and practitioners, particularly those with a mandate to help people who have been affected by these two volatile trends, is not whether climate change directly or indirectly causes conflicts, but rather how does climate change and conflict coevolve? Accordingly, this study diverts from the dominant causality notion and uniquely adopts a co-evolutionary approach, in developing a more nuanced understanding of these two volatile trends. The co-evolution of climate change and conflict remains unexplored or overlooked

yet seems to have the most decisive implications in proactively planning, designing, implementing, and learning from transformational climate resilience and conflict transformation initiatives, so to shape development pathways. Paying special focus on the microcosm of Kenya/the Horn of Africa, this article methodologically leverages secondary data by systematically searching and reviewing to find, collate, analyze, and synthesize insights from relevant knowledge products, consisting of journal articles, policy briefs, project reports and case studies among other sources of documented evidence in academic literature and public media. We propose that the article can inform knowledge and guide policymakers and practitioners to a clearer understanding of the co-evolution of climate change and conflicts and offer a template for how to plan, design, and implement, transformational climate resilience and conflict transformation initiatives, so to shape development pathways.

This paper is structured in four sections: following the introduction section I provides conceptual and theoretical clarity; section II examines the co-evolution of the Climate-Conflict Landscape of Kenya /the Horn of Africa; section III looks at policy and legislative frameworks for climate change mitigation and conflict management in Kenya; and finally, the conclusion explores possible implications for development policy and practice.

## I. Conceptual and Theoretical Clarity

Before delving into the inquiry, clarification of climate change, conflict, and the co-evolution approach, it is necessary to establish a common understanding.

### **Understanding Climate Change**

There exists a controversy around what constitutes climate change. Sometimes mistaken for weather (Werndl, 2016), points out that there is no unanimous opinion and agreement on the definition of the term climate, let alone climatic change, climatic trend or fluctuation. Climate change is often loosely defined as the average weather at a particular place, incorporating such features as temperature, precipitation, humidity, and windiness that persists for an extended period, typically decades or longer. This article adopts the Framework Convention on Climate Change (UNFCCC), which in its article I, defines climate change as: ‘a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods’ (IPCC, 2022).

### **Understanding Conflict**

Just like climate change, it is safe to acknowledge that conflict is also operationalized. In a broader sense, conflict involves ‘civil war, ethnic war, and interstate war at high and low intensities as well as violence that falls short of war, such as militarized disputes, terrorism, and riots or strikes’ (Avis, 2019). Accordingly, this article adopts the International Committee of the Red Cross (ICRC) definition of conflict as a situation in which the conflict parties resort to armed force or violence, leading to a situation of protracted confrontation which results in damage to property or human life (International Committee of the Red Cross, 2008).

### **Understanding the Co-evolutionary Approach**

The co-evolution perspective as put forward by (L. J. Haider et al., 2021), rests on three propositions: (1) social-ecological relationships coevolve through processes of variation, selection, and retention, which are manifest in practices; (2) resilience is the capacity to filter practices (i.e., to influence what is selected and retained); (3) development is a coevolutionary process shaping pathways of persistence, adaptation or transformation. In this regard, the climate change and conflict linkage is seen as a dynamic process of coevolving social–ecological relationships, and, their co-evolutionary governance can help in proactively planning, designing, implementing, and learning from transformational climate resilience and conflict transformation initiatives, so to shape development pathways.

In this regard, proposition one will be critical in teasing out how climate change and conflict are coevolving within the microcosm of Kenya/the Horn of Africa landscape, manifested by practice.

Proposition two helps us review the progress made in terms of policy and practice in addressing the twin challenges. Lastly, proposition three helps us understand how climate and conflict resilience projects and programs can be re-oriented towards resilience, adaptation or transformation.

## II. The Climate Change and Conflict Co-evolutionary Landscape in Kenya

At the general level, there is a sizable amount of literature from various disciplines (Barnett, 2003; Cappelli et al., 2022; Charbonneau et al., 2022; Dalby, 2021; Froese & Schilling, 2019; Halderman et al., 2002; Koubi, 2019; Mach et al., 2019; Maguta et al., 2020; Mobjörk, 2017; Naess et al., 2022; Scheffran & Battaglini, 2011; Schilling, Scheffran, et al., 2012), demonstrating that changing rainfall patterns, drought, changes in vegetation cover and increasing resource scarcity have contributed to various types of violent conflict. Although generalizations are difficult as local contexts vary markedly, these extreme weather events epitomize a general trend across Kenya and the wider Horn of Africa region, particularly in the Arid and Semi-Arid Lands (ASAL). The ASALs cover over 80% of Kenya with most of these located in the northern parts of the county bordering Southern Ethiopia and Eastern Somalia (Nkedianye et al., 2011; Ouma et al., 2018).

