



THE LONDON SCHOOL  
OF ECONOMICS AND  
POLITICAL SCIENCE ■

# **TRANSBOUNDARY CLIMATE AND ADAPTATION RISKS GOVERNANCE**

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A thesis submitted to the Department of Geography and Environment of the London School of Economics and Political Science for the degree of Doctor of Philosophy.

London, August 2023.

# DECLARATION

I certify that the thesis I have presented for examination for the PhD degree of the London School of Economics and Political Science is solely my own work other than where I have clearly indicated that it is the work of others (in which case the extent of any work carried out jointly by me and any other person is clearly identified in it).

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## **Statement of co-authored work**

I confirm that Chapter 3 was jointly co-authored with Professor Declan Conway, and I am the lead author. My contribution included the conceptualisation and formulation of the research goal and aims; developing the research questions; designing the methodology; data collection and analysis; and writing the original and final drafts of the chapter. Declan's contribution included reviewing the research goals, aims and research questions; contributing to the development of the methodology; data interpretation; and reviewing and editing the original draft of the chapter.

I declare that my thesis consists of 81,669 words.

A handwritten signature in blue ink, appearing to read "Martin Brown Munene". The signature is somewhat stylized and includes a small graphic element resembling a checkmark or a stylized 'M'.

**Martin Brown Munene**

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In closing, the completion of this thesis is a testament to the collective effort of a diverse community that believed in me and stood by me. I am humbled and privileged to have been a part of such an enriching network of individuals and institutions. As I embark on the next phase of my journey, I carry with me the lessons, memories, and relationships forged during this time of growth and learning and a strong belief that meaningful change can be realised through collaboration, dedicated research and shared commitment to addressing the pressing challenges of our time.

# ABSTRACT

The growing debate on transboundary climate and adaptation risks (TCARs) raises questions about their nature, governance options and logics, and implications within and across boundaries. This thesis investigates these questions through four interconnected chapters written in a long paper format. It is based on primary data collected through interviews and direct observations, and secondary sources including official documents, census data and spatial maps.

Focusing on the global level of climate policymaking, the first paper explores the *construction* and *definition* of TCARs in the Paris Agreement and considers the potential for their governance (TCARG) in its implementation. Through an analysis of the Agreement, its supplementary text and related literature, the study reveals that despite its hypothesised potential to foster TCARG, the Agreement gives limited attention to TCARG and lacks explicit focus on TCARs in its articulation. The paper identifies four evident dimensions of climate risk governance boundaries: legal-political, sectoral/functional, temporal, and ecological/ecosystems, with the legal-political dimension being the most influential. It also explores opportunities for enhancing TCARG during the Agreement's implementation.

Paying attention to the nature of TCARs and their contextual predisposing factors, the second paper characterises Kenya's TCAR challenge, exploring its intricacies both at the national and subnational scales. It shows that the significance of TCARs in the country is complex, and their propagation is often nonlinear and often complicated by intranational and international (in)actions within the 'impact transmission' system. Evidently, with or without globalisation, many TCARs remain relevant and TCARG necessary for Kenya. The paper demonstrates the cogency of the national and subnational scales in the context of TCARs and recommends the utilisation of robust and inclusive approaches in assessing not only climate change risks and impacts but also the risks and impacts of climate response measures.

Shifting the focus to political systems due to their centrality in climate and disaster risk creation and governance, the third paper examines how the constitutional devolution of political, fiscal and administrative powers and resources has affected the social contracts and *decision spaces* for the design, implementation and coordination of adaptation,

particularly its transboundary dimensions. Results show mixed impacts. While it has provided opportunities for enhanced local participation and ownership, devolution has also increased the polycentricity and fragmentation of adaptation governance by creating additional boundaries and layers. By creating new dimensions of citizenship rights and entitlements, devolution also complicated accountability, coordination and capacity challenges at multiple levels. The paper offers recommendations for improving the governance of TCARs in the context of devolution in Kenya and similar contexts.

The final paper delves into the rationales behind the (ex)territoriality of climate and adaptation risk governance (CARG). Employing spatial imaginaries as a lens, the paper explores the (ex)territorial framing of CARG and its underlying logics in Kenya. It finds that CARG in Kenya is often deliberate and influenced by socio-political institutional and governance rationales, all of which are shaped by spatial imaginaries. Because TCARs and TCARG are extraterritorial, they challenge these imaginaries and create governance dilemmas. The paper highlights the significance of spatial imaginaries in shaping CARG and proposes that the territoriality of adaptation framing and interventions is hereditary from the prevailing diverse spatial imaginaries in different spaces and places wherein CARG occurs.

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# 1 CHAPTER 1

## 1.1 INTRODUCTION

### 1.0.1 Journeying towards this thesis

The journey towards this thesis has been interesting in particular and peculiar ways, and I have undergone considerable professional and personal transformations. In this brief section, I highlight some of the elements in this journey to hopefully help you, the reader, better appreciate my interest in the subject and my personal experiences that have informed my intellectual choices to this day.

Many things behind and leading to this thesis are personal. I got married shortly after starting my PhD study in late 2018. Just over a year later, we were blessed with our first baby, born in February 2020. This was when the multidimensional and transboundary crisis of COVID-19 was gaining momentum across the globe. A few days after our daughter was born, the UK government announced a hitherto unbeknownst 'lockdown' on the 23<sup>rd</sup> of March. This became the first of the three national lockdowns in England and the many State and non-state response measures to the global pandemic. My research plans were thrown into a spin, especially as travel restrictions and stay-at-home orders were adopted globally. I could not travel for data collection for a long time, and remote data collection was neither sensible nor ethical as my potential interviewees were deeply affected by the pandemic. I resumed data collection later with a revised research design and approach. While my first plan was to study Kenya and the surrounding countries, including the borderlands, there was neither the time nor the resources to help do that well anymore. I resorted to the current top-down, bottom-up hybrid approach.

For a long time, my wife, our daughter, and I were confined in a London flat, in Greenwich, trying to work on the PhD and take care of each other. We did not know much about taking care of our first baby, and not much help was available. Visits from and to friends and relatives were untenable because of the lockdowns and stay-at-home orders. This was challenging in many ways, but we survived. My family is intact, and our daughter is three and a half years old as I submit this completed thesis, a bit later than I intended. She has sat on my lap so long and seen me write this thesis that now she can type her first name on my

laptop—and she has done so a few times. Not many people will do a PhD like this, during a global and contagious pandemic like COVID-19, with a young family, and a new first baby, with little to no direct help, thousands of miles from most of their family. It was not optimal but the whole experience confirmed the material significance of this research topic.

The choice of this topic, in general, can be traced back to my academic training in climate and disaster risk governance and sustainable development at the undergraduate and postgraduate levels and my professional experience. These, coupled with the desire to help find solutions to the climate change impacts ravaging my country and community in Kenya, drove me to this policy-relevant exploration. When I started, I proposed to explore transboundary climate risks and adaptation governance, meaning the adaptation to transboundary climate risks, from a regional perspective. As I continued with my research and reflections, I realised that it is not just the risks from climate change that should concern me. Drawing from the literature and my professional experience in the field, including from the Stockholm Environment Institute's Initiative on Transforming Disaster and Development Risk (TDDR) which I worked in, two related observations particularly necessitated and influenced the shift in focus to the current topic. The first was that the climate and disaster risk reduction initiatives being implemented across the globe were strikingly like the development initiatives that contributed to the climate change challenge in the first place. The second was that in the same way the COVID-19 response measures created grave risks, even the climate response measures themselves portended risks that needed exploration and management. That is how the focus shifted to '*transboundary climate and adaptation risks*' and their *governance*.

While collecting the data and writing this thesis, I have seen the devastating impacts of climate-related hazards like droughts, floods and desert locust plagues on one hand and of response measures such as dam constructions, trade-related decisions, adoption of drought-resistant crops, and migration on the other. I have listened to stories of hope and resignation from interviewees, and read academic literature and policy documents with similar sentiments. I have seen and taken part in praying for rains during droughts and for help during floods. I have observed and listened to remarks on 'weather anomalies' as a result of 'our sins' and how we need to 'repent' to make things better. I have lost through death people I have known and cared for. All in all, my deep and diverse experience in this

process has helped me better appreciate the complexity of climate change and response challenges and the urgent need for real equitable solutions. Besides advancing academic knowledge, my desire to contribute to the development and advancement of such practical and just responses informed my choice of this PhD programme and to write a publications-based thesis. The thesis part is done. I hope the practical response part happens, soon, somehow.

## 1.0.2 Background

Transboundary climate change and adaptation risks (TCARs) have become a subject of concern for scholars, policymakers and practitioners (e.g., Bednar-Friedl et al., 2022; Benzie et al., 2019; Benzie and Persson, 2019; Challinor et al., 2017; Opitz-Stapleton et al., 2021). These “potential consequences or outcomes that could occur as the result of transboundary climate change impacts, the transboundary effects of adaptation decisions made by one or more countries or the transboundary effects of mitigation actions on countries’ adaptation options” (Opitz-Stapleton et al., 2021, p. 10) essentially emanate from the differences between the climate change challenge and the organisation of our society. Climate change and its risks and impacts are essentially transboundary and systemic, and managing them in our highly interconnected, yet fundamentally bordered world is seriously challenging. Its far-reaching impacts and risks transcend the boundaries that permeate our world, whether physical, political, administrative, sectoral, or ecological, affecting all communities, economies, and ecosystems across the globe. The borderless climate risks and impacts on one hand and the borderliness of the world impacted and in which climate response must occur on the other, create an important enduring dilemma for academics, policymakers and practitioners. This dilemma is further complicated by two factors. First is the recognition that differential climate risks and impacts naturally require differential, contextualised responses. Second is the reality that climate response measures can also yield risks and adverse impacts that can affect near and distant areas. The first is well considered in literature and policy, but not so for the second. As a result, there is a conceptual obfuscation between transboundary climate risks (TCRs) and transboundary adaptation risks (TARs) as they are often analysed as transboundary climate and adaptation risks (TCARs) despite their differences.

In recognition of the serious threat it poses, the global community has over time instituted measures intended to respond to climate change, including the Paris Agreement, a pivotal milestone in global climate policy under the United Nations Framework Convention on Climate Change (UNFCCC). Despite this, climate change has accelerated amid increasing greenhouse gas emissions, signifying the inadequacy of mitigation efforts to date. Consequently, adaptation has become inevitable and increasingly incorporated into the global response toolkit, and adaptation interventions are expected to rise as the implementation of the Paris Agreement gains momentum. Also, while it establishes the "global goal on adaptation" and is a clear instrument for transboundary climate risk governance, it has hitherto remained unclear whether and how the Paris Agreement recognises and addresses TCARs and their governance. Just like TCARs themselves, the practical implementation and governance mechanisms required to address TCARs remain complex and underexplored. Just adaptation and resilience-building require a deeper understanding of how TCARs are constructed, characterised, governed, and framed within diverse contexts. There is therefore an imperative to bridge the gap between the theoretical foundations of transboundary climate governance and the practical realities of adaptation interventions by offering a comprehensive examination of TCARs and their governance.

Understanding the nature of the risks is critical to managing them, but holistic and responsible climate risk governance entails addressing potential risks from climate response measures as well. It is thus critical that such fundamental tenets of climate and disaster risk governance are observed as climate governance gains momentum globally if just adaptation and resilience are to be achieved. As the interconnected global community grapples with the complex and interconnected nature of climate hazards, risks and impacts, the need for effective governance mechanisms becomes increasingly paramount. The growing debate on transboundary climate and adaptation risks (TCARs) therefore raises questions about their nature, governance options and logics, and implications within and across boundaries. As the intricacies of TCARs unfold, there remains a critical gap in our understanding of their recognition, definition, and governance at various scales – from the global to the subnational. From an academic standpoint, there is also an insufficient explanation of why adaptation framing remains territorial. In this thesis, I delve into this crucial area of climate change research, policy and governance which is emerging as a critical concern to address these questions.

### **1.0.3 My motivation**

My motivation for this thesis is underpinned by the pressing need for practical solutions to the climate change challenge and to address the potential negative impacts of climate response measures. Considering the accelerating pace of climate change, the inadequate mitigation efforts globally, and the inevitable need for just adaptation, the need for understanding and effectively managing transboundary climate and adaptation risks has never been more urgent and critical. Climate-related hazards, risks and impacts know no borders and affect ecosystems, economies, and societies on a global scale. The same is true for risks and impacts from response measures such as adaptation interventions. Practical and just climate response requires a deeper understanding of how TCARs are constructed, characterised, governed, and framed within diverse contexts. This thesis aims to contribute to this by bridging some of the gaps between theoretical insights and practical implications by offering a comprehensive examination of TCARs and their governance across scales and diverse contexts.

### **1.0.4 The key gaps**

The global challenge of both climate change and climate adaptation transcends physical and societal boundaries, presenting complex and interconnected risks and impacts that require coordinated multi-level and cross-scale efforts for effective and just adaptation. However, despite the growing recognition of TCARs, there are significant gaps in our understanding of the nature of these risks and their pathways, how they are acknowledged, defined, and governed in both global and subnational contexts, and why. Six connected specific gaps are identified from the literature on TCARs.

The first is that while the UNFCCC is proposed in the literature as a potential mechanism for addressing TCARs, there is limited analysis or discussion of how and the extent to which it considers TCARs and their governance. For instance, the extent to which transboundary dimensions of risks and governance are integrated into the Paris Agreement (and related policy frameworks) and defined in actionable terms remains unclear. Without assessing how they consider TCARs and TCARG in their articulation, it is insufficient to suggest that any mechanisms (including the UNFCCC and its instruments) are automatic means for TCARG simply based on their internationality.

Related to this, the second gap is the preoccupation with the international scale and the limited attention TCAR and TCARG studies pay to the subnational scale despite most climate interventions being intranational. While the global discourse on TCARs has predominantly centred on international boundaries, scale and dimensions, the bulk of climate interventions and impacts occur at subnational levels. This disparity between global recognition and local realities has led to insufficient attention being directed towards the unique TCAR challenges faced by individual countries and regions. The lack of comprehensive analyses at subnational scales hinders our ability to tailor effective adaptation strategies that account for the diverse contextual factors influencing TCARs. The preoccupation with the international scale also leads to insufficient diagnoses of the problem and the prescription of potential solutions. An example of this is the theorisation of the TCAR challenge around 'globalisation' and the suggestion of 'international cooperation' as a central approach for TCARG.

The third gap entails the lack of conceptual clarity between the two core constituents of TCARs, namely TCRs and TARs. While analytically lumping them together is useful in communicating their common transboundariness, doing so uncritically and ignoring their differences can lead to errors/limitations in the problem analyses and propositions of potential solutions.

Flowing from the above, the fourth gap entails the inadequate characterisation and limited empirical evidence of TCARs and their predisposing factors in different cases. This is understandable given the nascent stage of this specific strand of research.

Linked to the fourth gap, the fifth gap is the inadequate linkage between TCARG and the political systems that produce and/or govern TCARs. Important questions remain about the empirical details in specific cases, the multi-scale interactions and the implications of changes in political systems. Despite their centrality in the creation and management of TCARs, political and governance systems and mechanisms have received little attention in the analyses of TCARs and TCARG. The popular decentralisation of governance through mechanisms like devolution, as witnessed in Kenya, introduces new layers of complexity to TCARG. For instance, while devolution can enhance local ownership, participation, and flexibility, it can also lead to fragmentation of governance arrangements and coordination

challenges across multiple levels of government. This presents a multifaceted problem as the impact of devolution (as a popular governance approach worldwide) on TCARG remains understudied, potentially hampering the ability to effectively address transboundary risks within subnational and evolving governance landscapes. For example, there is no TCARG study on how changes in political and governance systems influence resilience visions, priorities and outcomes, and constrain or facilitate TCARG. This is despite the undisputable argument that climate risk and adaptation governance (CARG) is fundamentally and foremost political.

Finally, there is an insufficient explanation of the (ex)territorial rationales in CARG and how TCARG aligns with them. While it is convincingly argued that CARG is dominantly territorial, there is a need for an equally convincing explanation of why this is so. The discourse surrounding the territorial and exterritorial dimensions of climate risk governance has significant implications for TCARs. The rationales underpinning the governance of TCARs within specific territorial boundaries versus their transboundary nature present complex challenges. Understanding how these dimensions are navigated and negotiated can provide insights into the mechanisms through which TCARs are governed and mitigated.

Amidst these gaps and the CARG challenges, there is a pressing need for governance approaches that are robust, inclusive, and capable of addressing the diverse dimensions of TCARs. Inadequate recognition, limited focus on subnational scales, evolving governance structures, and the intricacies of territorial and exterritorial governance dimensions underscore the need for comprehensive strategies that integrate TCARs into both global and local policy frameworks.

### **1.0.5 Aims, Research Questions and Scope**

In addressing the above gaps, this thesis aims to unravel the complexities surrounding the TCARs and their governance and consequently provide insights that can inform policy, strategy and decision-making at different levels. By examining the state of their consideration and construction, characterisation and governance, social contracts and political economy implications, and the sociospatial (territorial) framing of TCARs, I hope to offer actionable insights to policymakers, practitioners, and researchers grappling with the

challenges of climate change and adaptation governance at all levels. More specifically, I aim to:

- i. Assess the consideration of TCAR(G) in the international climate change governance;
- ii. Investigate and characterise TCARs and their predisposing factors at the national and subnational levels;
- iii. Explore the implications of governance and political systems in TCAR(G); and
- iv. Explain the dominance of territorial perspectives on adaptation governance and how TCARG can be advanced through them.

These aims are pursued through four interconnected chapters (*Chapters 2-5*), each shedding light on a distinct aspect of TCARs and/or their governance. Because these chapters are written as stand-alone papers, there are overlaps not only in the background and framing but also in the results. Nonetheless, since each paper pursues specific concrete objectives in furtherance of the above main aims and explores independent but related ideas, any overlaps between and among them are meant to be reinforcing and complementary rather than repetitive and duplicative. Collectively, this thesis endeavours to contribute not only to academic scholarship but also to the global efforts aimed at addressing the multifaceted challenges posed by climate change. By unravelling the complexities of transboundary climate and adaptation risks and offering pragmatic suggestions for their governance, this research aspires to support the development of effective policies and strategies that enhance climate resilience and foster multilevel and cross-scale cooperation.

Below, I relate the objects and contributions of the four chapters as they are correlated to the core research aims above. But in summary, Chapter 2 (Paper One) examines the recognition and construction of TCARs in the Paris Agreement and considers the potential for their governance in its implementation, in pursuit of the first objective. Through a specific case study, Chapter 3 (Paper Two) addresses the second aim to discuss the TCAR challenge in Kenya, paying attention to both TCRs and TARs and highlighting the significance of the national and subnational scales. Chapter 4 (Paper Three) then addresses the third aim to investigate the implications of Kenya's ambitious constitutional devolution programme for the governance of TCARs. Chapter 5 (Paper Four), in seeking to address the fourth objective delves into the context-based sociospatial rationales for the (ex)territoriality of CARG and

the extent to which TCARs and TCARG align with them. Finally, in Chapter 6, I review the research process, the findings and their implications, the contribution, and the limitations of this thesis before suggesting areas for further research.

## 1.0.6 Overview of the Chapters

In Chapter 2, the only one with a core focus on the global level of climate policymaking, I delve into the Paris Agreement to explore if and how it integrates TCARs and consider the potential for TCARG in its implementation. There has hitherto been no study known to me that does this, despite the numerous suggestions of the Agreement as an important mechanism through which TCARs can be governed. I investigate the recognition and treatment of TCARs within the Agreement's architecture, while also examining the potential for these concerns to be effectively managed through its implementation. I perform content and thematic analyses of the Agreement and its supplementary text and discuss the results in the backdrop of related literature.

I find that, despite its imagined potential to foster TCARG, the Agreement gives limited attention to TCARs and TCARG. It particularly lacks an explicit focus on TCARs in its articulation. Additionally, although the State is the overriding locus for climate governance under the Agreement, governance across the boundaries of each is loosely stated and often ambiguous. These findings lead me to doubt the validity of claims that the Agreement furthers TCARG as currently articulated. Additionally, the gaps between the Agreement's aspirational global goals on both mitigation and adaptation and the operationalisation of these goals into practical governance strategies that encompass TCARs can, in fact, intensify TCARs and challenge TCARG. But I do not entirely dismiss its usefulness, as I conclude that the Agreement can further TCARG in several ways. I discuss this potential and opportunities based on its integral elements in its design and its implementation approach. I also identify four evident dimensions of climate risk governance boundaries relevant to TCARG — legal-political, sectoral/functional, temporal, and ecological/ecosystems. Unsurprisingly, the legal-political dimension emerges as the most prevalent and potentially most influential pathway for TCARG under the Agreement. I also explore opportunities for enhancing TCARG during the Agreement's implementation.

**In Chapter 3**, I shift the focus from the global climate governance regime to the lower scales where most adaptation interventions occur. My focus here is on the nature of TCARs and their contextual predisposing factors. For this and the remaining empirical chapters, I rely on official documents, socio-economic data, mapwork, direct observation, key informant interviews, and statements from stakeholders active in CARG spaces in Kenya, the case study henceforth. I examine the country's TCAR challenge and explore its intricacies both at the national and subnational scales. Together with a co-author, Declan Conway, we pay cognisance to and distinguish between TCRs and TARs, the two components of TCARs.

The results show that TCARs in Kenya comprise (bio)physical, economic, (geo)political, social, psychological, and temporal TCARs manifested at both the national and subnational levels and across domestic and international boundaries. Kenya's location, climatic diversity, social differentiation, governance and planning systems, inadequate safeguarding, neighbourhood (spatial contextual) effects, and economic dependence on climate-sensitive sectors influence its risks in unique ways. It is clear from the data that the significance of TCARs in the country is complex, and their propagation is often nonlinear and complicated by (in)action within the transmission system. Although globalisation is also confirmed as a factor of TCARs as claimed in previous studies, many TCARs remain relevant, and their governance is necessary for Kenya. Furthermore, considering that we found TCRs in only three and TARs in all six TCAR impact pathways, we conclude that the TCRs-TARs distinction is important in TCAR(G) studies. Additionally, this finding underscores the significance of adaptation (in)action in the analysis of TCARs and their governance of TCARs. The chapter also demonstrates national and subnational scales are also valid frames in the context of TCARs. Thus, the utilisation of robust and inclusive approaches in assessing not only climate change risks and impacts but also risks and impacts of adaptation and mitigation measures at all scales is recommended.

**Chapter 4** focuses on political systems to analyse the impact of devolution on climate governance with a focus on TCARs. I examine how the constitutional devolution of political, fiscal and administrative powers and resources has affected the social contracts and *decision spaces* for the design, implementation and coordination of adaptation, particularly its transboundary dimensions. I also identify and discuss devolution's impact on the political economy processes relevant to TCAR(G), namely, enclosure, exclusion/inclusion,

encroachment, and entrenchment. This chapter provides empirical evidence on the potential for devolved and (semi)autonomous governance to shape responses to transboundary risk and explores the potential and pitfalls for “locally led” action and thinking, especially in light of increased interdependences of labour and services and other factors under globalisation.