The weight of scientific evidence indicates that it is not possible to discuss the climate change and conflict challenge in the ASAL context without first making reference to pastoralism or what (Herskovits, 1926), calls the “cattle complex” while (Boruru et al., 2011) calls it helter-skelter livelihoods. Another dominant view on pastoralism is “climate migration” by (Schilling & Werland, 2020). One explanation to climate migration, is that most of the communities in the region practice pastoralism as a principal livelihood practice and it also plays an influential role in their social cultural identity (Ayal et al., 2018). The type of pastoralism is mainly nomadic transhumance, which is characterized by mobility, communal land ownership, large and diverse herd sizes, and herd separation and splitting (Opiyo et al., 2011). Likewise (Dyer, 2016) underscores pastoralism as a viable and sustainable livelihood, and that pastoralists have extensive skills in productively managing uncertainty and risk in diverse arid land ecosystems. Following this line of thought, this article pays critical attention to the striking features of nomadic pastoralism as outlined by (Khazanov, 1994) who posits that pastoralism is the predominant or an ideal way of making a living and that it is an extensive endeavor that involves keeping herds of livestock all year round on a system of free-range grazing. Pastoralism involves periodic mobility within the boundaries of specific grazing territories (as opposed to migrations) to access water and grazing resources/forage (grass or shrubs), the participation in pastoral mobility of all or the majority of the population, and lastly the production for subsistence.

Staying with the characteristics of pastoralism, it is well documented by the work of (De Jode, 2009) and (Mutiga, 2021) that mobility is the backbone of pastoralism to access grazing resources efficiently. Similarly, Rodriguez-Lopez et al (2021) argue that pastoralist mobility depends on other dimensions such as land tenure and traditional knowledge. Pastoralists use mobility to respond quickly to fluctuations in resource availability, dictated by the drylands’ scarce and unpredictable rainfall. They also employ a number of highly specialized risk spreading strategies including the use of commons (Hardin, 2009; Ostrom, 2002) to safeguard their herds against drought, floods, disease and social unrest.

As far as social unrest is concerned (Galaty, 2018), an interesting and urgent question is whether pastoralism is intrinsically linked to violence, raiding and warfare? That question resists simple answers, but literature shows that the social tensions are predominantly about livestock and its related productive assets - water, land and pasture (Schilling, Opiyo, et al., 2012) or what (Nying uro, 2005) terms as “resource wars”. Prominent examples include violence between groups such as Samburu and Pokot, and Turkana and Pokot, (Greiner, 2012), with possible spillover effects across administrative boundaries targeting the Toposa (South Sudan), the Karamojong (Uganda), the Donyiro (Ethiopia), the Merille (Ethiopia). Singling out northwestern Kenya, (Schilling, Scheffran, et al., 2012) takes a two-way ecological relationship analysis and avers that the more frequent and prolonged droughts increase the pressure to raid but the raids are mostly executed during the rainy

seasons when animals are healthier. Closely related is (Seter, 2016) who notes that wetter periods fuel opportunistic behavior as more time and effort can be given to strategically plan raids.

On the flipside, several other studies show that conditions of abundance, including wet periods or periods with more abundant vegetation, seem to be associated with risk of violence through higher incidence of livestock raiding. Going by (Witsenburg & Adano, 2009) argument, while focusing on Marsabit county, avers that wet years and wet months were more likely to exhibit the most casualties during livestock raids. Of similar thinking is (Detges, 2014), who shows that pastoralist violence occurs more commonly near well sites and locations with higher precipitation levels in northern Kenya while (Raleigh & Kniveton, 2012) link higher rates of communal conflict with anomalous wet periods for Kenya and Ethiopia.

For (Theisen, 2012), who takes a contrary opinion by noting that violence levels were higher following years with below-average precipitation, an assertion closely shared by (Adano et al., 2009) who avers that the need to accumulate herds after periods of (differentiated) animal losses due to droughts is usually presented as a strong motivation of inter-ethnic raids and violent pastoral conflicts. Lately, (H. Haider, 2020) writing on conflict analysis of Northeastern Kenya, notes that growing scarcity of grazing land and water, has contributed to violent conflicts. Closely related is (Omolo, 2010) who notes that resource competition has significantly increased some of the risk of protracted conflicts, especially during times of flooding and droughts, when available scarce resources are more restricted (Omolo, 2010). This assertion is shared by (Maguta et al., 2020) who avers that drying of shallow wells and earth dams lead to pressure that more often than not culminates into full blown fighting.

Referencing Baringo county, (Ochieng et al., 2017) avers that increased droughts, floods and invasive species are fueling violent conflicts between pastoralists over livestock. In Tana River the Orma pastoral community are seen as clashing with the livelihood practices of agro-pastoralist groups such as Pokomo, particularly during drought and famine (Andres, 2013; Bond, 2014; Jeremiah, 2012). The main contested resources in Tana Delta are pasture, water, and farmlands. Using the case studies of Mandera and Turkana counties, (Karanja & Abdul-Razak, 2018) note that environmental internally displaced persons are likely to intensify cattle raid attacks as well as tribal and land ownership conflicts. Long engaged in protracted conflicts, (Watson & Hussein Kochore, 2012), aver that the pastoralist livelihoods of the Borana and Gabra peoples are already under pressure from environmental changes that are increasingly perceived as related to climate change. Others who subscribe to this thinking include (Maringa et al., 2020; Wakube et al., 2017; Wasike, 2021).

In sustaining the narrative, literature shows that pastoralists are increasingly changing their normal mobility patterns, due to both climate-related environmental change (e.g., drought) and non-climate factors such as conflict (Mobjörk, 2017). The author goes on to argue that when their routes change, conflicts often arise with other groups over water and pasture; these can sometimes turn violent (Ibid). When rains fail and known pasturelands wither, pastoralists are forced to venture farther from their traditional orbits. This has seen herders, mostly pastoralists, drive their animals over long distances in search of the precious commodity. Along the way, they clash with the residents, sparking bloody conflicts that have seen property worth millions of shillings destroyed and many lives lost.

In many (if not most) instances, perennial, prolonged, and frequent droughts have often resulted in clashes pitting herders against the small-scale agricultural communities, foreign ranch owners, wildlife conservancies, and tourist facilities (Leming'ani, 2017; Muok et al., 2021; Ogega, 2017). British-born Tristan Voorspuy, co-owner of the Sossian ranch and nature conservancy, was shot to death by "armed herders" while inspecting a burnt lodge on his ranch (Muok et al., 2021). Just a few weeks later, Kuki Gallmann, internationally renowned author of *I Dreamed of Africa*, was ambushed and shot on her expansive private ranch and nature conservancy in Laikipia West (Schetter et al., 2022). Staying in Laikipia, (van Weezel, 2019) notes that in February 2017 an estimated 10,000 herders



caused havoc in search of pasture for their herds clashing with the local population. Similarly in 2007, though the conflict began focused on the disputed elections, it quickly degenerated into various communities fighting each other over access to grazing and farmland (Jeremiah, 2012). Election concerns remain in Kenya, and climate change has further exacerbated existing land tensions.

The above examples provide evidence of a vicious cycle, where conflict exacerbates the effects of climate change by reducing communities' ability to cope with climate shocks. The underlying assumption as demonstrated in different contexts (ICRC, 2020), is that areas mired in conflict are disproportionately impacted by climate variability and extremes, due to the limited adaptive capacity of people, systems, and institutions already coping with the consequences of conflicts. As if to reiterate this point, (Schilling, Opiyo, et al., 2012) notes that violent conflicts indirectly create a strong and omnipresent perception of insecurity which results in ineffective resource utilization, reduced mobility, food insecurity, and closure of markets and schools which cumulatively undermines climate adaptation strategies and pastoralism altogether. Yet, overwhelmingly, development policy response and practice, as we will later see, do not take the co-evolution of climate change and conflict into account.

### III. Climate Change and Conflict Policy Legislative Frameworks in Kenya

What does co-evolutionary development of climate and conflict imply at the local and national level in dealing with climate change and conflicts in Kenya? And perhaps a better question is “how well do current practices and policy legislative frameworks support a co-evolutionary approach?” This section is based on an analysis of relevant climate change policy and legislative frameworks and how they fit into the co-evolutionary approach in the Kenya context.

#### **Climate Change Policy and Legislative Frameworks in Kenya**

With almost every country in the world having legislation dedicated to addressing climate change, Kenya's climate change legal environment is considered progressive, with the country being one of the first in the African continent to enact robust climate law and policies that guide national and local actions (Naeku, 2020). Accordingly, the country is a party and signatory to the United Nations Framework Convention on Climate Change (UNFCCC); the principal international instrument on climate change, whose ultimate objective is stabilization of the level of greenhouse gas concentrations in the atmosphere that will prevent dangerous anthropogenic interference with the climate system (Kuyper et al., 2018). Kenya adopted the Convention on 9 May 1992 and ratified it on 30 August 1994. As a party to the UNFCCC and as required by the convention, Kenya participates in all the annual Conference of Parties (COP) meetings and has been involved in all the key global climate change discussion rounds and negotiations (United Nations, 1992). However, taking the UNFCCC narrative beyond resource scarcity, extreme weather, and the need to foster clean energy and presenting climate change as a complex and multidimensional risk, with security and stability at its heart, remains a challenge. That said, the good news from the just completed COP27 is the formation of a new “loss and damage” fund, (Bhandari et al., 2022) meant to support countries dealing with the greatest climate impacts, though it remains to be seen how the co-evolution of climate change and conflict will be taken into account once the fund is operationalized. Furthermore, Kenya has subsequently ratified the two key agreements that were parented by the UNFCCC; the historic Kyoto Protocol adopted 1997 that was ratified on 25 February 2005 and the landmark Paris Agreement (Horowitz, 2016) adopted in 2015, ratified on 28 December 2016 (Ayal et al., 2018), and designed to set the world on a path towards low carbon and greater resilience. While most of the commitments are still at a nascent stage, the Paris Agreement does not, however, mention conflict or fragility, neither peace nor security, even once.

As a host of the United Nations Environmental Program (UNEP), and since the ratification of the above international frameworks, Kenya has developed an enabling regulatory environment for climate change, including the Environmental Management and Coordination Act (EMCA) (Juma,

2000), the government's principal instrument for coordinating environmental management, which began mainstreaming climate change into different sectors in 1999. The act established the country's National Environment Management Authority (NEMA) (Kenya, 2005), which is now the National Designated Authority for the Clean Development Mechanism and the National Implementing Entity for the Adaptation Fund and is accredited by the Green Climate Fund. Although it was largely expected that the enactment of the EMCA would facilitate the realization of environmental rights in Kenya, this did not happen. Rather unfortunately, the Act turned out to be too weak for such an expectation (Bosek 2014). In this regard, (Muigua, 2022), notes that environmental conflicts continue to manifest themselves in Kenya. There have been, for instance, violent conflicts over access to and use of land in Kenya, and such conflicts are well documented (ibid).