Results show mixed impacts of devolution on adaptation and TCAR governance. On one hand, I find that devolution has enhanced opportunities for improved local participation and flexibility in adaptation planning and implementation and created the demand for local ownership of climate and disaster risk management in the country. But I also find that devolution has created additional boundaries and layers of governance which have contributed to further governance fragmentation. Additionally, it created new dimensions of citizenship, rights and entitlements, duties and obligations which complicate accountability, coordination and capacity challenges across the various boundaries of social contracting. These challenges play out in attempts to deliver on the State’s social contracts as codified in the Constitution and other devolution-related instruments, and as expected by citizens of the newly created county governments. The chapter cautions on the exclusive reliance on locally-led actions in light of TCARs and offers recommendations for improving the governance of TCARs in the context of devolution in Kenya.

Having established the nature of TCARs and their governance across scales, their predisposing factors, and the impact of political systems in the governance of (T)CARG, I shift attention to questions about the territorial framing of adaptation governance and its underlying logics. In this last empirical paper, **Chapter 5**, I explore the context-based rationales for the territoriality and exterritoriality (hereafter, (ex)territoriality) of climate CARG. Through this, I particularly contribute to responding to the questions also considered by Benzie and Persson (2019, p. 370): *“...why has a territorial framing and the national and sub-national scales dominated adaptation governance? How do borderless climate risks challenge this framing and what are possible governance responses?”*. I employ the spatial imaginaries lens to interpret the data explain the (ex)territorial framing and discuss how TCARs and TCARG in Kenya are (mis)aligned with these rationales. Relying on the same data set as in the previous two chapters, I first visualise and discuss Kenya’s CARG architecture before explaining its rationale and the extent to which TCARs and TCARG fit in.

The findings affirm the territoriality of Kenya's CARG architecture, which is often deliberate, and underpinned by sociospatial imaginaries that delineate the governance territories. Furthermore, CARG in Kenya is found to be embedded within and significantly influenced by the wider socio-political institutional and governance rationales and processes which are also fundamentally territorial. The exterritoriality of TCARs creates dilemmas for their governance, necessitating reconsiderations of the sociospatial imaginaries and either softening or hardening of territorial stances at different scales. By inference, globalisation — hitherto advanced as the key basis for concern about TCARs and their governance — is only one of the potent rationales for such reconsideration. However, even under limited globalisation, TCARs and their governance remain pertinent for Kenya. Numerous other important rationales exist, yet they serve as mobilising or representational devices in CARG (e.g., ethnic and cultural identities, historical heritage, colonial legacies, historical injustices, gender orientations, political leanings, livelihoods commonalities, etc.) and are operationalised from time to time. Despite their territoriality, the public administration units, sectors and socio-political domains form core salient spaces and pathways for the expression of (ex)territorial politics and transboundary CARG (re)negotiation, cooperation, and contestation — which are helped or complicated by the level of (in)congruence between different spatial imaginaries in each 'territory'. Thus, I also conclude that the territoriality of adaptation framing and interventions is inherited from the prevailing diverse spatial imaginaries in different spaces and places. Therein, CARG elements including tangible and intangible assets like knowledge, technical and technological capacities, governance structures and resources are developed and utilised. Thus, these units are mechanisms through which TCARs are/could be rendered governable.

**In Chapter 6**, the final chapter, I summarise the thesis, tying together the empirical chapters. I review the answers to the research questions in light of the research aims and objectives and provide an overview of their significance and implications. I also review my contribution through this thesis before reflecting on the study's limitations and suggestions for further research.

In summary, I reiterate the potency of TCARs in climate and adaptation governance, and confirm the relevance of TCAR(G) for and at lower scales, deviating from the prevailing fixation on the international scale. Thus, I assuage some of the concerns regarding the lack

of consideration of these dimensions in the international level instruments such as the Paris Agreement and the UNFCCC as discussed in Chapter 2. Similarly, I highlight the conclusion that the predisposing factors for TCAR(G) can be internal and/or external to a given entity (thus transboundary), as seen from the Kenyan case study. This also draws attention to the implications of governance and political systems in TCAR(G).

Drawing especially from the findings discussed in Chapter 3, I reaffirm the significance of conceptual distinctions between TCRs and TARs are significant in the discussion of TCAR(G). I caution that, as with the principal unit and scale of analysis chosen in any study, such distinctions can and do affect the characterisation of the challenge and the recommendations of solutions. I offer an overall evaluation of why the factors that influence TCRs and TARs are different. By inference, I also emphasise that climate change acceleration increases TCRs, and an increase in TCRs necessitates more adaptation, and more adaptation (in)action increases the potential for TARs for everyone. This demonstrates the strong link between TCRs and TARs, and provides a basis for continued, albeit critical, consideration of them as/under TCARs. Another important conceptual distinction and clarification the Chapter highlights is between *transboundary governance of risks* and *governance of transboundary risks*. Synthesising the findings discussed in all the empirical chapters, the concluding chapter reiterates that while *transboundary governance of climate risks and adaptation* is happening at all scales, *transboundary risks* of climate impacts and response interventions *are rarely the subject*. Further, I draw attention to the dilemma of the (mis)alignment between TCAR(G) and the territorial rationales of adaptation using the case study of Kenya. This stresses the importance of being clear about the types and scale of boundaries. In essence, I underscore the role of the boundary, the core locus for all transboundary climate and adaptation risk and governance considerations.

## **1.0.7 Comment on Methods, Methodology and Data**

### **1.0.7.1 Research ethics, data collection and data management**

Before collecting the data informing this thesis, I followed a rigorous research ethics review and approval process as required by the London School of Economics. I completed the required procedures and checks and secured approvals from the LSE Research Ethics Committee and the Department of Geography and Environment, as underpinned by the Ethics Code and the Code of Research Conduct at LSE. This included developing a data

management plan (provided in Appendix 13) and obtaining prior and informed consent from all research participants. Either written or verbal consent (when written consent was not tenable) was obtained before any interviews were conducted. Participants were provided with information regarding the research, their role and rights to withdraw from the study, confidentiality and anonymity of their participation and the information they provide, and where to direct any questions, concerns or complaints regarding the conduct of this research. This was especially through an information sheet which accompanied the consent form—both provided as Appendix 12. Furthermore, I secured the necessary permit from the Kenyan National Commission for Science Technology and Innovation (NACOSTI) under research license number NACOSTI/P/22/22441, provided as Appendix 14.

Among other data sources, 72 respondents were interviewed in the 77 key informant interviews (KIs) used in this thesis. The respondents include government officials, adaptation project implementers and funders, researchers and consultants and representatives of civil society, non-governmental and private sector organisations, cumulatively representing at least 60 institutions—see Appendix 3. As shown in the summary table (Table 1) below, 66.7% of the respondents identified as male and 33.3% as female. At the time of the interview, only three respondents (4.2%) were based outside of Kenya. The majority of the respondents represented non-state institutions with only a quarter (25%) representing either national or subnational governmental institutions and only 11.1% represented international governmental agencies.

*Table 1. Summary statistics of respondents.*

<b>Total: 72</b>	<b>Respondents by category of institutions they represented, No. (%)</b>
<b>Gender:</b> <ul style="list-style-type: none"> <li>Male: 48 (66.7%)</li> <li>Female: 24 (33.3%)</li> </ul>	<ul style="list-style-type: none"> <li>Governmental: 18 (25%)</li> <li>NGO (local/national): 17(23.6%)</li> <li>International NGO: 13 (18%)</li> <li>Private: 8 (11.1%)</li> <li>Research/Academic: 8 (11.1%)</li> <li>International Governmental: 8 (11.1%)</li> </ul>
<b>Respondent's base at interview time:</b> <ul style="list-style-type: none"> <li>Inside Kenya: 95.8%</li> <li>Outside Kenya: 4.2%</li> </ul>	

### **1.0.7.2 Positionality statement**

In section 1.0.1, I have provided information about my professional and personal background that has influenced my research on this topic while in section 1.0.3 I have highlighted my motivations. Without repeating them here but drawing attention to them nonetheless, I want to briefly reflect on my positionality and the ethical considerations and clearances for this research.

This research focuses on climate and adaptation risk governance, including in my own country and in a domain in which I have years of experience, and possess a valuable network enriched by collaborations, discussions, and shared experiences. Therefore, it is imperative to acknowledge the influence of my distinct positionality on the research process, including potential biases and the measures I have undertaken to address them.

My professional background and affiliations within the climate and adaptation governance sphere form one aspect of my positionality. I have developed a comprehensive understanding of the domain and subject matter through my involvement in various projects, partnerships, and initiatives within but also outside the country. However, I recognise that this level of immersion may inadvertently lead to a bias towards certain perspectives or stakeholders, potentially overlooking alternative viewpoints and voices. To counter this epistemic bias, I have consciously employed methods such as reflexivity and critical self-awareness throughout the research journey. I have strived to maintain openness to alternative viewpoints and impartiality in my analysis by continually questioning my assumptions and preconceptions and actively seeking out research that challenges my existing knowledge base in the literature review. I have also employed a multi-method approach to broaden the range of perspectives in this thesis.

Another dimension of my positionality is rooted in my embeddedness within the local network of climate, adaptation and disaster risk practitioners. This network provides access to invaluable resources and insights. Nonetheless, I recognise that it also carries the risk of echo-chamber effects and confirmation biases, with the potential to reinforce similar viewpoints while disregarding contradictory evidence in the research process. To mitigate these risks, I have consciously adopted a multi-stakeholder approach in data collection, engaging with a diverse range of actors beyond my immediate network. This includes

policymakers, civil society representatives, academics, private sector players and community members. I have also employed a multilevel approach in my research, with Chapter 2 focusing on the global level of climate policymaking, and Chapters 3 to 5 focusing on Kenya's national and subnational contexts. I have also utilised LinkedIn and snowballing techniques in the selection of participants in my interviews to minimise this bias in data collection. I have sought out and incorporated these multiple perspectives to ensure a more comprehensive understanding of the climate and adaptation risk governance landscape and to enhance the depth and validity of my findings.

Furthermore, undertaking research in the context of my own country carries the potential for nationalistic biases and predispositions towards certain policy narratives specific to the country. In recognition of this, I have deliberately adopted a critical and reflexive stance towards official discourses and government agendas prevalent in the policy documents and government rhetoric, interrogating their underlying assumptions and implications. I have made a conscious choice to not just focus on the official documents and official stakeholders but also include indepth interviews from non-affiliated non-state key informants. I have also engaged with international scholarship, engaging with literature and perspectives from scholars and contexts outside Kenya. This juxtaposition of national, official rhetoric with alternative discourses and counter-narratives has enabled me to unveil the complexities and power dynamics inherent within the governance landscape, which are not only rooted in national contexts and circumstances.

Additionally, I acknowledge that my research can be influenced by personal values, beliefs, and experiences. These factors have enriched my understanding and motivation for this research (as articulated especially in subsections 1.0.1—1.0.3). However, they also carried the risk of introducing subjective interpretations or preferences throughout the research process. To mitigate this subjectivity, I have employed rigorous research methodologies, including triangulation of data sources as well as peer debriefing and member checking through the regular presentations of my work to audiences within and outside of the Department of Geography and the LSE in general. I have strived to enhance the reliability and validity of my research findings by subjecting my findings and interpretations to scrutiny and validation from multiple sources and participants from diverse backgrounds.

I acknowledge the potential influence of my social identity on my access of data. For instance, my gender and association with LSE may have encouraged some and discouraged other participants' participation in the interviews. To minimise this risk, I utilised the snowballing approach to recruit interview participants and mainly relied on digital repositories to access documents utilised in this thesis as sources of data. Throughout this research, from its design through to data collection and analysis, I have strived for critical reflexivity and self-awareness, constantly questioning potential biases and ensuring the soundness of my analysis while still acknowledging my role as a researcher in constructing knowledge about the social-ecological world. This is aligned with my interactionist epistemological position discussed above. My use of mixed methods research design demonstrates my commitment to and belief in the value of both qualitative and quantitative data for capturing the complexities of TCARG. Thus, the extent of the influence of potential biases from my positionality is minimal. Furthermore, the thorough research ethics approval process highlighted above enhanced my critical reflection on data collection, analysis and management.

In conclusion, my positionality as a researcher in the field of climate and adaptation risk governance and within my own country encompasses a myriad of influences, from professional affiliations to personal experiences. While these factors may introduce biases, I have endeavoured to address them through reflexivity, engagement with diverse stakeholders, critical interrogation of discourses, and rigorous research methodologies. By navigating the complexities of positionality with transparency and reflexivity, I have aimed to contribute to a more nuanced and robust understanding of climate governance dynamics.

### **1.0.8 Conceptual Framing**

In this section before the substantive chapters, I discuss the key concepts used throughout this thesis. I mobilise key literature, highlighting definitions, interpretations, and key critiques. I do this from the outset to help clarify and justify the definition and understanding selected for this thesis. However, in addition to this discussion, these concepts might be revisited under the individual chapters where they are applied or utilised.

### 1.0.8.1 Risk, climate risks and impacts

“Risk” is a fundamental concept in climate change and disaster risk assessment and governance. It is the basis for climate action through both mitigation and adaptation efforts. Therefore, it forms a fundamental construct for this thesis.

Risk is a complex, multifaceted concept often with multiple perspectives, understandings and applications across different disciplines, including sociology, psychology, economics, finance, management and environmental studies. Thus, its definition may vary with the specific context and perspective through which it is viewed. Nonetheless, risk is generally considered as the likelihood of an event or outcome occurring, with its potential impact or consequences (Adam et al., 2000; Beck, 1992; Jasanoff, 1999; Kasperson and Kasperson, 2005a). Different perspectives notwithstanding, risk is commonly understood as the potential for harm, loss, damage, injury or undesirable consequences resulting from events, decisions or (in)actions taken, underscoring the precondition that Renn calls “the contingency of human actions” (2008, p. 50) in conceptions of risk. In the context of climate change, risk is often defined as the potential for adverse consequences or harm resulting from climate-related hazards and uncertainties (see, for instance, IPCC, 2022; Viner et al., 2020). In finance, risk implies the probability that the actual returns from an investment would differ from the expected, that is, the possibility of incurring a loss instead of making a profit on an investment (e.g., Holton, 2004; Hull, 2023; Manganelli and Engle, 2001). This understanding can apply in the context of climate change in that climate response measures may have negative (often unintended) consequences such as maladaptation. From these common elements of risk, it is clear that risk is often associated with negative outcomes where positive outcomes are expected or desired. Consequently, it is often viewed as something needing to be mitigated or managed, leading to various risk evaluation perspectives and approaches (see, for example, Bowyer et al., 2015; Hull, 2023; Jurgilevich et al., 2017; Krüger et al., 2015; Viner et al., 2020).

One perspective is the quantitative, probabilistic approach that defines risk by multiplying the probability of an event occurring by its consequences. This technoscientific approach is entrenched in probability theory and statistical analyses and focuses on quantifying uncertainty and measuring the potential losses associated with decisions and/or actions (see Eriksen and Kelly, 2007; Holton, 2004; Hull, 2023; Jurgilevich et al., 2017 for further

discussion). It is prevalent in many disciplines that use various modelling techniques to quantify risk, including economics, finance, and natural sciences. The central position in this approach is that risks exist and can be objectively measured through, for example, stochastic modelling and simulation techniques, including efforts to estimate 'return on investments' and 'value at risk' (Holton, 2004; Hull, 2023; Manganelli and Engle, 2001). This has also significantly influenced how risk is understood and 'modelled' in the context of climate change, as seen in the various climate models, where it encompasses the likelihood and magnitude of impacts on natural and human systems—including ecosystems, infrastructure, economies, and communities—(e.g., Bird et al., 2016; Eyring et al., 2019; Gopal et al., 2015; Hegerl and Zwiers, 2011). This quantitative approach is often criticised for simplifying the complex and interconnected nature of climate change and its impacts and overlooking social dynamics, political dimensions, power structures, and inequalities that underlie climate risk, vulnerability and resilience. Focusing solely on physical risks (i.e., hazards) may obscure underlying social injustices (see, for instance, Adger, 2001; Müller-Mahn et al., 2018; O'Brien et al., 2007; Wisner et al., 2004). In addition, the inherent technoscientific bias may marginalise local knowledge and perspectives, undermining the effectiveness of risk management strategies (for example, see Wisner et al., 2012) and the resultant technocratic bias may prioritise technical 'risks' and solutions over community-based, participatory approaches based on local communities' lived realities and aspirations. It is acknowledged that traditional climate risk frameworks and models may struggle to capture the full range of interactions and feedbacks, leading to incomplete assessments and inadequate responses (e.g., Adger et al., 2007; Challinor et al., 2017; Eriksen and Kelly, 2007). The narrow focus on the quantifiable metrics of risk and the failure to account for other dimensions of risk, such as psychological factors, sociopolitical dynamics, and ethical considerations have been sources of criticism concerning this approach (Bankoff, 2011; Slovic, 2000, 1987).

In contrast, psychology and behavioural economics focus on individuals' perception, evaluation, and response to risk and uncertainty, arguing that these are influenced not only by objective probabilities but also by cognitive biases, emotions, and heuristics (see, prospect theory for example, Kahneman and Tversky, 1979; and their earlier work on the heuristics and biases involved in making judgments under uncertainty Tversky and Kahneman, 1974). This *subjective*—often labelled as irrational—perception and

interpretation of risks may cause certain risks to be understood as more or less significant than their *objective* probabilities would suggest (see, for example, Armas et al., 2015; Bankoff, 2011; Gaillard and Dibben, 2008; Gierlach, 2010; Siegrist and Árvai, 2020; Slovic, 2000, 1987 for more discussions of risk perception generally and in specific contexts). It challenges the assumptions of classical economic models and has important implications for decision-making—e.g., leading to deviations from what is considered rational decision-making—in various domains, including public policy, climate change governance, adaptation and health.

Moreover, sociological and anthropological perspectives emphasise the social construction of risk, highlighting how risk is shaped by cultural norms, institutions, discourses, power dynamics, and social inequalities (e.g., Douglas and Wildavsky, 1983). Ulrich Beck's (1992) concept of the "risk society", for example, argues that modern societies are characterised by increasing levels of manufactured risks, resulting from technological advancements, globalisation, and environmental degradation. In this view, risks are not only individual or probabilistic but are also collective and systemic, requiring collective action and social solidarity to address effectively. These perspectives agree with the psychologists' and behavioural economists' standpoints highlighted above, recognising that perceptions and values shape individual and communal understanding and response to climate risks. These viewpoints underscore the importance of inclusive approaches to risk assessments and adaptation strategies. The core criticism here is that *subjective* interpretations may introduce biases and hinder *objective* risk evaluations and management. I consider that objectivity and subjectivity have to be applied appropriately with caution and in context.

The probabilistic view of climate risk often hinges on climate-related hazards and the other viewpoints (in psychology, behavioural economics, anthropology and sociology) emphasise social dimensions of risk, including vulnerability. Another understanding of risk in the climate change and disaster risk assessment and governance domains distinguishes and combines key components of risk, namely, hazard, exposure, and vulnerability. It considers the interplay between natural climate-related events (the hazards) on one hand, and the exposure of human or natural systems to those events and the systems' vulnerability to the impacts of these hazards on the other. This perspective has been advanced by the IPCC through their assessment reports over time, including the latest sixth assessment report

(AR6), which holds the definition of risk as “the potential for adverse consequences for human or ecological systems, recognising the diversity of values and objectives associated with such systems” (IPCC, 2022, p. 2921). In its definition, AR6 perceptively considers risk in three contexts — climate change, climate impacts and climate change responses — clarifying that:

*In the context of climate change, risks can arise from potential impacts of climate change as well as human responses to climate change... In the context of climate change impacts, risks result from dynamic interactions between climate-related hazards with the exposure and vulnerability of the affected human or ecological system to the hazards... In the context of climate change responses, risks result from the potential for such responses not achieving the intended objective(s), or from potential trade-offs with, or negative side-effects on, other societal objectives, such as the Sustainable Development Goals (SDGs).*

The latter aspect, which this thesis set out to explore years before the AR6, entails risk “introduced by human responses to climate change” and is described as “a new aspect considered in the risk concept” (IPCC, 2022, p. 5) in AR6. Climate response measures had been recognised before this report as drivers of risk, especially through maladaptation (e.g., Barnett and O’Neill, 2010; Eriksen et al., 2021; Juhola et al., 2016; Magnan et al., 2016; Work et al., 2019) which some domains label as ‘transition risks’ (Carattini et al., 2023; Carney, 2015; TCFD, 2017). For example, the Agreement (UNFCCC, 2015a) explicitly recognises climate response measures as potential sources of impact and concern to Parties (Article 4.15). In this thesis, I consider risk from this perspective not just because the IPCC reports in many ways “act as a standard for many scientists and practitioners when working on matters relating to climate change...[including] definition and description of climate risk and its components” (Viner et al., 2020, p. 3) but because it incorporates the multiple perspectives highlighted above. I recognise the criticism regarding the challenge of precisely measuring vulnerability and the subjective nature of assessing exposure, coping capacity and resilience, but argue for the consideration of these subjectivities in risk interpretations and responses within and across boundaries for a more holistic resilience-building. This understanding is relevant and important across the three fundamental elements or processes that underpin climate risk assessment and management, namely, hazard identification, vulnerability analysis, and uncertainty management. Hazard identification involves identifying climate-related hazards (such as extreme weather events (e.g., floods,

storms, heatwaves), sea-level rise, and changes in precipitation patterns) and evaluating their nature and frequency of occurrence to assess their potential impacts (IPCC, 2012; Wisner et al., 2012). Vulnerability analysis entails understanding the vulnerability of exposed systems and populations by assessing their predisposing factors, including socioeconomic status, access to resources, infrastructure resilience, governance effectiveness, and exposure to climate hazards (Adger et al., 2007; Richard Murnane et al., 2016). Uncertainty management entails managing uncertainties associated with future climate projections, socioeconomic developments, and policy responses as part of climate risk governance and requires incorporating uncertainty into decision-making processes and adopting adaptive strategies (see, for example, Pielke Jr et al., 2007; Renn, 2008; Renn and Walker, 2008).

The term 'impact' often appears in the discussions of 'risk'. Although the two are sometimes discussed as synonymous, they have several key distinctions based on their temporal and probabilistic aspects. While climate impacts are the discernible and often tangible effects, changes, alterations, or consequences emanating from climate change, climate risks are the probable effects of climate change. Thus, impacts are more concrete effects realised in the present and/or past and can therefore be identified straightforwardly with certainty. Climate risks, however, are indeterminate (not concrete) and future-oriented, and their occurrence and magnitude involve a degree of likelihood or probability and are less straightforward to determine with certainty. Climate impacts are therefore effects based on 'observations' while climate risks are based on 'projections' (IPCC, 2022). Consequently, impacts are less problematic to assess than risks, although impact and extreme (weather) event attribution to climate change—which involves probabilistic estimates—can introduce complexities and challenges (see, for instance, Burger et al., 2020; Clarke et al., 2022; Hegerl and Zwiers, 2011; Huggel et al., 2013; Lean, 2018; Otto, 2016; Trenberth et al., 2015). In most discussions, these distinctions are blurred by, for example, referring to 'future impacts' as in "the risks of future impacts" (IPCC, 2012, p. 367). In such cases, both impacts and risks become projections and, therefore, probabilistic. This language is increasingly becoming more prevalent in IPCC reports (IPCC, 2012, 2014a, 2018, e.g., 2022), assessment, simulation and attribution studies (Behrens et al., 2010; Fraga et al., 2021; Medicine et al., 2016; Moser and Hart, 2015; Rosenzweig and Neofotis, 2013; Shrum, 2021; Talebian et al., 2021; Tian et al., 2011; Xi et al., 2021), and government policy documents.