In 2010, the National Climate Change Response Strategy (NCCRS) became the first national planning document to acknowledge the reality of climate change (LED et al., n.d.; Nyerere et al., 2021). The strategy's goals include enhancing understanding of the global climate change regime; assessing the evidence and impacts of climate change; promoting international agreements; and providing enabling policy, legal, and institutional frameworks to combat climate change. The strategy adopts a climate change mainstreaming approach and recommends that climate adaptation and mitigation should be integrated into all of the country's development planning, budgeting, and objectives and that this integration should be achieved through collaboration and joint action of all stakeholders. In addition, the strategy presents implementable mitigation and adaptation projects in key sectors, including forestry, energy, agriculture, and transport as well as adaptation efforts in water, fisheries, rangelands, health, and socio-physical infrastructure.

The National Climate Change Action Plan 2013-2017 followed the NCCRS and identified five-year climate change priority actions (Government of Kenya, 2013). The plan provides a framework for Kenya to deliver on its nationally determined contributions (NDCs) under the Paris Agreement. Kenya is currently implementing the second action plan (NCCAP 2018-2022), which aims to further Kenya's development goals by providing mechanisms and measures to achieve low-carbon climate-resilient development in a manner that prioritizes adaptation. (Koasidis et al., 2022).

Other climate change policies, plans, and legislations include: the National Adaptation Plan 2015-2030, the Nationally Determined Contribution 2015-2030, and the Climate Change Act 2016, which provides a regulatory framework for an enhanced response to climate change. The act establishes the National Climate Change Council (NCCC), chaired by the President to provide an overarching national climate change coordination mechanism, and this includes guidance on identification of national priorities. A key element of the Act is overseeing Climate Change Funds (CCF), where it mandates the national and county governments to mobilize and manage public funds and other financial resources for locally led climate action in a way that is transparent, participatory and efficient by establishing County Climate Change Funds (CCCFs) (Crick et al., 2019; Orindi et al., 2017) and further mainstreaming these into County Integrated Development Plans (CIPDs) (Chaudhury et al., 2020). The CCCFs have so far been piloted in Garissa, Isiolo, Kitui, Makueni, and Wajir counties. However, as (Kibugi, 2019) asserts, Kenya as a country is best described as "a leader in comprehensiveness, battling ineffectiveness." What does this mean? (Crick et al., 2020) notes ensuring the long-term success and sustainability of CCCF investments remains a challenge because of the wider policy and development context within which they occur: a context of significant development deficit, continued failure by government and development partners to ensure water security, inadequate water governance arrangements, and policies that undermine the resilience of pastoral systems and communities.

The National Climate Change Framework Policy 2018 and the National Climate Finance Policy 2018 aim to further Kenya's national development goals and enhance mobilization of climate finance. The country also boasts the Green Economy Strategy and Implementation Plan 2016-2030 (Andersen et al., 2022), characterized by heavy investment in sectors such as renewable energy, sustainable blue economy, and green manufacturing, which so far had mixed levels of success. For instance, while the

country's energy landscape is changing quickly, the Lake Turkana Wind Project (LTWP), which was hailed as Africa's largest wind energy project and the biggest public-private investment in Kenyan history also included fears that the project was hurting the community, in an area already troubled by local conflict and retaliations over land rights (Cormack, 2019; Schilling et al., 2018).

Of similar concern is the Lamu Port-South Sudan-Ethiopia Transport (LAPSSET) Corridor, one of Kenya's large-scale infrastructure projects anticipated to boost prosperity (Mkutu et al., 2021). Although an oft-overlooked fact, the lack of transparency, and limited community engagement has led to community opposition, unrest, and mass demonstrations such as the case of Oil exploration in Turkana (Agade, 2017; Mkutu et al., 2019). The government has also carried out a series of evictions from forest areas of people deemed to be living there illegally, thus jeopardizing the lifestyle and livelihood for a number of families (Ocheje, 2007; Ochieng, 2010), just to pave way for restoration/protection of critical water catchments, forests, and biodiversity, all with limited success (Mutugi & Kiiru, 2015).

The progressive development of these policies and corresponding regulatory mechanisms align with: the country constitution, that serves as the foundation for institutional and legal frameworks for climate change action; the Kenyan government's developmental policy roadmap comprising Vision 2030 (GOK, 2010) and sustainable development goals (SDGs), all which reflect the commitment by the Kenyan government to achieve low-carbon and climate-resilient development (Naeku, 2020). Vision 2030 was launched in 2008 as Kenya's development blueprint covering the period 2008–2030 (Kogo et al., 2021). It was aimed at making Kenya a newly industrializing 'middle income country providing high-quality life for all its citizens by the year 2030.