In this thesis, I use the concept of risk from an interdisciplinary perspective, with the understanding that it is an inherently complex, contested, multifaceted and dynamic construct that is interpreted and operationalised in diverse ways across different disciplines and contexts. While quantitative models (that frame risk in terms of probability and uncertainty) offer valuable tools for assessing and managing climate and adaptation risks, they should be complemented by qualitative insights and socio-political analyses—that consider other aspects such as psychological, social, political, and cultural factors—to account for the various subjective, cultural, and systemic dimensions of risk. Informed by such literature as mobilised here, my position is that recognising these complexities and the interconnectedness of human and natural systems is essential for developing more nuanced and holistic approaches to understanding and addressing risk in theory and practice. Moreover, while some risks can be observed and/or originate from natural sources and processes (e.g., climatic changes), others are created by the interactions between and among natural and human (including technological) systems and processes, such as through adaptation interventions. By adopting a multidisciplinary and reflexive socio-ecological approach to climate risk analysis and governance, policymakers, practitioners, and researchers can collectively contribute to developing more robust and inclusive strategies for addressing the complex challenges posed by (un)certain climate change and climate response impacts. There have been calls and useful suggestions for improved climate risk assessment that incorporates these complexities and dimensions (see, for example, Arribas et al., 2022; Simpson et al., 2021).

### **1.0.8.2      Vulnerability**

Vulnerability is, as discussed above, a component of risk. Therefore, many themes and arguments made above about risk also often apply in the context of vulnerability. Besides this view (of vulnerability as a component of risk), there is a long, established body of literature considering vulnerability independently and in diverse contexts, in light of natural hazards and social, political, economic and technological settings and processes.

There is no universally accepted definition of the term “vulnerability”. Definitions and interpretations of vulnerability often vary based on the perspectives adopted as well as the discipline and the context in which it is explored (for example, see Adger, 2006; Bennett et al., 2015; Blaikie, 2003; Cutter, 1996; Eriksen et al., 2005; Kasperson and Kasperson, 2005b;

O'Brien et al., 2007, 2004; Smit and Wandel, 2006; Thomas et al., 2019). The measurement and assessment of vulnerability can also differ based on similar considerations (see, for example, Bruno Soares et al., 2012; Cutter, 1996; Eriksen and Kelly, 2007; Füssel and Klein, 2006; Jurgilevich et al., 2017; Kasperson and Kasperson, 2005a). However, etymologically, the term "vulnerability" is derived from the Latin word *vulnerāre*, meaning "to wound, hurt, injure or maim" (Harper, n.d.). Hence, plainly, it can be defined simply as the ability or "capacity to be wounded" (Kates et al., 1985, p. 17).

The IPCC definitions of vulnerability have evolved, and the AR6 defines vulnerability as "the propensity or predisposition to be adversely affected and encompasses a variety of concepts and elements, including sensitivity or susceptibility to harm and lack of capacity to cope and adapt" (IPCC, 2022, p. 5). Although provided in its context, this definition is not exclusively specific to climate change contexts and can be applied in a wide range of settings because it does not specify the source of the potential harm (exposure or risk). However, most analyses are concerned with vulnerability in terms of the entities that are deemed vulnerable or exposed, what they are vulnerable or exposed to and why (Cardona et al., 2012; Cutter, 1996; O'Brien et al., 2007, 2004; Smit et al., 2000; Thomas et al., 2019). Some go further to explore options for addressing the identified vulnerability (e.g., Alwang et al., 2001; IPCC, 2012, 2014a, 2018, 2022).

Generally, three key parameters of vulnerability emerge across the various interpretations and descriptions: the *entity*, the *stimulus*, and the *capacity* (for a list of selected definitions of vulnerability, see Cutter, 1996, pp. 531–532). The *entity* (unit or system) of analysis, refers to *who* (e.g., people or their communities) or *what* (e.g., places, regions, activities or infrastructure) is vulnerable. The *stimulus* is the 'risk' (e.g., stressors, shocks, hazards, or perturbations) to which the entity is exposed — meaning the threat the entity in question is vulnerable *to*. The third is the (presence or lack of) exposed entity's *capacity* to anticipate and cope with the impacts of the stimulus (Adger, 2006; Bruno Soares et al., 2012; IFRC, 1999; Smit et al., 2000). In the context of climate change, the vulnerability of natural (ecological) and human systems is considered in light of the climate stimuli (climate-related stressors and shocks). Some vulnerability analysts may emphasise or focus on any one or more of these parameters, but the three can often be identified in vulnerability assessments.

These parameters of vulnerability are often mediated by different factors (e.g., geographic, political, social, economic, informational, etc), leading to differentiations in the types and extent of vulnerability (Cardona et al., 2012; Eriksen et al., 2015; Eriksen and Kelly, 2007; Thomas et al., 2019; Wisner et al., 2004). Vulnerability research and assessment approaches have thus become increasingly more integrative, recognising the intersectionality of such factors that shape vulnerability as gender, age, ethnicity, physical location, and socioeconomic status (Cannon, 1994; Cannon et al., 2003; Eakin and Luers, 2006; Gallopín, 2006; IPCC, 2001; Kasperson and Kasperson, 2005b; O'Brien et al., 2007).

Literature suggests vulnerability is often a condition (i.e., state of being) or a characteristic of an individual/system (e.g. Blaikie, 2003; Cannon et al., 2003; IFRC, 1999; O'Brien et al., 2007). Thus, vulnerability is contextual—as opposed to being universal—and may have temporal variations (see, for example, Cutter and Finch, 2008; IPCC, 2001; O'Brien et al., 2007, 2004). Both risk and vulnerability are often described in negative terms, with risk as the likelihood of causing harm, injury, loss or damage, and vulnerability as “the susceptibility to be harmed” (Adger, 2006, p. 269) by such as ‘risk’. It is increasingly recognised that risk and vulnerability reduction efforts themselves can produce or increase vulnerability to a hazard or threat (Bogard, 1988). For instance, vulnerability has been recognised by some as “the degree to which a system, or part of a system may react adversely to the occurrence of a hazardous event...” (Timmerman, 1981, p. 21). This understanding aligns with the idea behind the concept of maladaptation highlighted above.

The foregoing highlights the importance and necessity of considering multiple dimensions in vulnerability assessment and reduction. As Ribot observes, ‘vulnerability does not just fall from the sky’ (Ribot, 2013). In alignment with this, I adopt an intersectional, interactionist position and approach in my consideration of vulnerability (and other elements) in this thesis. Thus, I consider vulnerability as dynamic and contextual, influenced by endogenous and exogenous factors including policy, socioeconomic and political interventions and individual characteristics of the entities analysed. This stance allows me to also consider potential multiple vulnerabilities, some of which emerge from interventions meant to reduce vulnerability and/or risk.

### 1.0.8.3 Adaptation

In light of the vulnerability to climate change risks and impacts discussed above, the global response to climate change adaptation entails two complementary approaches. Mitigation involves actions to reduce greenhouse gas emissions (the ‘source’ of climate change) while adaptation involves actions to deal with the consequences of climate change (Schipper, 2006). The contrast in the level of attention given to each has been a subject of much debate in global climate change governance literature. Notably less attention has traditionally been granted to adaptation—the evolution of adaptation under the United Nations Framework Convention on Climate Change (UNFCCC), the contrast between adaptation and mitigation and how attention to and the thinking about adaptation has shifted has been discussed by several analysts (e.g., DeLeo, 2017; Landauer et al., 2015; Mace, 2006; Magnan and Ribera, 2016; Pielke, 1998; Schipper, 2006; Smit et al., 2000). While some have called for the adoption of both—and the achievement of ‘balanced’ investments between—adaptation and mitigation in climate response strategies (e.g., Ayers and Huq, 2009; IPCC, 1996, 2014a; Lecocq and Shalizi, 2007; Parry et al., 2007; UNFCCC, 2015a), others outrightly favour mitigation over adaptation (e.g., Schumacher, 2019). Moreover, even among those who agree that climate response must include both, questions emerge around the conditions under which the two approaches substitute or complete each other or how to achieve an ‘optimal mix’ between them (e.g., Bosello et al., 2013; Bréchet et al., 2013; de Bruin et al., 2009; de Zeeuw and Zemel, 2012; Yohe and Strzepek, 2007). With climate change impacts becoming clearer and climate risks more probable—especially due to the failure of mitigation but also due to the emissions already in the atmosphere—adaptation’s importance in the global climate governance arena is increasing and can no longer be overlooked (IPCC, 2022, 2018). Over time, adaptation has grown to become an integral component of international climate politics (see for example Khan and Roberts, 2013; Magnan and Ribera, 2016; Schipper, 2006).

Similar to risk and vulnerability as discussed above, perspectives on adaptation vary with the context (including the discipline) in which the concept is applied. Similarly, the context notwithstanding, analyses of adaptation revolve around the *stimulus* necessitating or triggering adaptation, the *entity* adapting and how it adapts—the latter aligns with the adaptive *capacity* parameter in the discussion of vulnerability. Respectively, these align with the “anatomy of adaptation” centred on three questions proposed by Smit and colleagues:

“(i) adapt to what? (ii) who or what adapts? and (iii) how does adaptation occur?” (Smit et al., 2000, p. 251), which have become central in discussions of adaptation (see Adger et al., 2003; Berrang-Ford et al., 2011; Bradley et al., 2015; Eriksen et al., 2021, 2005; O’Brien et al., 2004; Sano et al., 2015 for examples). Definitions of adaptation vary in their reference to and emphasis on these parameters and questions. Some define adaptation relative to the negative consequences of climate change, such as Orlove who simply considers adaptation as “actions that reduce the harms caused by climate change” (Orlove, 2022, p. 535). Such definitions often refer to responses to the realised (i.e., observed, experienced) climate change impacts, thus alluding to the temporal dimension of the concept. Other definitions, however, are broad enough to integrate both the negative and the positive effects that have been observed (i.e., the impacts) or expected (i.e., the risks) and clarify the entities involved. For instance, Smit and colleagues define adaptation as “adjustments in ecological-social-economic systems in response to actual or expected climatic stimuli, their effects or impacts” (Smit et al., 2000, p. 225). Likewise, in its Third Assessment Report in 2001, the IPCC defined adaptation as “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities” (IPCC, 2001, p. 982). The basic parameters have been retained in subsequent IPCC definitions, including further explanations that “In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate” (IPCC, 2012, pp. 5, 556). In this thesis, I focus fundamentally on adaptation in human systems—but still explore the relevant interactions between human and natural systems in the process.

Literature suggests that such “human interventions” may also inhibit adaptation in human systems. This may, for example, be through the various forms of maladaptation (see, e.g., Barnett and O’Neill, 2010), through interventions that “reinforce, redistribute or create new sources of vulnerability” (Eriksen et al., 2021, p. 3) or are irrelevant, or when the institutional or economic dynamics simply increase the different aspects of vulnerability (e.g., see Adger et al., 2003; Barnett and O’Neill, 2010; Eriksen et al., 2015, 2005; Schipper, 2020). Notably, therefore, adaptation can refer to the ‘process’ of responding, the actual response interventions, or their outcomes, conceptualisations that I adopt in this thesis.

From the foregoing, the meaning of adaptation straightforwardly describes a response to actual, perceived, or anticipated risk, impact and/or opportunity through various adjustments and/or transformations. The Paris Agreement under Article 7, for instance, conceptualises the aim of its global goal on adaptation as “enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change” (UNFCCC, 2015a). How these adaptations happen has also been considered in the literature, leading to the distinction between various “types of adaptations...including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation” (IPCC, 2001, p. 982) and the specific measures as either soft or hard (see, for instance, Fankhauser, 2010; Hallegatte, 2009; Logan et al., 2018; Sovacool, 2011). Anticipatory (also called proactive) and reactive adaptations signify the temporal dimension of adaptation as they refer to the timing of the adaptations relative to the relevant climate stimuli (risks or impacts), with them happening before and after the stimuli respectively (DeLeo, 2017; Glantz, 1992; Smit et al., 2000; Smithers and Smit, 1997). While human systems can be associated with all, natural systems are often only associated with autonomous (otherwise described as spontaneous) and reactive adaptations. Adaptation as ‘adjustment’ often portrays incremental actions which have been considered problematic or insufficient in many scenarios, leading to calls for more radical or transformative action that leads to fundamental alterations in the relevant systems (Holler et al., 2020; Lonsdale et al., 2015; Nelson et al., 2007; Pelling, 2011).

#### **1.0.8.4      Politics of adaptation**

As articulated above, the meaning of adaptation as describing a response to a risk, impact or opportunity is straightforward. However, in reality, the process of adaptation to climate change as a global phenomenon is complex. Far from being simply a technical endeavour of ‘objectively’ identifying and addressing the threats and vulnerabilities and exploiting the opportunities originating from climate change, adaptation—including its impacts—is deeply political (Blackburn and Pelling, 2018; Boyd, 2017; Dolšak and Prakash, 2018; Eriksen et al., 2015; Glover and Granberg, 2021; Sovacool and Linnér, 2016). It is a socio-political process fraught with power dynamics, competing interests, often contrasting values, and ideological perspectives. Although there is no consensus on the definition of the “politics of adaptation”, the concept is generally understood as the interplay of power, interests, ideologies, knowledge and values that influence the formulation, prioritisation,

and implementation of adaptation policies and strategies. As Eriksen and colleagues observe, the politics of adaptation is “about contestation, conflict and negotiation over processes and outcomes” (Eriksen et al., 2015, p. 530) of adaptation. It includes contestations over responsibility in the different aspects of adaptation, who wields power in adaptation decision-making, what and how resources are allocated, rights and entitlements, as well as who benefits or loses from adaptation measures (see, for example, Adger et al., 2012; Dolšak and Prakash, 2018; Falkner, 2016; Kehler and Birchall, 2023; Nightingale, 2017; Nightingale et al., 2022; Padt et al., 2014; Pelling and Dill, 2010).

Adaptation occurs in a world that is complex in multiple ways including politically, socially, culturally, economically, and ecologically (see, for instance, Berkes et al., 2002; Boyd and Folke, 2012; Ensor et al., 2018; Munene et al., 2018; Young et al., 2006) and in contexts that are not “politically or cognitively stable” (Lidskog et al., 2010, p. xiii). This makes the politics of adaptation a key concept in adaptation as highlights several important elements in the process and outcome of adaptation, including fairness, equity and justice (e.g., see Adger et al., 2006; Eriksen et al., 2015; Lomax et al., 2021; Pelling and Garschagen, 2019; Schlosberg, 2012); participation (see for example Agrawal, 2008; Agrawal and Perrin, 2009; Mubaya and Mafongoya, 2017); the role of values and culture (see, for instance, Adger et al., 2012; Kuruppu, 2009; O’Brien and Wolf, 2010; Persson et al., 2015; Pulkkinen et al., 2022; Wolf et al., 2013); maladaptation (e.g., Glover and Granberg, 2021; Schipper, 2020) and other political economy issues in adaptation (e.g., Fankhauser et al., 2015; Knox, 2016; Shilomboleni, 2022; Sovacool and Linnér, 2016). For these reasons, I bear the politics of adaptation in mind in this thesis when discussing transboundary climate and adaptation risks and their governance.

### **1.0.8.5 Governance**

That the politics of adaptation involves many actors across scales and levels (for a detailed discussion of these, see Cash et al., 2006) with varying interests, capacities and influence leads to a closely related concept of governance. The term governance has been used in a wide variety of contexts and with varied meanings. As a result of this proliferation of its usage, governance has been labelled as “a buzzword, a fad, a framing device, a bridging concept, an umbrella concept, a descriptive concept, a slippery concept, an empty signifier, a weasel word, [and] a fetish”, although it is also recognised as “a field, an approach, a theory

and a perspective" (Levi-Faur, 2012, p. 3). In their review, "There are almost as many ideas of governance as there are researchers in the field". This signifies the elusiveness of the term and the breadth of what it represents. Despite lacking a universally accepted and agreed definition, 'governance' is etymologically traced back to the nautical Greek word *kybernan* meaning to pilot, steer, or direct a ship, later translated into Latin as *gubernare* meaning to direct, rule, guide, or govern (Hindmoor and Bell, 2009; Kjaer, 2004; Levi-Faur, 2012; Schneider and Hyner, 2006). These meanings form the basis of the contemporary uses of "government" and "governance" concepts in different academic disciplines (see, for example, Bevir, 2011; Kjaer, 2004; Levi-Faur, 2012; Rhodes, 2007, 1996). There is, however, broad consensus that "governance" covers a wider scope than "government" to include mechanisms and processes of decision-making and implementation of decisions by non-state actors such as civil society and private sector actors. This signifies a shift in the understanding and use of 'power' and 'authority' in governing from a particular institutional site to a more decentred, relational and associational sense of governing. Following this, Rhodes describes governance as "self-organizing, interorganizational networks characterized by interdependence, resource exchange, rules of the game, and significant autonomy from the state" (Rhodes, 1997, p. 15). In agreement with this conceptualisation, Bevir suggests that governance "highlights phenomena that are *hybrid* and *multijurisdictional* with *plural stakeholders* who come together in *networks*", what they consider the 'distinctive features of governance' (Bevir, 2011, p. 2, emphasis in original). Governance thus "... covers the whole range of institutions and relationships involved in the process of governing" (Pierre and Peters, 2000, p. 1) and "... the patterns that emerge from the governing activities of social, political and administrative actors" (Kooiman, 1993, p. 2).

Against this background, governance in the context of climate change refers to the processes, structures, norms and mechanisms through which decisions are made, policies and strategies formulated, and interventions implemented to address climate-related challenges (Huitema et al., 2016; Jagers and Stripple, 2003; Okereke et al., 2009). Most understanding of climate governance is derived from the more general conceptualisation of governance. Based on this, Jagers and Stripple contend that "climate governance should refer to all purposeful mechanisms and measures aimed at steering social systems toward preventing, mitigating, or adapting to the risks posed by climate change" (Jagers and Stripple, 2003, p. 385), a conceptualisation I also adopt in this thesis alongside the other

distinguishing features of governance. I also align my discussion with the suggestion that “the analysis of governance should focus on beliefs, practices, traditions and dilemmas” (Rhodes, 2007, p. 1243), considering that governance includes both the formal and informal rules of the game. Analysts use various qualifiers—such as “global” (e.g., Finkelstein, 1995; Rosenau, 1995), “multilevel” (e.g., Bauer and Steurer, 2014a; Bulkeley and Betsill, 2005), “adaptive” (e.g., Bronen and Chapin, 2013; Brunner and Lynch, 2010; Munene et al., 2018), “polycentric” (e.g., Hamilton and Lubell, 2019; McGinnis, 1999; Ostrom, 2014), (e.g., Sophie Blackburn, 2014; Corfee-Morlot et al., 2011a; Lidskog et al., 2010)—to conceptualise and clarify the type, mode, level, meaning, or subject of governance in different circumstances. While the overall focus of this thesis is ‘transboundary climate and adaptation risk governance’, I make a conceptual clarification between the *transboundary governance of risks* and *governance of transboundary risks*.

#### **1.0.8.6      *Boundaries***

Boundaries (and borders) are the loci on which I explore climate and adaptation risks and their governance in this thesis. The concepts discussed so far entail delineations, limits, distinctions, or demarcations that define the scope, level, scale, action and actors and their interactions. These lines of separation are the boundaries that shape governance functions, including communication, making and enforcing rules or control, and the assignment of rights, entitlements and obligations (see, for example, Balibar, 2011; Delaney, 2005a; Guentner et al., 2016). Transboundary phenomena, such as the TCRs and TARs in this thesis, are founded on the idea of a boundary. As Challinor observes, “transboundary risks are the products of borders and geography” (Challinor et al., 2017, p. 622).

There is consensus in the literature that climate risks and impacts are unbounded (see, for example, Bednar-Friedl et al., 2022; Benzie et al., 2018; Benzie and Persson, 2019; Carter et al., 2021; Challinor et al., 2017; Cooley and Gleick, 2011; Lidskog et al., 2010; Talebian et al., 2021). The governance of climate change is, therefore, necessarily a cross-boundary endeavour involving state and non-state actors as discussed above. This is challenging for many different reasons mostly hinged on the underlying politics of responsibility, accountability, interests, and the actual governance processes (see, for example, Mason, 2008, 2001, 2004). For instance, Mason suggests that “Transboundary and global flows of environmental harm, as perceived by affected publics, invoke space–time pathways of

responsibility at odds with the territorial boundaries of state sovereignty" (Mason, 2004, p. 15). This presents substantial challenges to the state-centred modalities of accountability and responsibility (Mason, 2008) or the "prevailing patterns of interest representation in national regulatory systems" which do not readily consider "transboundary environmental degradation, intra- and inter-generational justice, and the protection of common-pool resources" (Mason, 2020, p. 103).

The differential meaning and understanding of risks from one domain, territory, or context to another pose difficulties in global climate and environmental governance. Science has been advocated as a tool for "promoting convergent perceptions of risk across disparate political cultures" (Jasanoff, 1999, p. 135). However, the persistent boundaries within the scientific 'community' render the understanding and reduction of risk even 'by science' difficult—because, as Douglas and Wildavsky noted, even "Scientists disagree on whether there are problems, what solution to propose, and if intervention will make things better or worse" (Douglas and Wildavsky, 1983, p. 63). These boundaries, as discussed in the subsections above, cultivate nuanced views which may not be deployed between disciplines and contexts unproblematically. Through the 'patterns' of interaction in governance highlighted above (see Kooiman, 1993 for a more detailed discussion of these interactions), however, there is (potential for) the exchange of perspectives and meanings, including the 'beliefs, practices, traditions and dilemmas' suggested by Rhodes (2007, p. 1243) as central to the analysis of governance. Thus, this thesis considers different types of boundaries (and borders) differing in their character, dynamic nature and the extent to which they can be crossed or remade in the governance processes. Governance, after all, entails the "recognition of more diverse activities that blur the boundary of state and society" (Bevir, 2012, p. 5).

### **1.0.9 Epistemological Foundations**

This thesis is about the climate and adaptation risks and their governance from a transboundary perspective. From this standpoint, the interactions between the different domains, places and systems (e.g., ecological, social, climatic, political etc) and the (in)actions within and between them influence the nature and extent of risks, exposure, and vulnerability. These relations, interactions and (in)actions can also influence the prioritisation, response strategies and adaptive capacities at different points along the

temporal continuum. My approach here centres on relational, interactionist perspectives, particularly on social construction and propagation of risks and vulnerabilities through the boundary-, meaning- and place-making processes of governance (Yamagata-Lynch et al., 2016). I am particularly aligned with Carmel's multiple "epistemological and methodological orientations" for governance analysis which recognise the complex, dynamic and process-oriented nature of governance, ranging between interpretivism and critical realism (Carmel, 2019). Thus, I acknowledge that I am part of my research, actively involved in constructing and communicating knowledge about the social-ecological world I am studying. From conceptualisation, construction of the research questions, and data collection to analysis writing of this thesis, this research is a "mediated activity"— in Yamagata-Lynch et al.'s sense—for making sense of TCARG.

From the foregoing, and informed by the articulated understanding of the core concepts discussed in section 1.0.8, certain elements (of reality) are knowable by observation while others are not, requiring careful coordination of both the subjective and objective dimensions of knowing and reality representation (see Kuhn et al., 2000 for more details on this). For instance, hazards such as floods, drought, cyclones and sea-level rise can be identified objectively and the places exposed to them ascertained. It is also possible to objectively tell if such hazards and places are considered in planning instruments such as plans and policy documents. For this reason, certain elements can be factual or not in their representation of reality, such as whether there is a drought or not, or whether a governmental plan identifies drought as a concern or not—following the Kuhnian 'realist' and 'absolutist' levels of epistemological understanding. However, and importantly for the objectives of this thesis, I am empirically interested in the articulation of what Carmel calls, with regards to governance analysis, "the conditions, rationales, purposes and processes of governing... in specific contexts" (Carmel, 2019, p. 54) and their implications beyond the said contexts. Therefore, the interactionist approach allows a more effective understanding of TCARG in the contexts of the UNFCCC and Kenya: it enables me to link the data to the individual contexts and "avoid dismissing flashes of abductive insights [which are a byproduct of my participation in the research] as irrelevant, insignificant, or subjective reactions that distract" me "from the research by relying on their reflexivity through this process" (Yamagata-Lynch et al., 2016, p. 5). This stance falls within the Kuhnian 'multiplist' and 'evaluativist' levels of epistemological understanding. It is based on the above

epistemological foundations that I chose to employ the mixed-methods approach employed in this research—every empirical chapter has an overview of these methods.

## 2 CHAPTER 2

### 2.0 TRANSBOUNDARY CLIMATE AND ADAPTATION RISK GOVERNANCE UNDER THE PARIS AGREEMENT

#### Abstract

*The Paris Agreement has been proposed as a key instrument in the governance of transboundary climate and adaptation risks (TCARs). However, there has not been much analysis of whether and how it recognises and integrates them in its articulation and ways this might influence how TCARs are understood or recognised in action. To address this gap, this chapter explores the recognition and construction of TCARs in the Agreement and considers the potential for their governance in its implementation. Through a combination of content and thematic analyses of the Agreement and its supplementary texts, I find that TCARs receive limited attention and that their implications for resilience are poorly defined and integrated. Despite its strong position as a high-level instrument for transboundary climate governance, the Agreement is vague about the nature of climate risks to be adapted to and lacks an explicit focus on TCARs. Without elaboration, it acknowledges the impact of climate response measures. Furthermore, its “global goal on adaptation” and its multilevel dimensions are vaguely explained in its articulation. TCARs are also barely considered in the four broad (trans)boundary dimensions of climate risk and governance evident in the Agreement, namely, legal-political, functional/sectoral, temporal, and ecological/ecosystems, but potential for TCAR governance (TCARG) across them exists. The State is the overriding locus and legal-political therefore the predominant dimension for climate governance, and thus, where the Agreement has the most potential effect in driving TCARG. Nonetheless, governance across legal-political State boundaries is loosely stated and often ambiguous. Based on these results, I conclude that although there is strong transboundary governance of climate change and adaptation, TCARs are not the subject of this governance, and therefore TCARG is weak in the Agreement as currently framed. This strong global influence coupled with accelerating climate change impacts is a catalyst for increased adaptation actions, which then increase the likelihood of transboundary adaptation risks (TARs). This likelihood*

*is further entrenched by its implementation approach, particularly through nationally determined contributions. The chapter explores the Agreement's role and specific opportunities within its design that can strengthen TCARG in its implementation.*

**Keywords:** Paris Agreement; UNFCCC, adaptation governance; transboundary climate risks; transboundary adaptation risks; international cooperation; sustainable development.

## 2.1 INTRODUCTION

### 2.1.1 Background

Without drastic and ambitious emissions reduction, the Paris Agreement's aim to hold the increase in the global average temperature to "well below 2°C" is increasingly unlikely (Raftery et al., 2017; Rogelj et al., 2016; Tanaka and O'Neill, 2018). The Sixth Assessment Report (AR6) of the Intergovernmental Panel on Climate Change (IPCC) warns that the window of opportunity for achieving this and ensuring adequate adaptation is "narrow", "short", "brief", "small" and "closing fast" (IPCC, 2022). Furthermore, even achieving this target would not eliminate the risk of adverse climate change impacts in this century. The Paris Agreement, a key instrument for global climate governance, recognises this and aims at "increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience" (UNFCCC, 2015a).

Correspondingly, 137 Parties representing over 83% of the intended nationally determined contributions (INDCs) submitted to the United Nations Framework Convention on Climate Change (UNFCCC) by April 2016 included an adaptation component (UNFCCC, 2016), and this increased to 164 Parties (~86%) in 2021 (UNFCCC, 2021). However, such simultaneous and widespread adaptation actions can redistribute, transfer and/or create risks and vulnerabilities (including maladaptation) within and beyond the borders of the implementing entities. This is especially through "cross-boundary adaptation spillovers" (Roggero et al., 2019, p. 396) and similar to the notion of 'social amplification of risk' (Kasperson et al., 1988; Pidgeon et al., 2003). Concern about such transboundary dimensions – i.e. the impacts of climate risks beyond where they are generated, and of climate responses beyond where they occur – is growing amid calls for a robust global policy framework and augmented climate action (Persson, 2019; Persson and Dzebo, 2019). Some

argue for general consideration of transboundary climate risks (TCRs) in adaptation (Benzie et al., 2018; Burton et al., 2012; Nadin and Roberts, 2018). Others demonstrate the vulnerability and risk of specific systems and sectors such as food systems in multiple countries (Challinor et al., 2007, 2017; Chen et al., 2012) or in trade (e.g., Bednar-Friedl et al., 2022) while others attempt to measure the exposure (Hedlund et al., 2018) of various countries to TCRs (I also characterise Kenya's TCARs in *Chapter 3*). These risks and impacts can flow either between proximate/contiguous or distant (*teleconnected*) jurisdictions (Singh et al., 2018; Tsonis et al., 2008; Zhou et al., 2014), and there is an ongoing debate on their conceptualisation (e.g., Carter et al., 2021).

The boundaries of biogeophysical systems affected by climate change do not always coincide with political or policymaking borders (Cash et al., 2006; Cooley et al., 2009), and neither do the many vulnerable social systems such as nomadic pastoralists and transfrontier communities. Instead, climate hazards, risks and impacts often stretch across scales, cutting "across traditional jurisdictions and scopes of scientific" and public administrative routines and models (Padt et al., 2014, p. 1), leading to what Cash and others call "the scale challenges" (2006, p. 4). Still, the socio-political borders within which societies operate and climate governance occurs remain intact and sacrosanct under the UNFCCC, the primary mechanism for coordinating global climate response, (Adger, 2001; Roberts, 2015).

Thus, the need to understand and address the governance of unbounded, 'borderless' climate phenomena within a 'bordered' yet globalised world creates a significant research, policy and management dilemma. Consequently, several important questions arise, including *whether* and *how* these transboundary dimensions are recognised at the fundamental level of climate policy and how this might influence or translate into how TCARs are understood/recognised in action flowing from such policy. However, while the Paris Agreement is proposed as a potential mechanism/instrument for addressing TCARs (see e.g., Benzie et al., 2018; Benzie and Persson, 2019; Nadin and Roberts, 2018; Opitz-Stapleton et al., 2021; Persson, 2019), there is limited analysis or discussion of the extent to which it considers TCARs and their governance in its articulation. Rather, such assertions are based on the expectation that UNFCCC instruments/mechanisms are relevant because they are established through international cooperation.

To address this gap, this chapter examines how TCARs feature in the articulation of the Paris Agreement and the potential for their governance in its implementation in the context of strengthening resilience as stated in the GGA. It explores the following research questions:

RQ2.1 How are risks and adaptation and their governance framed under the Paris Agreement?

RQ2.2 To what extent are transboundary dimensions considered in the articulation of climate risks, adaptation and their governance under the Paris Agreement?

RQ2.3 How can the Paris Agreement further TCARG within and beyond the UNFCCC framework?

## **2.1.2 Paris Agreement and Adaptation**

The Paris Agreement was adopted as a treaty<sup>1</sup> (in the Vienna Convention's definition) on 12<sup>th</sup> December 2015 during the 21<sup>st</sup> Conference of the Parties (COP21) to the UNFCCC (UNFCCC, 2015b). It signals the direction for global climate change policymaking and response after the Kyoto Protocol (UNFCCC, 2015a). Some dissenting voices notwithstanding (e.g. Allan, 2019; Bawden, 2016), many pundits have described its adoption as a breakthrough in climate change policymaking (Davenport, 2018; Kinley, 2017; Roberts, 2015). It elicited tangible, enduring enthusiasm and excitement (Bang et al., 2016; Wolfe et al., 2017) with the then UN Secretary-General, Ban Ki-moon, describing it as "a monumental triumph for people and our planet" (UN News, 2015). The Agreement was quickly adopted, ratified (by 185 of 197 Parties) and entered into force within a year, a feat its predecessor — the Kyoto Protocol — took over seven years to achieve.

The Agreement establishes a "global goal on adaptation" (GGA) aimed at "enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change" (Article 7). It is the first time that adaptation is given a whole article in a climate change treaty. It is also applauded for emphasising that adaptation and mitigation should be given equal support and promotion in stark contrast to past climate agreements. The prominence

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<sup>1</sup> The Vienna Convention on the Law of Treaties defines a "Treaty" as "an international agreement concluded between States in written form and governed by international law, whether embodied in a single instrument or in two or more related instruments and whatever its particular designation."

of adaptation in the UNFCCC has grown steadily into an integral element of international climate politics (Khan and Roberts, 2013; Schipper, 2006). Hence, (the need for) financial support for adaptation is increasing, institutions devoted to adaptation are emerging (e.g. the Global Commission on Adaptation) and more adaptation actions will most likely follow (Berrang-Ford et al., 2015; Kinley, 2017). It has created obligations for stakeholders to include or enhance adaptation efforts in their repertoire of climate response actions and more countries are including adaptation components in their communications (UNFCCC, 2021). In many countries, its inclusion in the Agreement is an important signal to generate the knowledge products and tools that are still required to enhance adaptation effectiveness and foster improved climate resilience.

### **2.1.3 Transboundary Climate and Adaptation Risks and their Governance**

At the core of any transboundary phenomenon is the idea of a boundary. The nature and type of the phenomenon and boundary can be highly varied. Thus, transboundary risks are “products of borders and geography” (Challinor et al., 2017, p. 622). Boin et al. (2014, p. 131) suggest that a transboundary crisis occurs “when the life-sustaining systems or critical infrastructures of multiple member states are acutely threatened”. The term “transboundary” has mainly been used to describe things (e.g., issues, challenges, actors, ecosystems) that cross one or more political boundaries, whether within a country/State (subnational) or between two countries. However, it may also refer to other boundaries including “borders between experts and citizens, the public and private sectors, and formal regulation and informal rule-making” (Lidskog et al., 2010, p. xi). In adaptation contexts, boundaries between subnational levels, subnational and international levels, and between supranational and other levels are also important. Climate change also crosses boundaries of science, society, nature, politics and sectors through different pathways. Ansell et al. (2010, p. 196) suggest three dimensions for understanding transboundary crises – political, functional, and time. Despite this, much of the discussion of the ‘transboundariness’ of climate change governance has hitherto focused on the political boundaries (of countries), implying a dominant territorial (in political administration terms) understanding of climate response. This Chapter investigates the boundary dimensions prevalent in the Paris Agreement.

TCARs are generally conceptualised as the “potential consequences or outcomes that could occur as the result of transboundary climate change impacts, the transboundary effects of adaptation decisions made by one or more countries or the transboundary effects of mitigation actions on countries’ adaptation options” (Opitz-Stapleton et al., 2021, p. 10). I agree with this definition, although I find it limiting to consider TCARs across the borders of countries in the analysis and ignore all these other borders highlighted above. Beyond that, three categories of transboundary risks are evident from this understanding of TCARs, namely, transboundary climate risks (TCRs), transboundary adaptation risks (TARs), and transboundary mitigation risks (TMRs). Thus, in this Chapter, TCRs are the (potential) transboundary climate hazards and their impacts, TARs are the (potential) impacts of adaptation decisions made by or in one entity/domain on or in others, while TMRs are the (potential) impacts of mitigation decisions made by or in one entity/domain on or in others (see Carter et al., 2021 for further rationalisation). In other words, TCRs emanate from physical climate-related events/hazards (otherwise commonly known as *physical risks*) as they flow from one domain/entity to another while TARs and TMRs emanate from climate response measures (otherwise commonly known as *transition risks*). This distinction has not been used or clear in TCAR analyses until now. The concern for most TCAR studies (including this) is the observation that climate hazards and the impact of climate response measures flow across all the boundaries highlighted above and can thus be described as transboundary.

Climate-related risks such as extreme weather events are interlinked: the weather at a certain place is connected with the weather at adjacent and distant places through various teleconnections (Ångström, 1935, p. 242). Vulnerability to weather and climatic events/hazards is also linked to wider social-ecological systems dynamics and often beyond the locality where the impacts may be experienced (Adger et al., 2009; Moser and Hart, 2015). Impacts of climate change traverse borders of all types – spatial, political, functional, sociocultural and temporal. In addition, the capacities for response, including knowledge and expertise, finances and social capital are not all often found in the same domain or jurisdiction. Thus, attempts to govern – that is, to steer, regulate, or make rules regarding – climate risks potentially involve processes in which such boundaries “intersect and are renegotiated” (Lidskog et al., 2010, p. 3), resulting in continuous configuration and reconfiguration of new borders, actors, frames and even spaces for (climate) action. This

results in transboundary dependencies across scales and sectors, thus requiring transboundary governance.

Climate impacts *on* local contexts can be tackled locally, although the actual adaptation process and interventions may be governed ‘from outside’ or in collaboration with ‘non-local’ actors and processes e.g., through climate finance, climate information services, scientific and technical expertise (Nalau et al., 2015). However, transboundary impacts are better tackled through cooperation or coalitions across ‘borders’, regardless of the nature of the boundary (Setzer et al., 2020), and by considering factors beyond the borders of each concerned entity. Thus, climate risk governance, especially in cases of anticipatory climate change responses (Few et al., 2007), is further complicated by the complexity, uncertainty and multiplicity of layers of the socio-ecological systems where climate-related risks are experienced and responses required (Munene et al., 2016).

When the UNFCCC was adopted in 1992, the mantra for climate change response was “mitigation is global, adaptation is local” (Ford and Berrang-Ford, 2011, p. 481). This understanding was prevalent in policy discussions and also reflected in research, where most studies framed adaptation as ‘place-based’ and ‘territorial’ in nature (e.g. Adams-Schoen, 2014; Cutter et al., 2008; Ford and Berrang-Ford, 2011; Leary et al., 2008). This has not changed much as adaptation is still widely framed and implemented as ‘local’, often with the assistance of and guidance by national and subnational entities through their actions and policies (see for instance ADA Consortium, 2016; Bulkeley, 2012; Füngfeld, 2015; Rauken et al., 2015). But the territorial view of adaptation is constantly being revisited as climate risks and impacts and the complexities of the affected SES are better understood (Berkes et al., 2002; Field et al., 2014; Henstra, 2017; Holling, 2001; IPCC, 2012; Keohane and Victor, 2011; Munene et al., 2018).

Governing climate risks and adaptation needs to be understood from the perspective that “risk governance does not operate in a territorially defined world or in a context that is either politically or cognitively stable” (Lidskog et al., 2010, p. xiii). As a challenge that stretches across scales and cuts across conventional “scientific routines and models”, climate change governance calls for interdisciplinary approaches and framing in contexts “of governance and decision-making by actors from the state, market and civil society” (Padt et al., 2014, p.

1). Indeed, tackling a multi-level challenge such as climate change in the highly complex, globalised world requires multi-dimensional, multi-level, collaborative approaches (Cash et al., 2006) and ‘non-traditional’ modes of governance (Corfee-Morlot et al., 2011a; Djalante et al., 2013; Munene et al., 2018). Until recently, however, climate adaptation governance scholarship had almost entirely ignored the cross-scale dimension of adaptation, and most of the discourse has been preoccupied with the amorphous ‘global’ or the limited ‘national’ and ‘local’ (or ‘sub-national’) scales (Balsiger and VanDeveer, 2012; Stavins et al., 2014).

Expanding adaptation literature demonstrates that adaptation implementation and governance are not entirely local or national responsibilities (Andonova et al., 2017; Bulkeley et al., 2014; Hamilton and Lubell, 2018; Magnan et al., 2015; Nalau et al., 2015). Through their ‘Transnational Climate Impacts (TCI) Index’, Hedlund et al. (2018, p. 77) identify four ‘risk pathways’ through which the impacts of TCRs can be understood within a global context: *the biophysical; the finance; the people; and trade pathways*. Adaptation in these pathways may be planned and even implemented at a subnational or national level, but the *governance* of adaptation actions may link with and sometimes have implications for processes and actors at higher jurisdictional levels (Conway and Mustelin, 2014; Corfee-Morlot et al., 2011a; Huitema et al., 2016; Neufeldt et al., 2010). In this sense, transboundary adaptation strategies are arguably emerging (Rüter et al., 2014). As the transboundary impacts of climate risks and adaptation become more apparent, understanding the relevant transboundary dynamics for the design and development of appropriate governance mechanisms and interventions is increasingly important.

Other terms used to generally describe TCARs in the literature include transnational (Bulkeley et al., 2014; Chan and van Asselt, 2016; Hedlund et al., 2018), cross-border (Carter et al., 2021; Challinor et al., 2017), borderless (Benzie and Persson, 2019), indirect (Benzie, 2014; Nicholls and Kebede, 2012; Smithers and Blicharska, 2016), transborder, international and global (Chan et al., 2016a; Hale and Roger, 2014; IPCC, 2014b; Jong et al., 2016; Persson, 2019; Renn and Walker, 2008). In addition, consideration of TCARs has also focused on a specific sectoral or issue boundary such as flood risk management, management and development of shared water basins, rivers, estuaries, and deltas, agriculture and food security (Challinor et al., 2017; Cooley and Gleick, 2011; Grainger and

Conway, 2014; James et al., 2013; Johnson and Becker, 2015; Song et al., 2017; Trevors and Weiler, 2013).

## 2.2 MATERIALS AND METHODS

### 2.2.1 Rationale for the Data Sources

Organisational and institutional documents “have been a staple in qualitative research” (Bowen, 2009, p. 27). Indeed, official documents and records such as the Paris Agreement deserve careful evaluation and assessment as they provide valuable data that enable the analysis of official understanding and definition of an issue (Jupp, 2006). International agreements are recognised as “important barometers of the underlying norms that shape international discourses on issues such as climate change” (Lesnikowski et al., 2017, p. 826). Global agreements and conferences serve as important vehicles and instruments for international relations and cooperation in many issues including environmental and climate change governance (Haas, 2002; Simmons, 2010). Such regulatory instruments “reveal the construction of what is worthy of protection, whom or what to protect, for what reason, and in what way” (Lidskog et al., 2010, p. 3). Therefore, it is expected that the Agreement would outline these with respect to climate change from an official, global perspective.

The Paris Agreement (English version) provides the principal data for the analysis, complemented with data from Decision 1/CP.21 (FCCC/CP/2015/10/Add.1) through which the Agreement was adopted, and the reports of the three Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA.1 in Katowice, Poland; CMA.2 in Madrid, Spain; and CMA.3 in Glasgow, United Kingdom) in which the guidelines and rules for implementing the Agreement, popularly known as the Paris Rulebook (hereafter, the Rulebook), were discussed and adopted. See Appendix 1 for the list of these documents. In addition, 20 “declarations” made by signatories and Parties to the Agreement (including the European Union as a bloc) are analysed— see Appendix 2. These documents are regarded as commentaries and/or expansions of the Agreement, hence their inclusion. As the Agreement is an instrument within the UNFCCC, the UNFCCC treaty document is also consulted. All these data sources help to understand the Agreement better than if it was read and analysed alone. There are significant cross-references between all the documents.

The Agreement is considered an appropriate source of data for this study especially because it is an official document of the body with a global climate change policy mandate. Additionally, it is an outcome of deeply dissonant, decade-long negotiations and “herculean diplomatic effort” (Savaresi, 2016, p. 19) by the global community. Described by some as “the most ambitious outcome possible in a deeply discordant political context” (Rajamani, 2016, p. 494), it represents a common position of the 192 Parties that have ratified it to date. Moreover, it is a wide-ranging document addressing climate change and related governance issues. Furthermore, as a treaty, it creates rights and obligations in international law and thus has substantive implications for climate governance. It says what needs to be done, by whom and also (by) when. The Rulebook (and other elements of the CMA decisions/reports) outlines how what has been agreed is to be implemented. In this regard, the Agreement is likely to exert a strong influence on if and how the transboundary dimensions of climate risk and adaptation are addressed. It, therefore, deserves analysis in this respect. The “declarations” are included because, whereas they neither have any legal effect nor do they affect (through exclusion or modification) the legal effect of the Paris Agreement as a treaty, they communicate the respective States’ understandings, interpretations and/or positions on various matters, or merely their aspirations concerning the Agreement (see UN, 2022 for more details on “declarations” as they relate to treaties).

## **2.2.2 Approach and Coding Structure**

The documents are analysed using a combination of content analysis (Drisko, 2016; Hsieh and Shannon, 2005; Krippendorff, 2004; Neuendorf, 2017) and thematic analysis (Braun et al., 2019; Braun and Clarke, 2006; Nowell et al., 2017), two techniques commonly used for textual data analyses. Whereas content analysis allows for both qualitative and quantitative analysis of data (Grbich, 2012), thematic analysis is essentially qualitative. A deductive thematic analysis approach is mainly employed here since the chapter aims to provide a “detailed analysis of some aspect of the data” (in this case TCARG) rather than to provide “a rich description of the data overall” (Braun and Clarke, 2006, p. 84),.

Coding for all the research questions entailed an iterative process of reading and reflecting on the Paris Agreement. The reflection was informed by the literature and the Paris Agreement’s supplementary texts. In this process, attention was paid to any themes or indicators of the transboundary dimensions of climate risks and adaptation governance. The

coding frame was predefined based on a set of questions and topics developed from the research questions and literature. The dimensions explored under research question RQ2.2 are based on Ansell et al.'s (2010) theorisation of a transboundary crisis. Their political dimension is reimagined here and renamed into the legal-political to incorporate both the political and legal dimensions of the Paris Agreement and the larger UNFCCC. Their understanding of the functional and time dimensions is retained. However, I include 'sectoral' in the 'functional' dimension to expand its meaning so that it accommodates broader meanings of public and private sectors for example. I also rename their 'time' dimension into 'temporal' to clarify the meaning and include 'time-based' aspects. Considering the spatial dimensions and differentiation of climate change impacts on natural systems, I add a fourth ecological/ecosystem dimension in this analysis. The discussion of all the results is based on the literature, which also informs question RQ2.3.

Alongside this, a keyword search was performed using phrases and roots of terms signifying select variables – e.g., climate risks, adaptation actions/interventions, institutions, actors, and policies reflecting the relevant scales, levels and boundaries. These are also based on the relevant literature reviewed in Section 1. Word frequencies have increasingly been used in studies of climate change to estimate the consideration and significance of various themes/aspects in investigated documents (e.g. Dayrell and Urry, 2015; Grundmann and Krishnamurthy, 2010; Tvinnereim and Fløttum, 2015; Wei et al., 2015; Willis, 2017).