## Conclusions and Implications for Development Practice

From the foregoing, it is certain that several overarching conclusions can be drawn from this article. The complex relations between climate change and conflict can only be understood if questions of their co-evolution are answered first. In this regard, the continued causality debate not only impedes more systemic and ultimately effective interventions but also leads to undesirable consequences and maintains the status quo of perpetual vulnerability of the traditionally marginalized groups. While context matters, a central conviction emerged in this article that there is need for an explicit acknowledgement of the dynamic and complex social ecological relationships in which climate change and conflict interact, in proactively planning, designing, implementing, and learning from transformational climate resilience and conflict transformation initiatives, so to shape development pathways.

In line with the co-evolutionary thinking, the remainder of this section considers a range of strategies for rethinking the climate change and conflict linkage through planning, designing, and implementing, climate resilience and conflict transformation initiatives, so to shape development pathways:

- There is a need to improve structures for coordination between key public institutions within the climate change and conflict space, by advocating for more integration between community level institutions, counties, and national government and even private sector institutions with a mandate over climate change and conflict. As such, there is a need for a legal system to consolidate both climate change and conflict sectoral efforts to ensure a harmonized approach towards climate resilience and conflict transformation.
- Practitioners should foster climate-sensitive and conflict-sensitive policies and programs by taking into account impacts beyond the climate-focused objectives. Since secondary effects such as conflicts, intended or unintended, can compromise the climate action objectives either directly or indirectly, it is imperative that practitioners prepare conflict-sensitive climate change adaptation plans and implement integrated resilience-building initiatives. This goes hand in hand with increased attention to climate change preventive efforts during the dry season, laced with a well laid out theory of change, while still remaining flexible.

- There is need for a sustained and structured process aimed at instilling in the fabric of society the capacity to recognize and understand the co-evolution of both climate change and conflict and to take actions to achieve possible solutions in a holistic manner. This calls for robust programs that promote the wider dissemination of information and provide a platform for free exchange of ideas and opinions around climate change and conflict co-evolution.
  
- Future work along the lines presented in this article will need to focus on a number of areas, including cross country comparative implications of climate change and conflict co-evolution; improved methodologies in determining the co-evolution of climate change and conflict; and lastly the need for increased attention to empirical research design to begin to address issues of climate change and conflict co-evolution.

# References

- Adano, W. R., Witsenburg, K., & Dietz, A. (2009). Scarcity of natural resources and pastoral conflicts in northern Kenya: An inquiry. *Horn of Africa Bulletin*, 21(1), 1–5.
- Agade, K. M. (2017). Oil and emerging conflict dynamics in the Ateker Cluster: The case of Turkana, Kenya. *Nomadic Peoples*, 21(1), 34–62.
- Andersen, M. M., Ogallo, E., & Diniz Faria, L. G. (2022). Green economic change in Africa—green and circular innovation trends, conditions and dynamics in Kenyan companies. *Innovation and Development*, 12(2), 231–257.
- Andres, A. (2013). Tana River Dispute in a Drying Climate. *ICE Case Studies*, 274.
- Avis, W. (2019). Current trends in violent conflict.
- Ayal, D. Y., Radeny, M., Desta, S., & Gebru, G. (2018). Climate variability, perceptions of pastoralists and their adaptation strategies: Implications for livestock system and diseases in Borana zone. *International Journal of Climate Change Strategies and Management*, 10(4), 596–615.
- Barnett, J. (2003). Security and climate change. *Global Environmental Change*, 13(1), 7–17.
- Bhandari, P., Warszawski, N., Cogan, D., & Gerholdt, R. (2022). What is "loss and damage" from climate change? 6 key questions, answered.
- Bond, J. (2014). A holistic approach to natural resource conflict: The case of Laikipia County, Kenya. *Journal of Rural Studies*, 34, 117–127. <https://doi.org/10.1016/j.jrurstud.2014.01.008>
- Boruru, E. O., Ontita, E., Ogara, W. O., & Oguge, N. O. (2011). Climate change and the emergence of helter-skelter livelihoods among the pastoralists of Samburu East District, Kenya. In *Experiences of climate change adaptation in Africa* (pp. 97–110). Springer.
- Cappelli, F., Conigliani, C., Consoli, D., Costantini, V., & Paglialunga, E. (2022). Climate change and armed conflicts in Africa: Temporal persistence, non-linear climate impact and geographical spillovers. *Economia Politica*. <https://doi.org/10.1007/s40888-022-00271-x>
- Charbonneau, B., Läderach, P., Boisvert, M.-A., Smirnova, T., Pacillo, G., Craparo, A., & Madurga, I. (2022). The Climate Crisis and Its Challenges for African Peacebuilding. In *Routledge Handbook of African Peacebuilding* (pp. 169–188). Routledge.
- Chaudhury, M., Summerlin, T., & Ginoya, N. (2020). Mainstreaming climate change adaptation in Kenya: Lessons from Makueni and Wajir counties.
- Connolly-Boutin, L., & Smit, B. (2016). Climate change, food security, and livelihoods in sub-Saharan Africa. *Regional Environmental Change*, 16(2), 385–399.
- Cormack, Z. (2019). How Kenya's mega wind power project is hurting communities. *The Conversation*, September 3.
- Crick, F., Gargule, A., & Suji, O. (2020). Early outcomes of climate finance in Kenya: Case study of seven investments funded by the County Climate Change Fund mechanism. BRACED. <http://www.braced.org/resources/i/Early-outcomes-of-climate-finance-in-Kenya/>