### 2.2.3 Theoretical and Conceptual Frameworks

This chapter applies the concept of framing in the field of climate risk and adaptation governance research (Stein et al., 2019). The concept has been increasingly utilised over the last two decades to understand the social, political and economic dynamics relating to climate change action, assessment and communication in different contexts (Bäckstrand, 2003; Benzie and Persson, 2019; Berkhout, 2008; Birkmann et al., 2013; Dodge and Lee, 2017; Eriksen et al., 2015; Golden et al., 2014; Hulme et al., 2018; Hurlbert and Gupta, 2016; Krüger et al., 2015; Mintrom and Luetjens, 2017; Vanhala and Hestbaek, 2016). Since governing, as Huitema and colleagues underscore, "is a purposive activity" (Huitema et al., 2016, p. 2), climate and adaptation governance depends on how the various actors and institutions (in this case, the Paris Agreement) present or frame, both the climate risks, impacts and adaptation (the problems) and their interests and capacities to do something

about them. Also, a “good frame helps to focus, but also to activate the right people, to prevent exclusion, and to overcome controversies” (Termeer et al., 2017). Such framing influences (but can also be influenced by) how governance happens, and the level(s) and actors involved (Huitema et al., 2016; Jordan et al., 2010; Nightingale, 2017). Thus, by looking at how the Paris Agreement conceptualises climate and adaptation and the character of its membership (parties), it is possible to draw insights about their governance and consideration of TCARs in such efforts. I draw from established theories on governance, especially risk framing and governance (Birkmann et al., 2013; Eriksen et al., 2015; Fra Paleo, 2015; Hurlbert and Gupta, 2016; Stein et al., 2019; Vanhala and Hestbaek, 2016) and multilevel, adaptive governance, where governance is conceptualised as multilevel, cross-sectoral, polycentric (Abel et al., 2014; Cash et al., 2006; Heinen et al., 2022; Jordan et al., 2015a; McGinnis, 1999; Ostrom, 2014). I discuss the transboundary dimensions of climate risk and adaptation governance borrowing from and building on the typology of transboundary dimensions proposed by Ansell *et al.* (2010).

## 2.3 RESULTS AND DISCUSSION

### 2.3.1 The Anatomy of the Paris Agreement

The authentic version of the Agreement is in six languages: English, Spanish, French, Chinese, Arabic and Russian (Article 29). This analysis used the 25-page (excluding the cover and blank pages before the text) English version obtained from the UNFCCC website (at [https://unfccc.int/sites/default/files/english\\_paris\\_agreement.pdf](https://unfccc.int/sites/default/files/english_paris_agreement.pdf)). See Chart 1 for a content-based structural description of the Agreement. The Paris Agreement begins with 16 preambular declarations of beliefs, understandings and commitments of the Parties, followed by 29 articles containing 129 paragraphs altogether. About two-thirds of the articles have three or fewer paragraphs: ~27% (eight articles) have one paragraph, ~21% (six articles) have two, and ~17% (five articles) have only three paragraphs. Only three (~10%) of the articles have more than ten paragraphs: Articles 4 (19 paragraphs), 13 (15 paragraphs) and 7 (14 paragraphs). It has a total of 7,297 words (including two in the title, 58 on article titles, 160 on the numbering, and 27 words on the signature statement at the end). As shown in Chart 1, the top three longest articles in the Agreement in terms of word

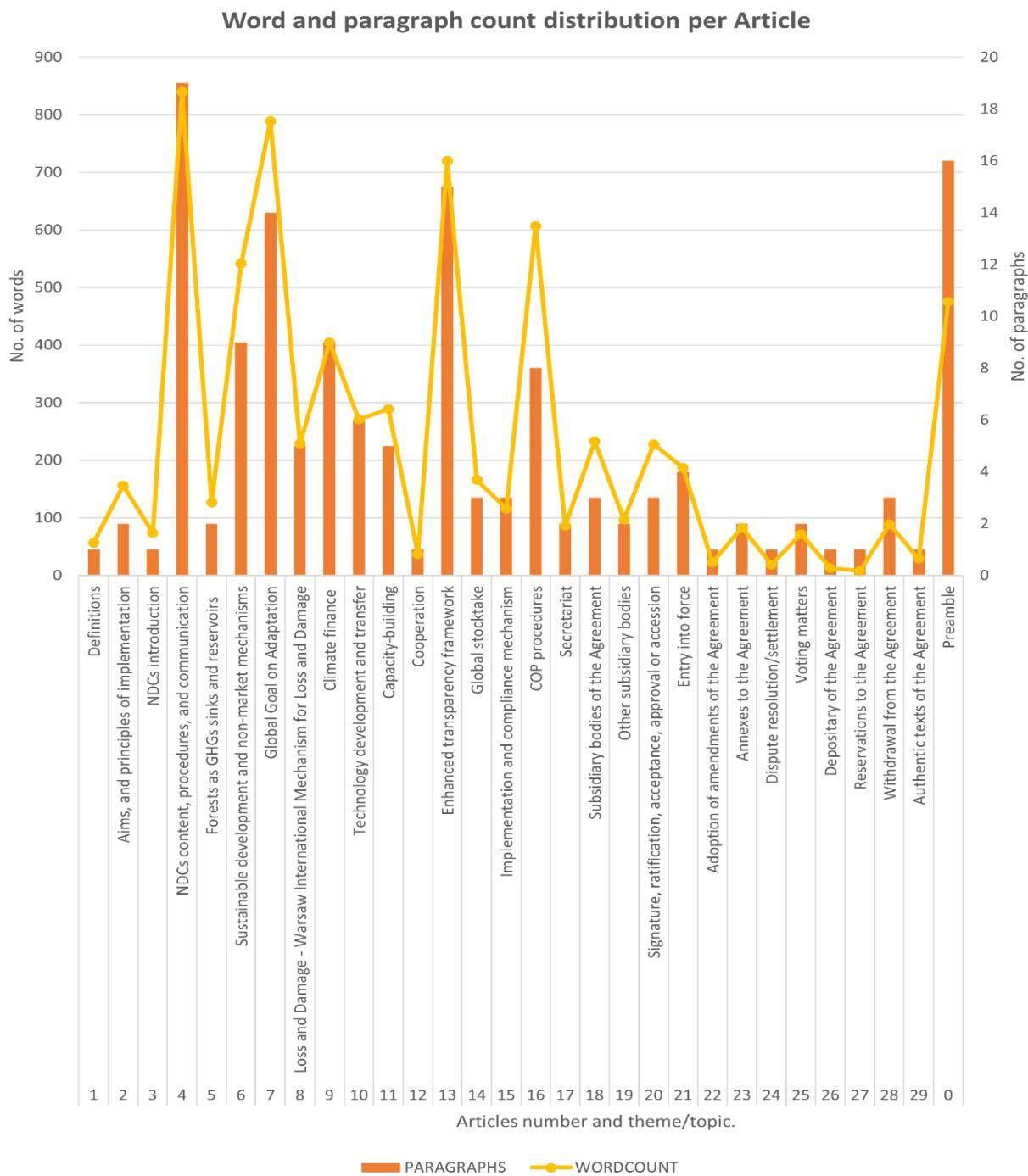


Chart 1. Word and paragraph count distribution per Article of the Paris Agreement.

count are Articles 4 (840 words), 7 (789 words) and 13 (720 words). The second longest article is Article 7 (the 'adaptation article') only 51 words less than the longest article.

Matters directly related to adaptation are especially discussed under Article 7 of the Paris Agreement and paragraphs 41-46 of Decision 1/CP.21.



Figure 1. Word cloud of Paris Agreement's word frequency.

## 2.3.2 Climate Risks and Adaptation, and their Governance under the Paris Agreement

This section addresses question RQ2.1 to explore how the Paris Agreement conceptualises climate risks and adaptation and their governance. Each of these dimensions is discussed under its own subsection, any overlaps notwithstanding.

### 2.3.2.1 Climate Risks and Impacts under the Paris Agreement

The Agreement is vague about what amounts to '*climate risks*' and their nature. The term "*risk*" appears five times in two articles only—once in Article 2 (on aims and principles) and four times under Article 8 (on loss and damage). Thus, '*risk*' is not mentioned at all under Article 7 (on adaptation). The terms "*adverse effects*" and "*adverse impacts*" are perhaps the closest it comes to describing climate risks. It frames climate change as an '*urgent threat*' and a '*common concern*' (preamble). Risks, impacts and effects are often used synonymously and mainly expressed in general terms to describe hazards or events—e.g., *extreme weather* and *slow onset events* (Article 8.1) and "*events that may involve irreversible and permanent loss and damage*" (Article 8.4)—except for '*hunger*', the only risk explicit in the Agreement. All these are articulated especially in terms of the context-specific vulnerabilities, development and adaptive capacities of respective bordered entities, such as countries (e.g., Small Island Developing States (SIDS), LDCs), ecosystems (e.g., oceans,

forests), sectors/systems (e.g., livelihood and food production systems), or social groups including “*migrants, children, persons with disabilities and people in vulnerable situations*”.

The *particularity* and *specificity* of ‘*vulnerabilities*’, ‘*needs*’ and ‘*circumstances*’ in developing and least developed countries are underscored throughout, effectively setting the *risk context*. Hence, (economic) development appears to be an important determinant of who or what the Agreement views as “*particularly vulnerable*” to climate risks and impacts, a phrase that is mainly used to describe developing countries, LDCs or SIDs. There are only three other instances where the descriptor ‘vulnerable’ describes entities other than countries: “*vulnerable situations*” (preamble), “*vulnerable groups, communities and ecosystems*” (Article 7.5), “*vulnerable people, places and ecosystems*” (Article 7. 9c). Nonetheless, the specific climate risks they are vulnerable to and/or their nature are not usually mentioned. Importantly, ‘context’ under the Agreement is viewed as fundamentally ‘bounded’ and has no explicit references to the impact of transboundary forces. However, countries in their *declarations* do note such in various ways, including the impact of inadequate climate action on their national interests.

The Agreement explicitly acknowledges climate response measures as potential sources of impacts and concern to (especially developing country) Parties and requires this to be considered in its implementation (Article 4.15). But this refers to the impacts arising from mitigation rather than adaptation. Perhaps due to the high-level nature of the Agreement, the nature of these impacts and propagation are unspecified, save for the ‘internationally transferred mitigation outcomes’ (ITMOs) under Article 6. The anticipation of the risk of TARs and maladaptation and their management is thus not a priority in the Agreement as there is a lack of explicit “intention to avoid mistakes and not lock-in detrimental effects of adaptation-labelled initiatives” (Magnan et al., 2016, p. 646).

Climate risks are viewed relative to and as interconnected with sustainable development. On one side, poverty and lack of (sustainable) development are seen as predisposing factors to climate risks. On the other side, climate risks are viewed as threats to sustainable development and poverty eradication. In their declarations, developing countries (e.g., India) and SIDs (e.g., the Philippines, Niue, Nauru, Solomon Islands, Marshall Islands, and Micronesia) during the deposition or signing of the Agreement mainly mention their pursuit

of sustainable development and the potential threat posed to such efforts (oft cited as “national interests”) by climate risks/impacts.

From the foregoing, the (un)boundedness of climate risks/impacts is implied in the (un)boundedness of the ‘vulnerable’ entities, rather than based on their character. Out of the entities articulated as potentially vulnerable (i.e., countries, groups, communities, people, places and ecosystems), only countries have definitively defined, sacrosanct borders. Also, only countries are used in grouping and understanding the vulnerabilities of other (non-state and non-political) entities. For instance, the assessment and characterisation of specific risks and impacts (including on these other entities) are left to the respective countries (Articles 7.9; 13.8). However, that countries can be ‘facilitated’ through ‘cooperation’ to undertake risk assessments (e.g., Article 8.4) suggests a transboundary dimension of climate risk assessment. The rest of the entities may traverse (even national) borders, but this is not always made explicit or acknowledged in the Agreement. Although it is clear from the literature that, for example, climate risks and (in)actions of one country could pose risks to, or influence the vulnerability of, other countries, the Agreement deliberately avoids making this (and other references that could potentially cause contestations among Parties) explicit, similar to the practice of nondecision-making by its Parties. This lack of specificity in terms of climate risks and hazards, effects, and impacts is likely due to the high-level nature of the Agreement, allowing the lower, more grounded levels entities to clarify them as they deem fit, a fact observed in the submitted NDCs to the UNFCCC (UNFCCC, 2021).

### **2.3.2.2 Adaptation in the Paris Agreement**

In this, I discuss adaptation as articulated in the Paris Agreement and the extent to which it is conceptualised as transboundary. The Agreement dedicates an entire article to adaptation and mentions ‘adaptation’ 47 times, more than both mitigation (23) and sustainable development (10) combined. However, adaptation is not contemplated as a distinct standalone domain. Instead, the Agreement views adaptation as a factor of and a contributor to both mitigation and sustainable development (e.g., Articles 7.1, 7.4, 8.1), thus highlighting the sectoral transboundariness and interdependence of these climate response pathways. Adaptation is also understood in mitigation terms (Articles 7.1, 7.4). For example, the adequacy, needs and costs of adaptation are contemplated in the *context* of the

temperature goal (Article 7.1). The Agreement sees achieving the global average temperature goal as another way to *significantly reduce* the climate risks and impacts to be adapted to (Article 2.1). All occurrences of “poverty” are in the same sentence with and adjacent to “*sustainable development*”. Thus, despite their distinctions and calls for efforts towards ‘balanced’ attention between adaptation and mitigation (Article 9.4), the Agreement draws interlinkages of and even appears to suggest that mitigation, sustainable development and poverty eradication can be considered as adaptation (see *Figure 2*) and that adaptation could have co-benefits in these areas (see, for instance, Article 4.7). While this can be considered as progress, it can blur the risk and support for adaptation as it may continue to be referenced more ambiguously through these other domains despite its distinction (Church and Hammill, 2019; Few et al., 2017).

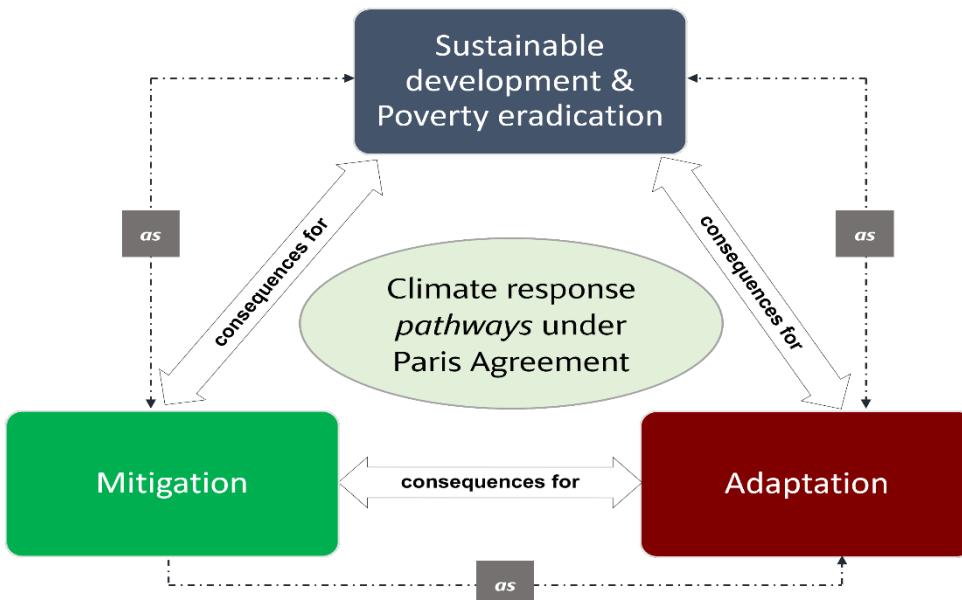


Figure 2. A schematic interpretation of interlinkages between TCAR-relevant climate response pathways as conceptualised in the Paris Agreement.

Although adaptation refers to any adjustment to actual or expected climate and its effects to *moderate or avoid harm or exploit beneficial opportunities* presented by the climate stimuli (IPCC, 2014c), the Agreement does not explicitly recognise any beneficial opportunities that could or should be exploited via adaptation, except for the general ‘reduction’ of climate risks and impacts from the induced sustainable development, mitigation, strengthened resilience and poverty eradication. This further reinforces the pathway interdependencies illustrated in Figure 2, in agreement with previous arguments

that “enhancing sustainable development will enhance adaptive capacity” (Adger, 2001, p. 921). Moreover, the Agreement conceptualises adaptation as a ‘global challenge’ that is multidimensional in scale (Article 7.2). Some studies (e.g., Benzie and Persson, 2019; Carter et al., 2021) consider references to the ‘global’ with regards to the adaptation goal and challenge and the ‘international’ with regard to the multiscale ‘dimensions’ to mean reference to the transboundariness of climate risk and/or adaptation. Benzie and Persson (2019, p. 380) go further to suggest that this is an indication “that consideration of borderless climate risk might increase and adaptation may become framed in less territorial ways”. However, this is unclear from the Agreement as the nature of these scalar ‘dimensions’ is vague. This is also to some extent contradictory considering the entire adaptation process is conceptualised within each member State (vide NDCs) and country-driven with no binding obligation for adaptation across borders (Articles 7.9; 13.8). By locating adaptation within *country-driven actions and strategies*, it shifts the scale and primary responsibility of adaptation to the national levels. Its use of ‘global’, ‘regional’ and ‘subnational’ pertaining adaptation is amorphous and pays limited attention to the vertical and horizontal interactions across these dimensions.

In addition, the Agreement treats the ‘*context*’, ‘*needs*’, ‘*capabilities*’ and ‘*circumstances*’ of countries (especially developing, LDCs and SIDS) as being almost entirely ‘local’ and not contingent on externalities beyond their borders. Notably, the phrase ‘*transboundary dimensions of adaptation*’ which appeared several times in the negotiating document was omitted from the final Agreement. From such a conscious decision to remove this, it would be ambitiously optimistic to expect the Paris Agreement to have much specific coverage of the issue.

### **2.3.2.3 Governing Adaptation under the Paris Agreement**

The Paris Agreement conceptualises and articulates adaptation planning, implementation and assessment as the responsibility of ‘*each Party*’ (Article 7.9) through their NDCs. Thus, adaptation governance under the Agreement is fundamentally State-centric, following the so-called principle of “*common but differentiated responsibilities and respective capabilities, in the light of different national circumstances*” (CBDR+RC) (f=4). This differentiation recognises the varying degrees of Parties’ vulnerability, adaptation and development needs, and contribution to the climate change challenge (e.g., through greenhouse gas emissions),

despite them being equal under the UNFCCC (e.g., see Pauw et al., 2019; Rajamani, 2016). The Rulebook provides procedural guidelines for the preparation and assessment of NDCs. Although the execution/implementation of NDCs is not part of it, the Paris Agreement provides some common guidance on the general principles and norms to be observed (e.g. *“gender equality, empowerment of women”*, *“human rights”*, *“transparency”*, *“justice”*, *“public participation”* and *“equity”*) in the *“country-driven”* (f=4) implementation approach. The participation of non-Party stakeholders in adaptation governance is, in the Agreement’s view, by the invitation or acquiescence of the Parties. For instance, it encourages Parties to adopt approaches that *“enhance public and private sector participation”* in the implementation of NDCs and *“enable opportunities for coordination across instruments and relevant institutional arrangements”* (Article 6.8). The institutions and actors referred to in this regard include regional economic integration organisations, UN specialised agencies, and UNFCCC technical and financial mechanisms. Additionally, the Agreement crosses its own treaty boundaries to invite *“relevant organizations and expert bodies outside the Agreement”* (Article 8.5) to adaptation action. Although their specific role is indistinct and only implied from their mandates and competencies, they ought to be embedded in and aligned with *country-driven* action (Article 7.9). Its deep State-centricity raises questions about the Agreement’s (and by extension UNFCCC’s) exclusion of climate change and adaptation governance in areas of/with limited statehood and sovereignty, where *“central authorities (governments) lack the ability to implement and enforce rules and decisions and/or in which they do not command a legitimate monopoly over the means of violence”* (Börzel et al., 2018, p. 6; for more details on these understandings, see Draude et al., 2018 and; Risse, 2013)

Thus, from its articulation, I find that the Paris Agreement governs adaptation in six key interrelated approaches (see *Table 2*). I developed this list through an iterative reading of the Agreement to identify ways in which it seeks to steer adaptation, and then clustering these under the six categories. I then assigned them TAR values based on my assessment of its potential impact on TARs: positive (+) if it is likely to decrease, negative (-) if it has potential to increase, and neutral ( $\pm$ ) if it is judged to have no considerable impact on the likelihood of TARs. Four of the six had a negative (increasing), two had a neutral while none had a positive (decreasing) impact on TCARs.

Table 2. Adaptation governance approaches in the Paris Agreement.

#	Adaptation governance mechanism or approach	TAR impact	Examples of reference in the Paris Agreement
1.	Goal-setting	–	Articles 2, 4, 7
2.	Facilitation	–	Articles 6.6, 7.13, 9.1, 10.6, 11
3.	Information disclosure and provision	±	Articles 7.10, 12, 13, 14
4.	Signalling or “encouragement”	–	Article 7, 9-15
5.	Peer accountability	±	Articles 7-14
6.	Recognition – naming (no shaming)	–	Articles 7.3, 7.15a, 14

The first approach is through collective *goal-setting*. It sets the GGA and provides guidelines and standardisation of plans to achieve it. Nonetheless, the strategies and approaches towards this goal are country-driven and country-based, meaning they could vary between countries and increase the TARs. The second is the *facilitation* it provides through transboundary transfers of resources and support (e.g., finance, capacity-building, technology development and transfer etc.) towards the achievement of the adaptation goal. This could increase adaptation actions and, consequently, the TARs. The third approach is through *information disclosure and provision* as required through adaptation reporting and communications, especially to facilitate a review of the progress made in achieving the adaptation goal. I categorised this as neutral as I did not consider the information provided at this stage to significantly influence individual countries' adaptation strategies. Fourth, the Agreement steers adaptation through *signalling and “encouragement”* of stakeholders to act in particular ways to advance adaptation. It does this especially through the above three modes and the compliance mechanism established under Article 15. This encourages adaptation action and is therefore classified as negative. The fifth way the Agreement steers adaptation is through the *peer accountability* mechanisms inherent in it, the UNFCCC treaties and international cooperation norms. I classified this as having a neutral effect on TCARs because it is essentially pegged on an individual country's own goals and actions and has no significant impact on any country's normative, relational, decision and behavioural elements of accountability to others (Biermann and Gupta, 2011, p. 1857; see also Mason, 2008 and, 2004 for more details on this subject in cross-border settings). The last approach for governing adaptation evident in the Paris Agreement is *naming* by way of 'recognition'

(Articles 7.3, 7.15a) via the global stocktake (Article 14). It is clear that no ‘shaming’ should be involved in this. I classed this as having a negative impact on TCARs because the potential benefits of this ‘recognition’ especially on facilitation (approach 2 above) could lead to an increase in adaptation-labelled initiatives.

While international cooperation is mostly voluntary rather than a binding requirement under the Agreement (Articles 6 and 9), its potential sway on enhanced adaptation actions is substantial. The international cooperation envisaged in the Agreement signals increased transboundary influence, mainly on developing countries’ adaptation actions. This includes influence on what is counted as *“effective adaptation practices, adaptation needs, priorities, support provided and received for adaptation actions and efforts, and challenges and gaps”* (Article 7.7). A UNFCCC synthesis of the NDCs submitted in 2021 in the runup to COP26 indicates that in most developing countries’ enhanced adaptation action is contingent on international support, particularly enhanced financing, capacity building, technology transfer and technical cooperation (UNFCCC, 2021).

### **2.3.3 Transboundary Dimensions of Climate Risk and Adaptation Governance in the Paris Agreement**

Following from above, this section responds to question RQ2.2 regarding the extent to which transboundary dimensions are considered in the articulation of climate risks, adaptation and their governance. A simple definition of a boundary is “a real or imaginary line that separates two things” (National Geographic, 2023). Boundaries are thus conceptualised as lines of separation between entities, systems, units and/or their derivatives. In this chapter, they also refer to the respective entities thus separated or bounded. For instance, ‘national’ boundaries may refer to both the ‘lines’ of separation between one country and another or the specific countries themselves. Here, the performance of risk and adaptation governance functions are considered to be selectively performed based on boundaries such as these (this list may not be exhaustive as it only identifies those boundaries evident in the Paris Agreement). Thus, the organisation and constitution of entities and their priorities in climate action are important aspects in understanding the Paris Agreement and its implementation.

I identify and discuss four broad boundary dimensions of climate risk and adaptation governance evident in the agreement: legal-political, ecological/ecosystem,

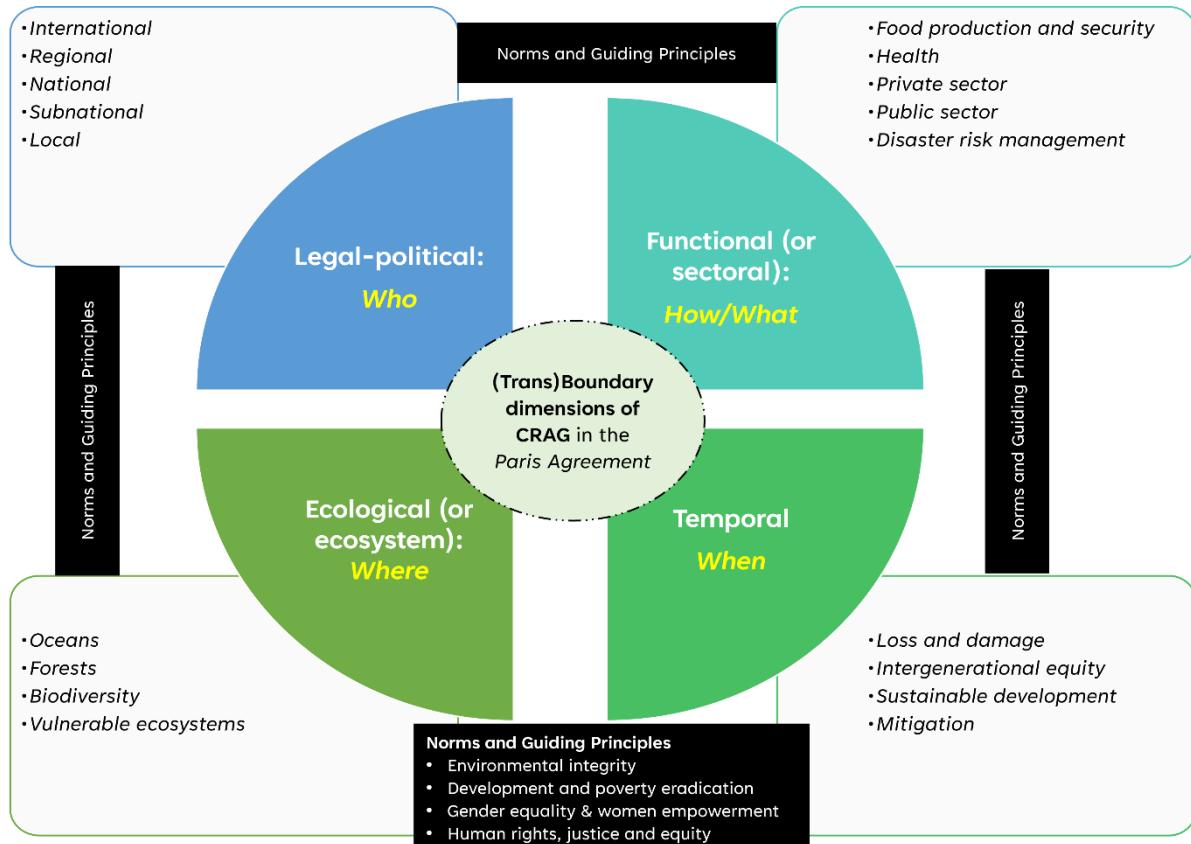


Figure 3. Boundary dimensions and 'boundary objects' relevant for TCARG in the Paris Agreement.

functional/functional, and temporal boundaries (see Figure 3). Respectively, they highlight *who* is at the centre of the Agreement, *where* action is required, *how* it is to be delivered (including in *what* sectors) and the time (i.e. *when*) dimensions of the risks and actions.

Firstly, **legal-political** boundaries are unsurprisingly the most prevalent in the Agreement given its political nature. Legal-political boundaries separate one political entity from another and distinguish independent political and administrative units from each other, thus defining their respective authority, mandate, legitimacy and accountability scope and mechanisms. National (and therefore country) boundaries are ubiquitous in the Agreement. Being a treaty between countries, it confers them (or they confer themselves) the authority and legitimacy of climate governance. Facilitation, support and accountability mechanisms for climate governance under it are also imagined between countries. Accordingly, climate risks, impacts and actions are mostly conceptualised around countries as 'nationally determined' and 'country-driven'. All the other levels/scales above (i.e., regional and international/global) or below (i.e., subnational and local) and participation of non-State actors (public or private) are considered in view of, and to be 'facilitated' by, 'the Parties' (e.g., see second-last paragraph of the Preamble, Articles 6.8b, 12). The primacy of 'the

State' in climate governance is thus entrenched under the Agreement and the UNFCCC (see Article 16). Together countries form the 'Conference of the Parties', which is "the supreme body of the Convention" and the Agreement (Article 16.1) and can take whatever decisions they deem necessary, including creating bodies and institutions (Article 16.4), for the effective implementation of the Convention and the Agreement.

Although adaptation through the GGA is viewed as a cross-scale, multidimensional 'challenge', it is still mostly articulated as a concern for LDCs and developing countries due to their considered 'particular' vulnerability, special circumstances and needs – mostly related to poverty prevalence and underdevelopment. But evidence from literature and some national assessments suggest that even developed countries are vulnerable and could be impacted more by the impacts of climate risks beyond their borders, including in the 'particularly vulnerable' countries (Foresight, 2011; Kankaanpää and Carter, 2007; PwC, 2013; Sentance and Betts, 2012; Vonk et al., 2015). The Agreement differentiates member countries based on various criteria, including their development level (e.g., developing, developed, LDCs); location and size (e.g., SIDs); and membership to the Agreement or the UNFCCC. This also affects some of their responsibilities, needs and direction of the entitled support under the Agreement as emphasised by others (e.g., Pauw et al., 2019). In their declarations, some countries reiterate and clarify these while others have argued to change their development status under the Agreement, perhaps so that they can access the entitled support such as climate finance and escape the responsibility assigned to developed countries under the Agreement. For example, while classified as a developed country, Turkey declared that it would "*implement the Paris Agreement as a developing country*". Despite their dominance, governance across legal-political boundaries *is loosely stated and often ambiguous in the Agreement. Still, countries can engage in cross-border regional, bilateral or multilateral arrangements in implementing adaptation actions under the Agreement.*

The second evident dimension is the *functional or sectoral* boundaries, meaning the limits of a policy or domain area or sector, such as agriculture, energy, water management, mitigation or education or the broader categorisations of the public and private sectors. This is an important dimension because while certain crises may fall precisely within a given policy area, many climate risks on which adaptation interventions may focus usually cross

these functional/sectoral boundaries. Perhaps one of the reasons why adaptation is challenging is that it necessarily involves and crosses such boundaries. For instance, the impacts of climate change on water is not just a water problem, but also a challenge for food, energy, tourism, wildlife, security and peace, biodiversity health etc., sectors and systems that often have different objectives and, as some have framed it before, different “logics and operating imperatives” (Ansell et al., 2010, p. 196). Such may also be governed under other conventions and different institutional regimes and processes – for instance, disaster risk reduction under the United Nations Office for Disaster Risk Reduction (UNDRR) through Sendai Framework for Disaster Risk Reduction (SFDRR); biodiversity under the Convention on Biological Diversity (CBD); land and desertification under the UN Convention to Combat Desertification (UNCCD); sustainable development under the United Nations General Assembly (UNGA); and human rights under the Office of the High Commissioner for Human Rights (OHCHR) and the Human Rights Council. The Agreement refers to several of these and inferentially conceptualises climate risk and adaptation governance from a functional/sectoral perspective—e.g., forestry, food production (but no direct reference to agriculture), health, environmental, sustainable development—and within the development context of the respective countries. But as Dow et al. (2013, p. 385) point out, “the objectives of adaptation are consistent with prevailing social, cultural, or economic values and goals”, and sometimes each of these functional areas or units is mandated to pursue specific objectives which may be competing or in conflict at times.

The sectors referenced in the Agreement are those generally described as climate-sensitive. Despite the Agreement’s focus on the political units, adaptation and mitigation interventions are often implemented within these sectors/functional areas, some of which the Agreement recognises as increasingly vulnerable to climate change, for example, food production systems (preamble and Article 2.1.b). Indeed, the NDCs under the Agreement are also essentially articulated by individual countries in terms of sectoral actions, priorities and needs (UNFCCC, 2021). In recognition of the role of *poverty eradication* and *sustainable development* (Article 8.1), the Agreement establishes a mechanism to support sustainable development (Article 6.4) as a means of governing climate risks and adaptation (also, see especially Articles 2, 5, 6, 7 and 8). The recognition of conventional disaster risk management mechanisms, including “*early warning systems; emergency preparedness; ...risk insurance facilities, climate risk pooling and other insurance solutions*” (Article 8.4) implies

acknowledgement of the intersection between climate change and disaster risk reduction (DRR) domains. Surprisingly, the Agreement does not directly acknowledge the SFDRR, the principal global framework for DRR. The participation of public and private sectors particularly in the implementation of NDCs is encouraged (Article 6.8.b), yet the private sector actors are not parties to it and are not legally bound by the Agreement. Without being specific, the Agreement generally envisages an integrated approach to climate governance and encourages coordination across sectors and institutional arrangements.

The third is the *ecological/ecosystems* dimension, referring to boundaries that define and separate ecosystems (e.g., climatic zones, habitats, niches etc.). I use this term with this simple yet broad understanding rather than the ecologists' perspective of 'ecological/ecosystem boundaries' describing 'transition zones' (see for example, Kolasa, 2014). The Paris Agreement notes "*the importance of ensuring the integrity of all ecosystems*" in its preamble and explicitly identifies 'ecosystems' as one of the three elements that climate response seeks to protect – the other two being people and livelihoods (Article 7.2). Some of these ecosystems are specifically mentioned, including oceans and forests. In agreement with the literature, reference to '*vulnerable ecosystems*' (in Articles 7.5 and 7.9) suggests that some ecosystems are (considered) more vulnerable to the impacts of climate change than others and therefore require greater consideration in adaptation. As an example, the IPCC reports note that temperature increases (and thus impacts) will not be uniform across all regions (and thus ecosystems). For instance, it is projected that temperatures in Africa will "rise faster than the global average increase during the 21<sup>st</sup> century" (Field et al., 2014, p. 1206). The socio-ecological characteristics of such ecosystems make them more sensitive to climatic stimuli and countries, communities and/or sectors located in or dependent on such ecosystems are therefore 'particularly vulnerable'. Ditto any entity interlinked anyhow with these ecosystems or other entities dependent on them.

Expect its provision that adaptation "*should be based on and guided by the best available science*" (Article 7.5), transboundary interlinkages of and between ecosystems are not adequately appreciated in the Paris Agreement — and such science already suggests the existence of important ecosystem interlinkages. What appears even less acknowledged in the Agreement is that the health of a particular ecosystem can be influenced directly or

indirectly by activities in another ecosystem. For example, riverine and marine ecosystems' health can be affected by the health of (and activities within) forests, mountains, highlands and ecosystems and farmlands. Such interdependences are not obvious in the Agreement. Ecosystems are also critical for reducing the risk of climate change for example through mitigation (as in carbon sinks discussed under Article 5) but also as approaches for reducing related disaster risks. For instance, some DRR and adaptation approaches like ecosystem-based adaptation, eco-DRR and the so-called nature-based solutions.

The final dimension of boundaries relevant to climate risk and adaptation governance is the *temporal dimension*. Temporal boundaries refer to the demarcated time (and timing) of the manifestation of risks and interventions meant for related risk reduction. This is perhaps the transboundary dimension addressed best in the Agreement. The Agreement in its entirety is 'time-bound' and adaptation is conceptualised in a futuristic manner. For instance, the GGA articulates adaptation "*in the context of the temperature goal*" (Article 7.1), thus making it dependent on the success of mitigation efforts in achieving the 1.5-2°C target by the set (future) date (see also Article 7.4). This was one of the key demands by SIDs and LDCs, some of which decry (as seen from their declarations) the inadequacy of emission reduction obligations under the Agreement to achieve this temperature target and the resultant potential "severe implications for [their] national interests" (e.g., Cook Islands, Marshal Islands, Niue, Tuvalu etc). Additionally, the risks of climate change are not constant. Rather, they generally increase with the increase in average global temperature (IPCC, 2018), a point appreciated by the Agreement. Thus, to some extent, the Agreement considers the adequacy of adaptation interventions as potentially changing over time depending on mitigation efforts for instance (e.g., see Article 7.4). Some adaptation interventions may not be adequate over time as climate hazards become more frequent (with shorter recurrence intervals), more intense (e.g., longer droughts) and/or as various risks and responses to them interact. The Agreement recognises this and thus requires climate response efforts to "*represent a progression over time*" (Article 3). Many climate-related risks and impacts of climate change may not have clearly defined start- and end-points and their consequences (can) run across time boundaries, from generation to generation (vide intergenerational equity). Despite the largely future-oriented framing of adaptation in the Paris Agreement, entities do not have the same amount of time for the manifestation of the impacts of climate change, due to the differentiated vulnerabilities and exposure to risks and impacts across

time and space. Also, the impacts of response may not be discernible at (or shortly after) the implementation of interventions.

## **2.3.4 Discussion: Potential and Role of Paris Agreement in TCARG**

Having explored the first two research questions regarding climate risks and adaptation and their governance, and the extent to which their transboundary dimensions are considered in the Paris Agreement, this section now turns the attention to the last research question of this chapter, RQ2.3. I first discuss the boundary-spanning elements, avenues and structures within the design of the Paris Agreement and identify the priority elements to advance TCARG within the Agreement. In the background of these, I finally outline the roles that the Agreement plays in TCARG.

### **2.3.4.1 Boundary-spanning elements, avenues, and structures in the Paris Agreement**

The Agreement's design and implementation are primarily around the States, thus perpetuating the territorial framing of climate governance and underpinning the "primacy of domestic politics in climate change" even in the global arena (Falkner, 2016, p. 1107). However, there are indications of the Agreement's attempt to broaden this framing, despite the omission of even greater attempts explicitly recognising the transboundary dimensions of adaptation suggested in the negotiating documents. For example, the Agreement alludes to transboundary governance by urging for *voluntary cooperation across all levels of government* and welcoming the *participation of non-Party and non-UNFCCC organisations and expertise in its implementation*. It also recognises the transboundariness of the climate risk and impacts of climate mitigation measures—which can be extended to adaptation—and some of the pathways through which risks and impacts may be propagated including social, economic and natural systems. Its aim to strengthen "*global response*" under the global Convention is another important boundary-spanning element. Furthermore, by framing adaptation as a '*global challenge*' with multi-level dimensions and climate change as a '*common concern for mankind*', the Paris Agreement implicitly suggests the transboundariness of climate risks and adaptation across scales, albeit vaguely.

The Agreement welcomes approaches that transcend sectoral and scientific domains and disciplines by articulating ‘cross-cutting’ considerations (e.g., environmental integrity, sustainable development and poverty eradication, human rights, justice and equity) in climate action. Its framing of adaptation in the context of sustainable development is also significant for transboundary governance: it circumvents the protracted adaptation-versus-development debate, acknowledging their interdependence (Hammill and Heather, 2018), thus positioning adaptation as a pathway to development and poverty reduction/eradication and vice versa. This framing can be another potential basis for cross-sectoral integration and alignment of adaptation, sustainable development and DRR. It can also help to move adaptation from a ‘charity’/‘aid’ perspective (characterised by the dependence on adaptation finance/capital flows from developed to LDCs and developing countries) to a ‘development’ perspective which could encourage and promote cooperative climate action between countries in the global south through south-south and triangular cooperation.

The Agreement also uses norms, principles and guidelines as boundary-spanning tools. These include human rights, justice and equity; environmental integrity; development and poverty eradication; and gender equality & and women empowerment. These are elements that are generally accepted as ‘good’, although the extent to which they are adopted and applied at different scales and contexts differs. However, considering adaptation interventions as opportunities to advance these norms and ideals could be useful for crossing boundaries and embedding adaptation within other existing development and democratic aspirations of nations.

The epistemic authority under the Paris Agreement is established within the scientific community—through expert subsidiary bodies (e.g., the SBSTA, the IPCC, the Adaptation Committee etc.). The Agreement is aware of and even welcomes epistemic pluralism. However, “*best available*” science and/or scientific knowledge (f=4) is presented as the primary “basis” for policymaking, planning and implementation of adaptation actions (see preamble, Articles 7.5, 7.7, 14.1). The ‘non-scientific’ (i.e., traditional, Indigenous peoples’ and local) knowledge is secondary and therefore to be applied only “where” or “as appropriate” (Article 7.5). Science is also central to the design and functioning of the boundary-spanning avenues under the Agreement/Convention, including the transparency

framework and the global stocktake. Thus, science, understood as a 'collective epistemic enterprise', and the issues of reliance on and trust in science notwithstanding (see for example Bäckstrand, 2003; Funk, 2017; Mabon et al., 2019; Toke, 1999; Wilholt, 2013), is established as a mechanism that seems to be more generally trusted to not only bridge (existing or potential) political (or diplomatic) boundaries but also to set boundaries (e.g. temporal boundaries) in global climate governance. The multitude of other actors may subscribe to different epistemic beliefs, but science in the Agreement is considered to be an 'objective' tool to harmonise these beliefs (Di Gregorio et al., 2019). Yet, there remain "conceptual and methodological challenges in defining an adaptation goal" and "effectiveness" due to these multiple "normative views on adaptation outcomes, arising from different epistemological and disciplinary entry points" even within the scientific arena (Singh et al., 2021, p. 1).

The potential for TCARG in the implementation of the Paris Agreement is further evidenced in its design and preferred governance approach. It entails a hybrid governance architecture comprising of bottom-up target setting and implementation mechanisms (e.g., NDCs, national and adaptation communications) and top-down procedural obligations (e.g., on the preparation of NDCs, relevant communications, global stocktake, enhanced transparency framework, etc.). This is a shift from the mainly top-down approach adopted by its predecessor, the Kyoto Protocol. Countries develop their NDCs based on their judgment, risk perception, development needs, and national interests under the CBDR+RC approach. Nonetheless, the Agreement seems to suggest an increased role of external actors—including developed countries, UN specialised organisations and agencies, technical groups and organisations—especially in shaping the climate actions and trajectories of developing countries (see Article 7).

The Agreement avoids explicit specification of the climate risks to be adapted to which might necessitate rigid prescription of response actions but frames adaptation as a multi-level, polycentric challenge in its GGA. This can be considered both strategic and useful due to the uncertainty of climate change impacts in different locations and sectors (Bird et al., 2016; IPCC, 2014b; Whitmarsh, 2011), which then allows contextualised risk assessment and management. It also curbs potential blame-shifting and contentions especially around sovereignty, self-determination and 'non-interference' under the Convention, thus allowing

countries to chart a common agenda for climate change governance based on their CBDR+RC. Given that the actual risks and impacts of climate are not fully known or knowable, those mentioned in the Agreement may be just “projections” based on past or current experiences, the development status of the respective country and their interests (and needs), and the ‘temperature goal’ in Article 2—thus signifying their temporality too.

The Paris Agreement and the UNFCCC in general have mechanisms, processes and institutions that are potential avenues and entry points for advancing TCARG. For instance, the enhanced transparency framework for action and support (ETF) which is a global mechanism meant to foster conducive conditions for transboundary cooperation on climate action provides an important basis for adaptation-related disclosures where TCARs could be a critical agenda item. In addition, the global stocktake offers a potential platform for perpetual assessment and consideration of TCARs as well as reporting and recognition of efforts to adapt to them, which is also possible through national communications. Furthermore, the Warsaw International Mechanism for Loss and Damage is a possible mechanism suitable for the consideration of indirect, secondary and higher-order impacts of climate change which characterise TCRs and adaptation to them which may characterise TARs. Moreover, the international support programmes and processes under the Paris Agreement (and the rest of UNFCCC) focus on areas that could accelerate TCARG, including *adaptation financing* and *capacity building*. The institutions under the Agreement and the UNFCCC (especially those responsible for these focal areas) must deliberately and increasingly consider TCARs with the view of developing or synthesising germane knowledge products and support packages for advice and dissemination to both Party and non-Party stakeholders. In this sense, the forum on the impact of the implementation of response measures (established by Decision 7/CMA.1) could play an increasingly central role in furthering the TCARG agenda in collaboration with other relevant institutions. The regular forums convened under the Agreement – including the associated COPs and CMAs – actively participate in the (re)definition and (re)construction of the climate challenge, responses and assessment of progress. They, therefore, have an important role in helping to define, construct and enable (the) implementation of adaptation as the truly global, transboundary issue it is through norm-setting, rulemaking and agenda-setting regarding adaptation.

#### **2.3.4.2 Focus Elements for Furthering TCARG under the Paris Agreement**

As discussed so far, the Paris Agreement as currently articulated contains several areas or elements which can further TCARG, but only if there is a conscious choice to do so in their implementation/deployment. I group these into two broad categories aligning with its hybrid governance approach. The first is the ‘top-down’ category which includes areas that have governance functions but which the Agreement mainly, not entirely, conceptualises as emanating from beyond the borders of a particular State. These include climate (especially adaptation) financing, technology development and transfer, technical support, capacity building, non-market adaptation approaches/mechanisms, rulemaking and norm-setting, and standard setting.

Capacity building needs to be reimagined especially concerning the assessment of TCRs and evaluation of relevant adaptation interventions for TARs. Technology development and transfer in the context of TCARG could be done in such a manner as to ensure that boundaries do not become barriers to innovation and access to technologies that could facilitate adaptation. Likewise, climate financing should not create or amplify TCRs, TARs and/or vulnerability to them. Supported adaptation interventions must consider and address potential short-term and long-term TCRs along the boundary dimensions discussed in this Chapter. In this regard, the environmental and social safeguards especially of the financial mechanisms of the Agreement may need to be revised to integrate TCRs and TARs in project screening, implementation and evaluation. Technical support especially for institution building, risk and impact assessment and mobilisation of actors for adaptation ought to include a transboundary lens. In addition, non-market approaches in adaptation need to be developed urgently, particularly in regions already experiencing adverse impacts of climate change, especially as adaptation is a largely ‘non-profit’ element that has hitherto been less attractive to the private sector. Finally (not exhaustively), there is a need for rulemaking, standard- and norm-setting around NDCs, NAPs, adaptation communications, national communications, and biennial reports to consider and/or include TCRs and TARs.