- Crick, F., Hesse, C., Orindi, V., Bonaya, M., & Kiiru, J. (2019). Delivering climate finance at local level to support adaptation: Experiences of county climate change funds in Kenya. Nairobi, Kenya: Ada Consortium. [Google Scholar].
- Dalby, S. (2018). Climate change and environmental conflicts. In *Routledge Handbook of Environmental Conflict and Peacebuilding* (pp. 42–53). Routledge.
- Dalby, S. (2021). Global climate change and security threats. In *Handbook of Security and the Environment* (pp. 26–39). Edward Elgar Publishing.
- De Jode, H. (2009). Modern and mobile. The future of livestock production in Africa's drylands. International Institute for Environment and Development (IIED).
- Detges, A. (2014). Close-up on renewable resources and armed conflict: The spatial logic of pastoralist violence in northern Kenya. *Political Geography*, 42, 57–65.
- Dyer, C. (2016). Approaches to education provision for mobile pastoralists. *Revue Scientifique et Technique (International Office of Epizootics)*, 35(2), 631–638.
- François, M., & Sud, I. (2006). Promoting Stability and Development in Fragile and Failed States. *Development Policy Review*, 24(2), 141–160. <https://doi.org/10.1111/j.1467-7679.2006.00319.x>
- Froese, R., & Schilling, J. (2019). The Nexus of Climate Change, Land Use, and Conflicts. *Current Climate Change Reports*, 5(1), 24–35. <https://doi.org/10.1007/s40641-019-00122-1>
- Galaty, J. G. (2018). Gufu Oba: Herder Warfare in East Africa: A Social and Spatial History. *Nomadic Peoples*, 22(1), 177+. Gale Academic OneFile.
- GOK, G. (2010). Kenya Vision 2030; The Popular Version.
- Government of Kenya. (2013). National Climate Change Action Plan (2013–2017).
- Greiner, C. (2012). Unexpected consequences: Wildlife conservation and territorial conflict in northern Kenya. *Human Ecology*, 40(3), 415–425.
- Haider, H. (2020). Conflict analysis of Northeastern Kenya.
- Haider, L. J., Schlüter, M., Folke, C., & Reyers, B. (2021). Rethinking resilience and development: A coevolutionary perspective. *Ambio*, 50(7), 1304–1312.
- Halderman, M., Jenner, H., Karuru, N., Ong'ayo, M., Smith, S., Smith, Z., & Carter, L. (2002). Assessment and programmatic recommendations: Addressing pastoralist conflict in the Karamoja cluster of Kenya, Uganda and Sudan. Greater Horn of Africa Peace Building Project. Report Prepared for USAID. Berkeley and Washington DC.
- Hardin, G. (2009). The tragedy of the commons. *J Nat Resour Policy Res* 1 (3): 243-253.
- Herskovits, M. J. (Melville J. (1926). The cattle complex in East Africa. Columbia University.
- Horowitz, C. A. (2016). Paris Agreement. *International Legal Materials*, 55(4), 740–755. Cambridge Core. <https://doi.org/10.1017/S0020782900004253>
- ICRC. (2020). When rain turns to dust. Understanding and responding to the combined impact of armed conflicts and the climate and environment crisis on people's lives. ICRC.

International Committee of the Red Cross. (2008). How is the Term 'Armed Conflict' Defined in International Humanitarian Law? ICRC Opinion Paper.

IPCC (Ed.). (2022). Annex I: Glossary. In *Global Warming of 1.5°C: IPCC Special Report on Impacts of Global Warming of 1.5°C above Pre-industrial Levels in Context of Strengthening Response to Climate Change, Sustainable Development, and Efforts to Eradicate Poverty* (pp. 541–562). Cambridge University Press; Cambridge Core. <https://doi.org/10.1017/9781009157940.008>

Jeremiah, A. (2012, September 28). Water and Land Conflict in Kenya in the Wake of Climate Change. <https://www.newsecuritybeat.org/2012/09/water-land-conflict-kenya-wake-climate-change/>

Juma, L. (2000). Environmental Protection in Kenya: Will the Environmental Management and Coordination Act (1999) Make a Difference. *SC Env'tl. LJ*, 9, 181.

Karanja, J. M., & Abdul-Razak, Z. (2018). Africa and Climate Change Refugees' Quandary: Kenya Perspectives. In *The Development of Africa* (pp. 255–267). Springer.

Kenya, N. (2005). About NEMA Kenya.

Khazanov, A. M. (Anatoly M. (1994). *Nomads and the outside world / Anatoly M. Khazanov* (2nd ed.). Madison: University of Wisconsin Press.

Kibugi, R. (2019). Kenya a Leader in Comprehensiveness Battling Ineffectiveness. In *Tangled Roots and Changing Tides* (pp. 88–119). WWF Germany, Worldwide Fund for Nature, Germany and IUCN, International Union for Conservation of Nature. <http://www.indiaenvironmentportal.org.in/files/file/Tangled-Roots-and-Changing-Tides.pdf>

Koasidis, K., Nikas, A., Karamaneas, A., Saulo, M., Tsipouridis, I., Campagnolo, L., Gambhir, A., Van de Ven, D.-J., McWilliams, B., & Doukas, H. (2022). Climate and sustainability co-governance in Kenya: A multi-criteria analysis of stakeholders' perceptions and consensus. *Energy for Sustainable Development*, 68, 457–471.

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

Koubi, V. (2019). Climate change and conflict. *Annual Review of Political Science*, 22, 343–360.

Kuyper, J., Schroeder, H., & Linnér, B.-O. (2018). The Evolution of the UNFCCC. *Annual Review of Environment and Resources*, 43(1), 343–368. <https://doi.org/10.1146/annurev-environ-102017-030119>

LED, C., STUD, Y., & KEN, Y. (n.d.). MULTI-LEVEL CLIMATE GOVERNANCE IN KENYA.

Leming'ani, C. R. (2017). Resource based conflicts between white settlers and Pastoralists in the horn of Africa: A case study of Laikipia County in Kenya.

Mach, K. J., Kraan, C. M., Adger, W. N., Buhaug, H., Burke, M., Fearon, J. D., Field, C. B., Hendrix, C. S., Maystadt, J.-F., & O'Loughlin, J. (2019). Climate as a risk factor for armed conflict. *Nature*, 571(7764), 193–197.

Maguta, J. K., Nzengya, D. M., Mutisya, C., & Wairimu, J. (2020). Building Capacity to Cope with Climate Change-Induced Resource-Based Conflicts Among Grassroots Communities in Kenya. *African Handbook of Climate Change Adaptation*, 1–20.

- Maringa, D., Mugambi, M., & Mutunga, L. (2020). Competition for Resources as a Predictor of Grazing Conflicts in Northern Kenya. *International Journal of Natural Resource Ecology and Management*, 5(4), 168.
- Mkutu, K., Mkutu, T., Marani, M., & Ekitela, A. L. (2019). New oil developments in a remote area: Environmental justice and participation in Turkana, Kenya. *The Journal of Environment & Development*, 28(3), 223–252.
- Mkutu, K., Müller-Koné, M., & Owino, E. A. (2021). Future visions, present conflicts: The ethnicized politics of anticipation surrounding an infrastructure corridor in northern Kenya. *Journal of Eastern African Studies*, 15(4), 707–727. <https://doi.org/10.1080/17531055.2021.1987700>
- Mobjörk, M. (2017). Exploring the climate–conflict link: The case of East Africa. Stockholm International Peace Research Institute, *SIPRI Yearbook 2017: Armaments, Disarmament and International Security*, 287–299.
- Muigua, K. (2022). *Environmental Conflict Management Institutions and Approaches*.
- Muok, B. O., Mosberg, M., Eriksen, S. E. H., & Ong'ech, D. O. (2021). The politics of forest governance in a changing climate: Political reforms, conflict and socio-environmental changes in Laikipia, Kenya. *Forest Policy and Economics*, 132, 102590.
- Mutiga, I. (2021). Ecological restoration of pastoral landscapes in the drylands of East Africa. *Journal of Dryland Agriculture*, 7(3), 34–41.
- Mutugi, M., & Kiiru, W. (2015). Biodiversity, Local Resource, National Heritage, Regional Concern and Global Impact: The Case of Mau Forest, Kenya. *European Scientific Journal*, 1, 681–691.
- Naeku, M. J. (2020). Climate change governance: An analysis of the climate change legal regime in Kenya. *Environmental Law Review*, 22(3), 170–183. <https://doi.org/10.1177/1461452920958398>
- Naess, L. O., Selby, J., & Daoust, G. (2022). *Climate Resilience and Social Assistance in Fragile and Conflict-Affected Settings*.
- Nkedianye, D., de Leeuw, J., Ogutu, J. O., Said, M. Y., Saidimu, T. L., Kifugo, S. C., Kaelo, D. S., & Reid, R. S. (2011). Mobility and livestock mortality in communally used pastoral areas: The impact of the 2005-2006 drought on livestock mortality in Maasailand. *Pastoralism: Research, Policy and Practice*, 1(1), 1–17.
- Nordås, R., & Gleditsch, N. P. (2015). Climate change and conflict. In *Competition and conflicts on resource use* (pp. 21–38). Springer.
- Nyerere, J., Gatwiri, W., & Okinyi, R. (2021). Kenya's climate change policy actions and the response of higher education.
- Nying uro, P. (2005). The resource dimension of conflicts in sub-Saharan Africa. *Regional Development Dialogue*, 26(1), 40.
- Ocheje, P. D. (2007). “In the public interest”: Forced evictions, land rights and human development in Africa. *Journal of African Law*, 51(2), 173–214.
- Ochieng, R. (2010). *A Review of degradation status of the Mau Forest and Possible Remedial Measures*. GRIN Verlag.
- Ochieng, R., Recha, C., & Bebe, B. O. (2017). Rainfall variability and droughts in the drylands of



Baringo County, Kenya.

Ogega, O. (2017). Globalization and global warming: A case of Laikipia County, Kenya. *Journal of Energy and Natural Resource Management*.

Omolo, N. A. (2010). Gender and climate change-induced conflict in pastoral communities: Case study of Turkana in northwestern Kenya. *African Journal on Conflict Resolution*, 10(2).