The ‘bottom-up’ category covers areas/elements that the Paris Agreement considers to be mainly the responsibility of respective countries. These include the NDCs and NAPs, whose development, review, implementation and evaluation could be done in a manner that includes TCRs and TARs across the boundary dimensions discussed in this Chapter. Although

these are country-driven or country-specific and influenced by country context, they need to recognise that national contexts and circumstances are not entirely immune to transboundary externalities. Countries also need to recognise that their NDCs and NAPs could affect the vulnerability and risk contexts of others, and thus cooperate in this among other areas of cooperation envisaged in the Agreement and the relevant decisions under the UNFCCC. The process of developing and implementing these jointly between national, subnational, supranational/regional and sectoral domains is challenging but can be enhanced. The push for common timeframes especially for NDCs as pursued under the Rulebook might be a good start, but it would need to deliberately include TCARs and TCARG as rationales.

#### **2.3.4.3        Role of the Agreement in TCARG**

Based on the above elements, the Paris Agreement could play a critical role in advancing TCARG and ensuring that resilience is built and vulnerability reduced across all scales and domains as envisioned in the GGA. To begin with, the Agreement is a catalyst for investments in and resources for adaptation especially (but also mitigation), financing, technical support, technological development and transfer, and capacity building that could be utilised in TCARG. It also acts as a mobiliser of ambition and effort across the globe in responding to climate change—bringing together state and non-state actors, public and private sectors as well as catalysing knowledge production and relevant climate institutions at scale. However, as the NDC-centric approach in the Agreement clearly shows, the coming together of these actors at the ‘global’ level does not necessarily mean that the ensuing ‘global response’ automatically entails transboundary issues.

Furthermore, the Agreement creates a strong basis for the development of new and/or review of existing policies and strategies for climate response which provides opportunities for the inclusion of TCARG considerations. Moreover, it facilitates cross-level diffusion of climate-relevant policies as stakeholders localise or domesticate the Agreement based on their own priority needs, understandings, capacities, mandates and responsibilities. Additionally, as an intergovernmental treaty, the Agreement not only creates transnational, cross-border responsibilities and obligations for countries but also provides a platform for enhanced scrutiny of each country’s actions at the international level by other countries and non-state actors without threatening their treasured sovereignty. The participation of

countries in the Paris Agreement processes opens them for continued scrutiny as, for example, their documents are made public, especially through the UNFCCC registry. Non-state actors have also opened themselves to scrutiny (e.g., through the NAZCA platform) under the Paris Agreement and UNFCCC processes, thus crossing into the traditional domain boundaries of multilateral agreements. The regular COPs and CMAs (and their related consultations and other processes) also ensure that the climate change response discourse is sustained over time, and allow citizens to continually demand enhanced action from and by their respective governments and other stakeholders.

### **2.3.5 Moving Forward – a difficult opportunity?**

Given the difficulty of capturing the multiple dimensions of boundaries and scales in such a high-level agreement negotiated in a politically contested process, it is inevitable that the Paris Agreement lacks specificity concerning climate risk and adaptation. The implementation of the Agreement and the pursuit of its and UNFCCC's goals will occur in a dynamic global context which improves and/or worsens periodically/cyclically. This in turn affects the contexts of countries, and such is reflected in subsequent COPs.

Implementation will occur in complex, interdependent social-ecological systems with porous boundaries facing uncertain climate change risks and impacts; set within globalised systems that are highly interdependent, and with components that often understand risks differently and act in contradictory ways. Socio-political and economic realities at and across different scales will not only determine the extent to which the Agreement's GGA targets are transformed into credible and effective policies and practices but also the extent to which climate response either builds resilience or redistributes risks and vulnerability in near and distant places. These factors among others will make coherent implementation of the Agreement highly challenging (Munene et al., 2018; Stern, 2015; Termeer et al., 2013).

The success of the Paris Agreement in achieving its goal will depend on, among other things, the success of other post-2015 global frameworks, including the *SFDRR* (UNDRR, 2015), the 'SDGs' (United Nations, 2015), the Kunming-Montreal Global Biodiversity Framework (CBD, 2022) and the UNCCD's goal of land degradation neutrality (LDN). They are important to climate change response not just because they have significant society-wide and multisectoral implications (Adger et al., 2012; Bird et al., 2016; Hallegatte et al., 2016; Hilden

et al., 2018; Hunt and Watkiss, 2011), but particularly because climate response under the Paris Agreement is to be undertaken *“in the context of sustainable development and poverty eradication”* (Article 6.8). These frameworks have many interlinkages that create potential opportunities for synergy and integration (Birkmann and von Teichman, 2010; Schipper and Pelling, 2006; Seidler et al., 2018; UNFCCC, 2017). TCARG could also be advanced through these platforms either independently or in synergy. Amplifying and strengthening the Joint Liaison Group (established by the secretariats of the UNFCCC, the CBD and the UNCCD) to improve coordination among these conventions is critical. However, it might be necessary to bring in other important frameworks and agendas beyond these to streamline the global action further. This would be challenging due to, among other things, the financial, logistical and administrative implications involved in breaking down the siloes and deepening collaboration between such platforms. Yet overlooking or inadequately tackling the transboundary dimensions in global climate response could increase (re)distribution and transfer of risks and vulnerabilities across borders and create negative adaptation spillovers across their workstreams, thus limiting their (including the Agreement’s) objectives.

Moreover, several governance approaches implied in the Paris Agreement could facilitate TCARG or the design of novel approaches to govern the transboundary dimensions of climate change and adaptation. State-led international and regional cooperation mechanisms provide opportunities for *“joint action”* between regional organisations and their member States as called for in decision 1/CP.21. The UNFCCC is itself an example of such and effects governance through, for instance, collective goal setting, peer influence and accountability, as well as technical and financial assistance to its Parties. Furthermore, TCARG can be achieved through multilateral ‘development’ cooperation mechanisms, for instance, by supporting interventions that enhance adaptation to climate change as well as contributing to economic development and/or integration of climate risks and adaptation in development programming and reporting. The Paris Agreement encourages climate action through regional economic integration and intergovernmental organisations like the European Union (EU), the Intergovernmental Authority on Development (IGAD) and the Association of Southeast Asian Nations (ASEAN). These have been known to facilitate transboundary governance in different ways through their intergovernmental mechanisms. Although the Agreement views and labels such action as voluntary, regional organisations can bring more binding requirements and directions for adaptation to their respective

member States and their global partners. Bilateral cooperation is another avenue for State-led TCARG, especially between countries that have strong ecosystem, social, economic, cultural and/or political ties.

Transnational mechanisms, defined as the “regular interactions across national boundaries when at least one actor is a non-state agent or does not operate on behalf of a national government or an intergovernmental organization” (Risse-Kappen, 1995, p. 3 - emphasis original) can also further TCARG under the Paris Agreement. Although themselves not Parties, local/subnational governments and city/municipal authorities, the private and third sectors can help advance the Paris Agreement’s objectives through transnational climate governance (Setzer et al., 2020). Indeed, regional and transnational perspectives significantly shaped the Paris Agreement as evidenced by the increased participation of regional organisations and multi-country groups including the African Group of Negotiators (AGN), the Group of 77 (G-77) and the Independent Association of Latin America and the Caribbean (La Asociación Independiente de América Latina y el Caribe – AILAC) (Edwards et al., 2017; Ngwadla, and El-Bakri, 2016). The GGA was promoted by the AGN with the support of many non-state actors. Thus, there is a clear intention to promote whatever partnerships that may help to advance climate change response goals. There is growing attention to and evidence of this kind of climate governance (e.g. Abbott, 2014; Bäckstrand, 2008; Bulkeley et al., 2012; Dzebo and Stripple, 2015; Kahler, 2017).

Collaborative mechanisms involving subnational entities within one country (e.g., the Council of Governors (COG) and regional economic blocs in Kenya) or from different countries (e.g., the Local Governments for Sustainability (ICLEI), C40, European Commission’s Covenant of Mayors for Climate & Energy, and United Cities and Local Governments of Africa) can also foster TCARG under the Paris Agreement. States would still be critical in facilitating the functioning of operations in such cases, especially where a devolved/subnational unit engages with an entity from another country.

The above broad modes/mechanisms of transboundary climate and adaptation governance can be complemented by or entail specific adaptation strategies or approaches such as ecosystem-based adaptation (EbA), community-based adaptation (CBA) and/or human rights-based adaptation (resulting in hybrid mechanisms). The Agreement’s explicit

articulation of the need to consider vulnerable ecosystems, communities and groups, and human rights when undertaking climate response actions constitutes evidence for the potential of these approaches. Place-based transboundary climate action especially within ecologically defined regions (e.g., river or lake basins) holds potential as there may be better awareness of climate change challenges that are often common even when such places traverse legal-political boundaries. The focus and action at a scale smaller than the 'global', and relatively easier mobilisation of motivated key stakeholders might further support such approaches to TCARG (Baird et al., 2015; Balsiger and VanDeveer, 2012, 2010; Bastakoti et al., 2014). Many organisations are interested in such approaches, including the Friends of EbA (FEBA) — an informal network of organisations interested in promoting collaboration and knowledge sharing on EbA. Some of these mechanisms may not necessarily fall neatly within the influence of the Agreement but are supported by its framing (see Article 8.5). However, the involvement of such entities under 'transboundary' cooperative mechanisms would be 'transboundary governance' and not necessarily the governance of TCARs. For TCARG to happen, TCARs must be deliberately considered.

## 2.4 CONCLUSION

In this chapter, I set out to examine how TCARs feature in the articulation of the Paris Agreement and the potential for their governance in its implementation towards the GGA. I have analysed how it frames climate risks, adaptation and their governance, and considered the extent to which their transboundary dimensions are articulated. I have also explored how TCARG might be advanced in the implementation of the Paris Agreement, within and without the UNFCCC framework. I find that the Agreement devotes a sizeable portion of its text to adaptation, but it lacks specificity about the nature of climate risks to be adapted to. Adaptation and climate risk are framed in the context of sustainable development, poverty reduction, and mitigation (including the temperature goal), following country differentiations according to the CBDR+RC principle. Furthermore, its only reference to the impacts of response measures is in the context of mitigation, which leads to the inference that there is no deliberate intent to avoid and/or manage TARs under the Agreement. Moreover, there is evidence of the four boundary dimensions in its articulation, namely, legal-political (which is the most dominant), functional/sectoral, ecological/ecosystem, and temporal. However, governance across these and among these boundaries is found to be

ambiguously defined, except for the temporal dimension. Furthermore, while there are implicit and explicit elements of polycentric and multi-level adaptation governance, the Agreement is predominantly State-centric.

I conclude further that although the Agreement does not signal a strong commitment to TCARG, contextualised TCARG is possible as it avoids being prescriptive. The Agreement has within its design potential boundary-spanning elements, avenues and structures that can be exploited to advance TCARG. There is potential to promote and implement TCARG through international cooperation across legal-political boundaries, but its operation is advised on shallow rather than deep cooperation/collaboration requirements between and among countries. In the spirit of what the Agreement calls “effective and progressive response”, there is a need to explore other innovative governance options to manage the transboundary dimensions of climate risk and response measures beyond and within the borders of the nation-states into other domains, including subnational authorities and non-State stakeholders not traditionally parties to such multilateral conventions.

While the level of interest is high and there is growing evidence of the importance of TCARs, their nature, evolution, and significance is a priority area for further investigation, to establish the case for promoting and designing innovative TCARG through both the Paris Agreement and complementary/subsidiary mechanisms. This should account for how challenges for TCARG are and/or could be in future, how they manifest and are resolved in practice across the full spectrum of transboundary situations, including those arising from adaptation actions in their own right. Because climate risks are also considered in other mechanisms besides the Paris Agreement and the UNFCCC, there is scope for exploring how they frame climate risks and adaptation, how they govern climate risks and adaptation and the extent to which their transboundariness is considered.

### 3 CHAPTER 3

## 3.0 TRANSBOUNDARY CLIMATE AND ADAPTATION RISKS IN KENYA

### Abstract

*Growing concern about transboundary impacts of climate risks and response measures is promoting questions on their nature, governance options and implications. Analyses of transboundary climate change and adaptation risk (TCAR) have hitherto primarily focused on the international level with limited focus on the subnational scale despite most climate interventions being intranational. Additionally, transboundary climate risks (TCRs) and transboundary adaptation risks (TARs) are often lumped together without clarity on their differentiated dynamics. This Chapter addresses these gaps by characterising the TCAR challenge in/for Kenya, paying attention to both TCRs and TARs and exploring their key contextual predisposing factors. It draws from academic literature; 130 official documents; socioeconomic data; mapwork, direct observation, 77 key informant interviews, and statements from stakeholders active in the CARG spaces in Kenya.*

*We find that Kenya faces a significant multifactorial TCAR challenge comprised of (bio)physical, economic, (geo)political, social, psychological, and temporal TCARs manifested at both the national and subnational levels and across domestic and international boundaries. This challenge is influenced by factors like Kenya's particular location, climatic diversity, social differentiation, governance and planning systems, inadequate safeguarding against TCARs, neighbourhood (spatial contextual) effects, and socioeconomic dependence on climate-sensitive sectors and systems. The significance of TCARs in the country is complex, and their propagation is often nonlinear and complicated by intranational and international (in)actions within the impact transmission system. Evidently, with or without globalisation, many TCARs remain relevant, and their governance is necessary for Kenya. The Chapter demonstrates the cogency of the national and subnational scales in the context of TCARs and recommends the utilisation of robust and inclusive approaches in assessing not only climate change risks and impacts but also the risks and impacts of adaptation and mitigation measures.*

**Keywords:** transboundary climate risk; adaptation; devolution; development; adaptive governance; political economy; mainstreaming; globalisation; subnational governance; climate isolationism; climate justice; decision space; vulnerability.

## 3.1 INTRODUCTION

### 3.1.1 Background and Context

Transboundary climate change and adaptation risks (TCARs) have become a subject of concern for scholars, policymakers and practitioners (e.g., Bednar-Friedl et al., 2022; Benzie et al., 2019; Benzie and Persson, 2019; Challinor et al., 2017; Opitz-Stapleton et al., 2021). They have been defined by some as the “potential consequences or outcomes that could occur as the result of transboundary climate change impacts, the transboundary effects of adaptation decisions made by one or more countries or the transboundary effects of mitigation actions on countries’ adaptation options” (Opitz-Stapleton et al., 2021, p. 10). This definition captures both the impacts and risks from *climate change* and from *climate response measures*. Correspondingly, the COVID-19 pandemic and the war in Ukraine have further demonstrated the seriousness of transboundary risks and the impact of responses, particularly the adverse effects witnessed in the aftermath of responses like travel bans and restrictions, lockdowns, and bans or restrictions on public gatherings globally (see, e.g., Gössling et al., 2021; Ringsmuth et al., 2022).

The burgeoning literature on TCARs has hitherto primarily focused on raising their awareness of them (e.g., Benzie, 2014; Benzie et al., 2018; Nadin and Roberts, 2018), their characterisation and quantification (e.g., Benzie et al., 2016; Carter et al., 2021; Hedlund et al., 2018), their transmission, and vulnerability to them (Bednar-Friedl et al., 2022; Challinor et al., 2007, 2017; Constant and Davin, 2019). Two key gaps are apparent from this literature. Firstly, such studies are largely situated at the international level (i.e., across national boundaries) where countries are the principal units of analysis. They pay limited attention to the subnational scale despite most climate interventions being intranational. Consequently, multilateral mechanisms fostering ‘international cooperation’ have inevitably been proposed for transboundary climate and adaptation risk governance (TCARG). Additionally, globalisation is often predictably advanced as the central justification for such cooperation and concern about TCARs. Secondly, TCAR studies broadly lump together

transboundary climate risks (TCRs) and transboundary adaptation risks (TARs) despite the clear distinction between impacts and risks *from climate change and from climate response measures*. As a result of these two gaps, questions remain regarding the relevance of TCARs for/at the national and subnational levels and in scales or instances where globalisation and/or its effects are weak or absent. Furthermore, exploration and clarification of the nature and the differentiated dynamics of TCRs and TARs have been overlooked. Additionally, while the consequences of the implementation of climate response measures is an established agenda item in climate negotiations (see especially the preamble and Article 4.15 UNFCCC, 2015a, see Article 4.8 of 1992 for example) and studies have been undertaken on these ‘new impacts’, the focus has mainly been on mitigation (e.g., Barnett and Dessai, 2002; Chan, 2016; Jooste et al., 2009; Khor et al., 2017) except for a few (e.g., Loiseleur et al., 2021). This Chapter addresses these gaps and considerations in the case of Kenya.

The study is crucial given the increasing global attention and support for adaptation as the implementation of the Paris Agreement and other climate-relevant post-2015 global agenda gains momentum (Berrang-Ford et al., 2015; Lesnikowski et al., 2017). Climate action is also set to accelerate in this United Nations “*Decade of Action*” and “*Decade of Ecosystem Restoration*” towards 2030. Moreover, the increasing visibility of climate-induced hazards and their impacts such as the floods in Pakistan (OCHA, 2022; WFP, 2022), or the Greater Horn of Africa’s drought now in its fifth consecutive year and worsening food security for over 50 million people (Gebeyehu, 2022), will sustain the debate and momentum for climate action. Attention to TCARs is also increasing as they become more apparent (Benzie et al., 2018; Cooley and Gleick, 2011; Hedlund et al., 2018; Nadin and Roberts, 2018). For instance, the IPCC’s (latest) Sixth Assessment Report concludes that “Compound, cascading risks and transboundary risks give rise to new and unexpected types of risks [...] exacerbate existing stressors and constrain adaptation options [...] and are projected to become major threats for many areas, such as coastal cities” (IPCC, 2022, p. 67). Admittedly, addressing them will require improved multilevel and interlevel action across various borders. The point of departure for this study is that there is a wide range of borders and divides that are relevant – not just State borders – and which should be regarded, lest it would be “very unlikely” to address climate change (Karl, 2003, p. 1722). Therefore, understanding TCARs and their regional and subnational dynamics is critical for

the theory and practice of climate change response (Bastakoti et al., 2014; Bauer and Steurer, 2014b; Betsill, 2007; Heikkila et al., 2013).

This study, therefore, seeks to characterise the TCAR challenge in/for Kenya by first describing germane TCRs and TARs and then examining their key predisposing factors pertinent to the country. The following key research questions are therefore explored:

RQ3.1 What are Kenya's key transboundary climate and adaptation risks (TCARs)?

RQ3.2 What are the key factors that influence Kenya's TCARs?

This Chapter addresses empirical and analytical gaps vis-à-vis TCARs at the national and subnational levels. It contributes to the existing literature on TCARs, particularly in the context of low- and middle-income countries (LMICs). The Chapter reinterprets, builds on and applies Carter et al.'s (2021) "conceptual framework for cross-border impacts of climate change", thus advancing the theory on TCARG as proposed by them and others (e.g., Ansell et al., 2010; Benzie et al., 2019; Benzie and Persson, 2019; Cao and Ward, 2017a; Challinor et al., 2017; Conway and Schipper, 2011; Hedlund et al., 2018; Hildén et al., 2016; Lidskog et al., 2010). It contributes to the understanding of the nature of the TCAR challenge at national and subnational levels in a highly vulnerable developing country context.

Henceforward, Section 3.2 provides an overview of the theory and concepts underpinning this Chapter while Section 3.3 discusses the materials, methodology and methods employed. Section 3.4 presents and discusses the results and, finally, Section 3.5 contains conclusions and recommendations for future work.

## **3.2 THEORY AND CONCEPTS**

### **3.2.1 Theoretical Foundations**

Climate and disaster risk governance studies are multidisciplinary, cutting across the social and natural sciences, the formal (e.g., computer and systems sciences) and applied sciences, and now increasingly in the humanities and the arts. Correspondingly, this study draws from concepts and ideas from different strands of literature on the nature and propagation of climate and adaptation risks. This includes climate risk assessment, disaster and vulnerability, environmental science, and development studies. Several related studies in this area have emerged in the past decade (e.g., Bednar-Friedl et al., 2022; Benzie and

Persson, 2019; Carter et al., 2021; Challinor et al., 2017; Opitz-Stapleton et al., 2021). But this study particularly builds on Carter et al.'s (2021) work, especially on the categorisation of cross-border impacts. Their work draws from and builds on especially the transboundary climate risk 'pathways' proposed by several others earlier (Benzie et al., 2019, 2016; Hedlund et al., 2018; Hildén et al., 2016).

### 3.2.2 Conceptual Framework

The conceptual framework for this study is founded on the above theories but also draws from the wider risk governance literature. We adopt a common conceptualisation of 'risk' in climate and disaster risk studies where climate risk is considered as a factor of the interactions of and between hazards, vulnerability, exposure and sensitivity, and inversely proportional to adaptive or coping capacities (IPCC, 2022; Wisner et al., 2004). These dimensions of risk are influenced by *predisposing factors* that are specific to people, places, and systems, and can change over time to influence the overall risk and impacts (IPCC, 2022). Finally, the risk can be material within and/or outside these elements and the impacts can be transmitted through various *impact pathways*. We clarify and differentiate between climate risks (CRs) and adaptation risks (ARs), which respectively become TCRs and TARs when considered from a transboundary perspective (see Figure 4).

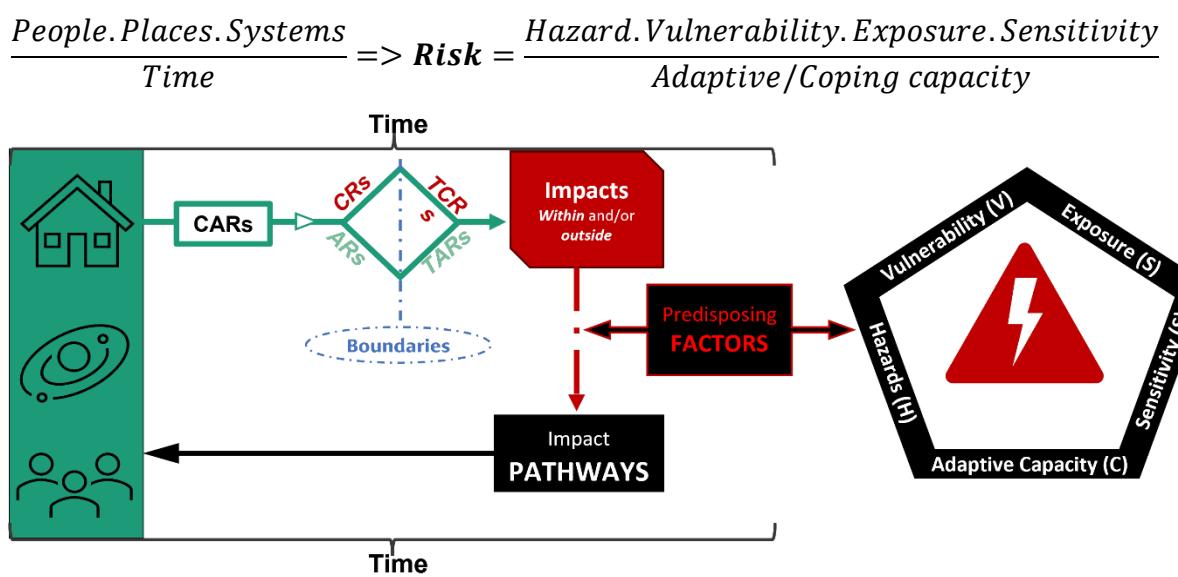


Figure 4. Conceptual framework for Chapter 3.