Opiyo, F. E. O., Mureithi, S. M., & Ngugi, R. K. (2011). The Influence of Water Availability on Pastoralist's Resource Use in Mwingi and Kitui Districts in Kenya. *Journal of Human Ecology*, 35(1), 43–52. <https://doi.org/10.1080/09709274.2011.11906389>

Orindi, V., Elhadi, Y., & Hesse, C. (2017). Chapter 15: Democratising climate finance at local levels. Edward Elgar Publishing. <https://doi.org/10.4337/9781785368455.00028>

Ostrom, E. (2002). Common-pool resources and institutions: Toward a revised theory. *Handbook of Agricultural Economics*, 2, 1315–1339.

Ouma, J. O., Olang, L. O., Ouma, G. O., Oludhe, C., Ogallo, L., & Artan, G. (2018). Magnitudes of climate variability and changes over the arid and semi-arid lands of Kenya between 1961 and 2013 period. *American Journal of Climate Change*, 7(01), 27.

Pörtner, H.-O., Roberts, D. C., Adams, H., Adler, C., Aldunce, P., Ali, E., Begum, R. A., Betts, R., Kerr, R. B., & Biesbroek, R. (2022). Climate change 2022: Impacts, adaptation and vulnerability. IPCC Sixth Assessment Report.

Powers, J. (2015, November 6). Climate Change Is the 'Mother of All Risks' to National Security. *Time*. <https://time.com/4101903/climate-change-national-security/>

Quevedo, A., & Cao, Y. (2022). CLIMATE ADAPTATION INVESTMENTS IN CONFLICT-AFFECTED STATES.

Raleigh, C., & Kniveton, D. (2012). Come rain or shine: An analysis of conflict and climate variability in East Africa. *Journal of Peace Research*, 49(1), 51–64.

Rao, N., Lawson, E. T., Raditloaneng, W. N., Solomon, D., & Angula, M. N. (2019). Gendered vulnerabilities to climate change: Insights from the semi-arid regions of Africa and Asia. *Climate and Development*, 11(1), 14–26.

Remling, E. (2022). Environment of Peace: Security in a New Era of Risk.

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

Scheffran, J., & Battaglini, A. (2011). Climate and conflicts: The security risks of global warming. *Regional Environmental Change*, 11(1), 27–39.

Schetter, C., Mkutu, K., & Müller-Koné, M. (2022). Frontier NGOs: Conservancies, control, and violence in northern Kenya. *World Development*, 151, 105735.

Schilling, J., Locham, R., & Scheffran, J. (2018). A local to global perspective on oil and wind exploitation, resource governance and conflict in Northern Kenya. *Conflict, Security & Development*, 18(6), 571–600. <https://doi.org/10.1080/14678802.2018.1532642>

Schilling, J., Opiyo, F. E., & Scheffran, J. (2012). Raiding pastoral livelihoods: Motives and effects of

violent conflict in north-western Kenya. *Pastoralism: Research, Policy and Practice*, 2(1), 25.  
<https://doi.org/10.1186/2041-7136-2-25>

Schilling, J., Scheffran, J., & Weinzierl, T. (2012). *Climate Change and Violent Conflict in Kenya: A Two-way Relationship*. international conference, Sussex Centre for International Security at the University of Sussex, 18th-19th October.

Schilling, J., & Werland, L. (2020). 4 Interaction between wind energy, climate vulnerability, and violent conflict in Northern Kenya. *Climate Change, Security Risks, and Violent Conflicts*, 67.

Seter, H. (2016). Connecting climate variability and conflict: Implications for empirical testing. *Political Geography*, 53, 1–9.

Sitati, A., Joe, E., Pentz, B., Grayson, C., Jaime, C., Gilmore, E., Galappaththi, E., Hudson, A., Alverio, G. N., & Mach, K. (2021). Climate change adaptation in conflict-affected countries: A systematic assessment of evidence. *Discover Sustainability*, 2(1), 1–15.

Theisen, O. M. (2012). Climate clashes? Weather variability, land pressure, and organized violence in Kenya, 1989–2004. *Journal of Peace Research*, 49(1), 81–96.

van Weezel, S. (2019). On climate and conflict: Precipitation decline and communal conflict in Ethiopia and Kenya. *Journal of Peace Research*, 56(4), 514–528.  
<https://doi.org/10.1177/0022343319826409>

Wakube, C., Nyagah, T., Mwangi, J., & Attree, L. (2017). Inside Kenya's war on terror: Breaking the cycle of violence in Garissa.

Wasike, C. N. (2021). Conflicts in Kenya: Drivers of Conflicts and Assessing Mitigation Measures. In *Decolonising Conflicts, Security, Peace, Gender, Environment and Development in the Anthropocene* (pp. 333–349). Springer.

Watson, E. E., & Hussein Kochore, H. (2012). Religion and climate change in northern Kenya: New moral frameworks for new environmental challenges? *Journal for the Study of Religion, Nature & Culture*, 6(3).

Werndl, C. (2016). On defining climate and climate change. *The British Journal for the Philosophy of Science*.

Witsenburg, K. M., & Adano, W. R. (2009). Of rain and raids: Violent livestock raiding in northern Kenya. *Civil Wars*, 11(4), 514–538.