Climate and adaptation risk/impact (CARs) as a factor of the interactions of and between people, places, and systems over time. CARs flow through discernible risk and impact pathways and are mediated by predisposing factors that influence their various dimensions. These factors (and risk dimensions) are also subject to change over time.

*People* are a critical independent variable as they are perhaps the only ones capable of assessing risks and impacts consciously. This variable helps to explore the ‘who’ questions (e.g., Who is exposed to the risk/impact? Who is vulnerable? etc.). *Places* are an important variable as they are geographical sites of (the manifestation, contestation, construction, and resolution of) disaster and climate risks and impacts. They also influence vulnerability, exposure, and sensitivity to climate-related hazards, prioritised risks, and the extent of coping capacities available and/or deployed and how they may be utilised. Places enable the study of the ‘where’ questions (e.g., Where are people, property, and other elements at risk?). The *nature* of places is thus material to the nature and extent of TCARs as some places may pose or be more exposed to risks/impacts than others. *Systems*, the third variable, are considered in the widest sense possible. Four categories of systems are important for this study: *environmental and climatic systems; economic systems; social systems; and political systems*. Environmental and climatic systems can exist without people while the rest are results of the interactions between people over time and space (thus, place). People can influence places and systems through their activities, including CARG activities. These systems then help to appreciate the extent and direction of flow—i.e., “transmission” or “propagation” according to (Carter et al., 2021) - of climate and disaster risks, vulnerabilities, and coping capacities. These four variables—people, places, systems and time—are recurrent throughout and underlie all the Chapters of this thesis. This framework facilitates a better understanding and explanation of TCARs and the factors that affect them.

### **3.3 MATERIALS, METHODOLOGY AND METHODS**

#### **3.3.1 Context and Setting of the Study.**

The study situates TCARs within Kenya’s socio-political and sustainable development contexts. Kenya is an LMIC that is highly vulnerable to climate-related risks and disasters, yet committed to many climate-relevant regional and international frameworks and agendas including the UNFCCC and its agreements. Kenya is often regarded as a trailblazer in climate policymaking in Africa (Rioux, 2019). The country is also implementing ambitious governance and public sector reforms we believe are relevant to the governance of TCARs, which provides interesting implications for this research. In 2010, the country promulgated

a new constitution, which ushered in a two-tier devolved governance system comprising a national government and county governments (Republic of Kenya, 2010).

### 3.3.2 Study Design, Data Sources and Sampling Strategy

This study employed a mixed method, case study research design. Data were collected through literature review and analysis of relevant official planning, policy, and legislative documents and 77 key informant interviews (KIs) with 72 purposively selected respondents representing at least 60 institutions in the Kenyan climate governance landscape including government officials, adaptation project implementers and funders, researchers and consultants and CSO/NGO/private sector representatives (*see Appendix 3*). Each in-depth interview was roughly 90 minutes. Statements/speeches by 20 officials/speakers not interviewed as key informants (KIs) were also incorporated into the corpus for this study. Three high-level statements made by Kenya at the UNFCCC COPs also inform this study alongside 130 purposively selected policy and legislative documents (*see Table 3 for their categories and Appendix 4 for the entire list of these documents*).

Table 3. Key climate-relevant documents analysed for Chapter 3.

Document	Quantity	Comment (where applicable)
<b>County Integrated Development Plans (CIDPs) 2018-2022</b>	47	All 47 counties have CIDPs
<b>County Climate Risk Profiles</b>	45	Nairobi and Mombasa have no CRP as they were excluded from the agro-focused project that developed the profiles
<b>Guidelines and tools</b>	13	
<b>National level documents</b>	25	
<b>Total</b>	130	

Purposive and snowballing techniques were used to find the documents and to recruit the KIs. Some KIs were identified through LinkedIn search where individuals whose profiles suggested they held climate change docket were approached for interviews. Others were identified from events attended. Collection of policy documents was mainly through official websites (including referral to given documents by interviewees) and some were shared through personal communication as part of the information/data shared in the interview process.

Fieldwork and site visits were done from October 2019 to January 2020, November 2021 to January 2022, and November 2022 to January 2023. However, some interviews were conducted remotely outside of the fieldwork visits. Observation (as a participant in select events and site visits) was also employed as data collection in the form of speeches and statements by officials not formally interviewed at the *Kenya 7<sup>th</sup> Annual Devolution Conference* (23<sup>rd</sup> and 26<sup>th</sup> November 2021). This conference was particularly relevant to this study as its theme was "*Multi-level governance for climate action*" and the sub-theme was "*Sub-National mobilization in unlocking the full potential of climate action during and after pandemics*".

Other sources of secondary data, including the 2019 census, grey literature (governmental and non-governmental reports), and EM DAT (the International Disasters Database), consulted in this study are cited.

### **3.3.3 Analysis**

Data were analysed qualitatively and quantitatively. Audio and audio-visual data were transcribed and, together with the rest of the text data, coded first following a coding framework that was developed based on the literature and research questions (Appendix 5 for the coding framework). We first coded for CRs, ARs and predisposing factors. Then, we reviewed them to categorise them either as transboundary or not based on i) whether they are explicitly framed in the data as transboundary, and ii) whether they are/can be classified as transboundary based on our interpretation and literature. Subsequently, the TCARs were tagged into the categories/impact pathways. The predisposing factors were also tagged into the elements in the risk equations. We make a distinction between the constituent elements of TCARs. TCRs are directly linked to transboundary climate-related events and hazards, including their first-order impacts. Similarly, we consider TARs as they have been theorised as linked to the "transboundary effects of adaptation decisions". Based on the evidence from the data, we review this definition to also include adaptation non-decisions, that is, the failure to make adaptation decisions. Thus, we consider the effects/risks *from/of* and *to* adaptation decisions and interventions. Emerging themes were included inductively in subsequent iterations of coding using NVIVO. Content analysis (Drisko, 2016; Elo and Kyngäs, 2008; Hsieh and Shannon, 2005; Neuendorf, 2017) and thematic analysis (Braun et al., 2019; Braun and Clarke, 2006; Nowell et al., 2017; Terry et al., 2017) were

simultaneously employed to analyse the data following a combination of both deductive and inductive approaches for a more complete understanding of the subject (Neuendorf, 2018). Keyword searches were performed on the policy documents to ascertain the prevalence of certain elements relevant to the study (e.g., risks, impacts, actors, etc.). We also incorporated map development in the process and made interpretations of pre-existing maps.

To characterise TCARs in Kenya, we (re)interpreted Carter et al.'s (2021) seven classifications of cross-border impact categories into six pathways which we consider in detail based on the data collected on Kenya. We merge the '*biophysical*' and '*infrastructure*' categories into the **(bio)physical** category, still signalling the inherent differences between the biological and physical risks/impacts. The **economic** category merges the '*finance*' and '*trade*' categories. The **(geo)political** category captures the international '*geopolitical*' relational dimensions and the domestic '*political*' and intergovernmental relations between/among county governments and between county and national governments. The **social** category incorporates the '*people*' category. We retain the **psychological** and add the **temporal** pathway which we find relevant in the characterisation (and governance) of TCARs and corresponds to the dimension of time in our conceptual framework. We show how these categories or pathways correspond to the various elements of the conceptual framework. We also identify and consider examples of TCRs and TARs under each pathway. Although not exhaustive as the literature and number of examples given by informants are extensive, the examples serve to highlight the nature of the impact pathways for Kenya.

## 3.4 RESULTS AND DISCUSSION

The overall aim of this chapter was to investigate TCARs in the context of Kenya. It set out to do this by first describing and analysing relevant TCRs and TARs (responding to RQ3.1) and then examining the key factors that predispose the country to these risks (in response to RQ3.2). From the data analysis described in Section 3.3.3 above, we find that all the pathways of TCARs are evident in Kenya, are interlinked and often overlap (see Figure 5 and Table 4). Most of these pathways correspond to the environmental and climatic, economic, political, and social systems. The (bio)physical pathway is also linked to places, and the psychological and social pathways are linked to the people variable. People and places are

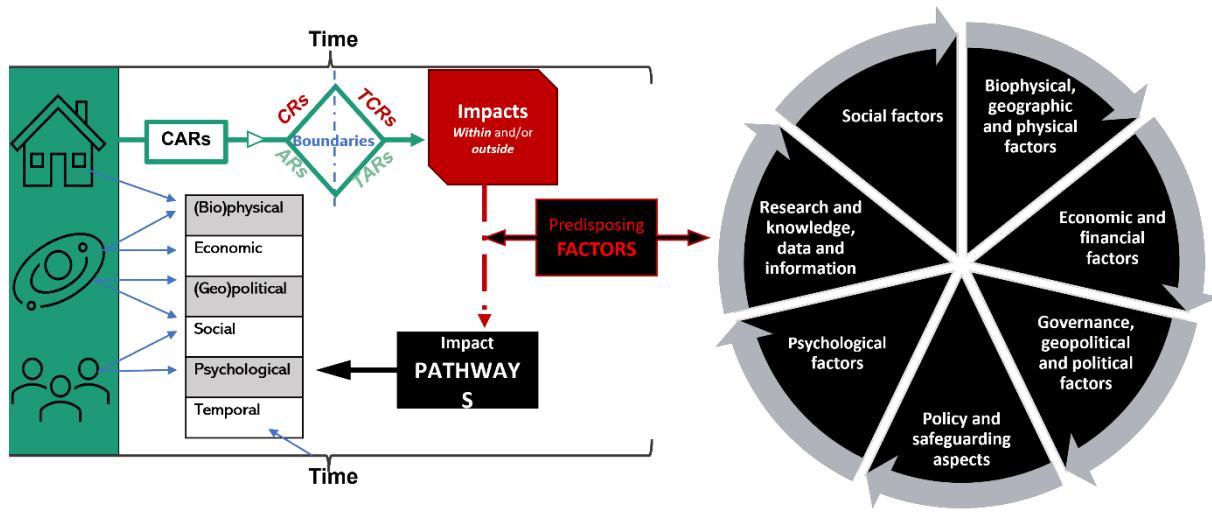


Figure 5. Overall results framework.

the key interacting components of the aforementioned systems. The predisposing factors are also linked to these variables and evolve with *time*. Time is only linked to the temporal pathway but is relevant across the other variables.

### 3.4.1 The Transboundary Climate and Adaptation Risk Challenge for Kenya

Examples of TCRs in Kenya were found in only three TCAR impact pathways while examples of TARs were evident in all the pathways (*as illustrated in Table 4*). This points to the importance of adaptation (in)actions in the analysis and governance of TCARs. We discuss each of these pathways and relevant risks.

Table 4. Summary of TCAR pathways, their linkage to the conceptual elements, and differentiations as TCRs or TARs.

TCAR Impact Pathway	Conceptual Variables					TCARs	
	Systems (specific element)	People	Places	Time	TCR	TAR	
(Bio)physical	✓ (Environmental & climatic)		✓		✓	✓	
Economic	✓ (Economic)					✓	
(Geo)political	✓ (Political)					✓	
Psychological		✓				✓	
Social	✓ (Social)	✓			✓	✓	
Temporal				✓	✓	✓	

#### 3.4.1.1 (Bio)Physical TCARs

(Bio)Physical TCARs emanate from the potential changes in the flow of biological organisms (e.g., plant and animal species, pests, disease vectors, pathogens, etc.), physical non-biological matter (e.g., water, soil, dust, etc.), or hazards (like heat, storms etc) across boundaries due to climate-related stimuli or climate response measures in either the source

or recipient domains, or both. Weather-related climate risks are inherently transboundary, especially considering the well-known teleconnections of weather – i.e., that “weather at a given place is not an isolated phenomenon” (Ångström, 1935, p. 242).

The KIs held broad views of “transboundary climate risks” which included governance and management of the risks as shown by the following interview excerpts. These are some of the responses respondents when asked, “What comes to your mind when you hear of transboundary climate risks?”:

*“Okay, basically what comes to mind when you talk about transboundary climate risks are many things to be precise. I think of shared ecosystems or natural resources, which of course, by their very nature are vulnerable to climate change impacts... Then ... basically thinking how these shared natural resources spread across administrative boundaries in Kenya in the context of devolution. So, talking of county to another county, to maybe even from the county to subcounty or to lower units like wards and even villages... Then.. basically the institutions which are given the responsibilities, or who have got mandate in the management of these shared resources. And where do they draw their mandate from? And what are their responsibilities? And are they answerable to the county government or the national government? Then I also think of the potential conflict in terms of their mandates. So, conflicting mandates comes to my mind, because I'm a person who is in the field [...] I think, basically, the top risks when it comes to climate change is food insecurity— food and nutrition. That is that's a top risk. Then I think a risk which is cross-cutting is water. That's another big issue...water scarcity will be a big issue. And of course, because of the extreme weather events, in terms of where we have like storms, flooding will continue being a problem, I will say that those are the like, top top issues. And for sure, they are here with us...” (KII19-2).*

*“Good, I think, I think in my opinion, I would say what comes to mind when we're talking about climate risks, or transboundary, climate risks, I would summarize it in three or four points. One, livelihoods. Two is, uh, okay, livelihoods, in summary, but I look at so many other issues that are supporting livelihoods. I look at also value chains in terms of, uh, it could be, you know, how climate is affecting value chains. I look at ecosystems that support, uh, that supports a variety of you know, livelihoods or ecosystem services that are affected, and I look at the issue of economical pathways. Then I can look at issues of, uh, that is the third one, eh?... Finally, governance. And when I talk of governance, it could be national and subnational, or let's start at regional, then national or subnational when it comes to issues of risk, especially managing risks...” (KII19-1).*

*“Some of the risks that people see, I think the extreme weather, environmental events. I think in Kenya when you talk about climate change that's one of the things that*

*comes out. So just thinking about you see things like floods now. You see a lot of droughts. So the extreme weather events that are both catastrophic: when floods come they kill people, the dry season comes it kills people. There is no longer a balance. That's one of the risks we see that I think everyone's concerned about. Of course, as a result of that, then you talk about now the secondary risks. So it'd be things like food insecurity, things like diseases, emerging diseases, population displacement, undermining of community's resilience. So communities have evolved for a long time. You know they used to have cattle, for millennia people have always had cattle, they've always been pastoralists, they've moved with their cattle. But now with the floods of the dry seasons, the ground cover is no longer there. And now that undermines their resilience in terms of, uh, droughts come, they kill the cattle, the rains start training, they think, "Oh, a relief", then floods! So I think for me in terms of just, um, it's economic. When we talk about the consequences of now those risks like the extreme weather events, you can talk about it forever. We just need to stop there. Yeah, it's health, it's environmental, it's economic. It's security, you see conflicts, you see political turmoil, you know, it's gender inequality, you know, violence among households, you know increasing violence, you can attribute all that to climate change..." (KII19-5).*

Generally, climate change in Kenya is framed as an external 'problem' that Kenya has not caused. Policy documents and KIs cite Kenya's (and Africa's) negligible historical emissions underpinning the current climatic changes to support the view. For example, Kenya's Statement at the Opening Plenary of COP26 and its updated NDC state:

*"Kenya notes that despite the fact that the African continent has very low historical and current emissions (accounting for about 4% of global emissions), IPCC reports demonstrate that Africa is highly vulnerable and impacted by Climate Change. These have led to increased water stress, cyclic floods and droughts, food insecurity, population displacements, resource-based conflicts among others. Africa has resource and technical constraints in addressing these vulnerabilities" (S21-2).*

*"Despite the country's negligible contribution to global greenhouse gas (GHG) emissions (less than 0.1% in 2018), Kenya has put up ambitious policies and measures to pursue her low carbon climate resilient development pathway to realise Vision 2030" (Republic of Kenya, 2020a, p. 1)*

From this perspective, climate change and its related impacts and risks, including water insecurity, food insecurity, energy insecurity, and physical insecurity and safety, are transboundary. The key climate change impacts in Kenya are water-related, including droughts, floods, sea level rises, storms, and rainfall variability. Desertification; heatwaves; soil erosion; sedimentation of rivers, lakes, and dams; depletion of glaciers on Mt. Kenya

(which is an important water tower); biodiversity and habitat losses; and ocean acidification are examples of other important biophysical TCRs of concern for Kenya.

Notable biophysical TARs include deforestation; excessive and illegal water abstraction from rivers and other reservoirs; encroachment of water towers, forests, and other protected areas; changing migratory patterns of wildlife which increase human-wildlife interactions and conflicts, inappropriate tree-planting (planting eucalyptus in water catchments), and inadequate adaptation actions and safeguards. Furthermore, cited as important biophysical TARs are the (in)actions of especially domestic and foreign neighbours that limit the inflow of essential goods and services, or that do not address risks adequately so that they flow to Kenya or within Kenya. Cited examples of these include dam constructions in transboundary rivers shared with neighbouring countries (e.g., the Gibe cascade dams on Omo River) and counties and uncoordinated activities in transboundary ecosystems such as the Lake Victoria Basin, the Lake Turkana Basin, and the Mara River Basin. This is part of what the Third Medium Term Plan (2018-2022) recognises as the transboundary challenge of “*cross-border adaptation initiatives*” as one of the “challenges” under the climate change sector (Republic of Kenya, 2018, p. 110).

Kenya experiences hazards associated with major transboundary oceanic-atmospheric events like the Indian Ocean Dipole (IOD) and the El Niño-Southern Oscillation (ENSO, El Niño and La Niña) which generate intense and geographically extensive environmental and socio-economic impacts. Documentary and interview data agree on the key physical climate risks and hazards in Kenya as cyclical droughts and floods. Drought is mentioned as an issue in all but two CIDPs and all 45 CRPs (Table 5). However, the CRPs of the two counties not

Table 5. Presence of drought and flood in Kenyan counties' CIDPs and CRPs.

Keyword (CR/AR)	CIDPs (out of 47)	CRPs (out of 45)
<b>Drought</b>	45	45
<b>Flood</b>	42	35

mentioning drought in their CIDPs (Kisii and Kisumu) mention drought as an issue of concern, suggesting that it is not only a concern for the ASALs. The data also ascertain that although their resultant effects (e.g., landslides, loss of lives and livelihoods, infrastructural damages, etc.) may be localised, their consequences can be, and are often, experienced beyond where they occur, including in linked ecosystems, communities, counties, and

countries. Unlike the documents, the interviewees explicitly acknowledge that these hazards are transboundary as they move across national and subnational borders, ecosystem and sectoral boundaries, and generations. Both KIs and the documents reviewed note that these TCRs have increased in their occurrence and intensity, in close succession before full recovery from the preceding event, thus undermining the adaptive capacities of the affected. For instance, the 2019 positive phase of the IOD (aka the Indian Niño)—when it is warmer than normal, with increased convection and thus more rainfall in the Eastern and Horn of Africa (the negative phase leads to cooler than normal, drier conditions in the region—led to up to 300% above average leading to floods and landslides that affected over 100,000 people, displaced thousands, claimed dozens of lives, caused immense infrastructural damage (especially bridges, roads and boreholes), and hampered education and healthcare in many places across the country. This positive IOD was characterised as unusually strong. It peaked in October during the OND rainy season, and was barely three years since the 2016 “strongest negative IOD in the period since 1980” (Lu et al., 2018, p. 90) (Cai et al., 2014; Nakamura et al., 2009). Moreover, floods in 2018 resulted in numerous deaths of people and displaced over 230,000 others - of whom about two-thirds (~65%) were children – among other adverse consequences (Republic of Kenya, 2020a). Also, the 1997/1998 El Niño floods are estimated to have affected about a million people and economically cost Kenya up to US\$1.2 billion while the drought immediately afterwards in 1998-2000 resulted in losses of almost US\$3 billion in Kenya (Downing et al., 2009).

Frequent riverine and flash floods impact borderlands and shared ecosystems. In 2020, swelling lakes in the Kenyan Rift Valley, linked to climate-related factors, displaced 76,000 households and affected about 380,000 people in multiple counties. The President of Kenya narrated:

*“Approximately 75,987 households were displaced in thirteen counties with a total population of 379,935 requiring urgent humanitarian assistance. The affected communities endured disruptions to their livelihoods; losing homes, grazing lands and farming fields while social amenities like schools, health facilities, markets, fish landing and processing facilities, once-thriving hotels, curio shops, resorts and lodges, electricity lines, and water supply and sanitation units, were swallowed by water bodies” (S22-1).*

Risks to and from critical infrastructure (e.g., bridges, railway, dams, electricity lines, phone communication, water supply systems, etc.) niche and range shifts (e.g., deforestation, desertification etc.) were noted as (bio)physical TCARs of concern for Kenya as a country and for individual counties to different extents. Six counties along Kenya's 536-km-long coastline are also prone to sea-level rise and coastal inundation which pose a real threat to the hospitality and tourism industry. Some KIs recalled that some hotels had been closed as a result.

Key biological risks in Kenya include the spatial-temporal spread of pests and diseases affecting humans, crops, and livestock such as the invasive fall armyworm (*Spodoptera frugiperda*) (De Groote et al., 2020), the tomato leafminer (*Tuta absoluta*) (Santana et al., 2019), and the desert locusts (*Schistocerca gregaria*) (Lawson, 2023; Salih et al., 2020). This is especially more of a concern in the maize-producing areas given the importance of the crop to livelihoods and food security in Kenya. The desert locust outbreak from late 2019 and early 2020 was the worst in over 70 years (Kimathi et al., 2020) and posed challenges to food security for both humans and livestock. Diseases like malaria (Githeko et al., 2012; Kipruto et al., 2017; Minakawa et al., 2002; Tonnang et al., 2010) and the Rift Valley fever, dengue fever and other arboviruses (Gaythorpe et al., 2020; Lutomiah et al., 2016; Mordecai et al., 2020; Redding et al., 2017) are also of increasing concern for the country under climate change.

### **3.4.1.2 Economic TCARs**

These are linked to the production, distribution, and/or consumption of goods and services—i.e., trade, industry, and/or money – between two places. Opitz-Stapleton et al. define relevant 'trade' in terms of the "*import and export of climate-sensitive goods*" (2021, p. 5). But we consider trade in non-climate sensitive goods and services as well because they are, or can be, indirectly affected by climate impacts and risks (as demonstrated in Carter et al., 2021; and Haraguchi and Lall, 2015 for example). Climate-related impacts have been linked to supply chain disruptions for climate-sensitive and non-climate-sensitive products and services around the world (see for example Bednar-Friedl et al., 2022; Feng and Li, 2021; Haraguchi and Lall, 2015) and the data we reviewed illustrate similar disruptions internally within Kenya. Examples of this include disruptions in inter-county trade and food distribution especially of food between 'food basket' zones and the rest of the country where

it is needed. Trade is particularly an important economic TCAR pathway for Kenya, a country that imports most of its products, including food mainly in times of drought. Also, we expand Carter et al.'s definition of relevant trade as "flows of commodities on international markets" (2021, p. 4) to include those in the local markets as it emerged from the data owing to our interest in the subnational scale as well.

The Kenyan government estimates that two key TCRs (droughts and floods) cause annual socio-economic losses estimated at 2-3% of GDP, with floods estimated to cost about 5.5% of GDP every seven years and droughts 8% every five years (Government of Kenya, 2018a). Droughts often force pastoralists to sell their at-risk livestock at reduced prices, sometimes dropping by nearly 90% (Ngotho, 2022). Indeed, the prices of commodities such as meat in areas like Nairobi are affected in times of drought, especially in the livestock-keeping areas. This is due to reduced supply and reduced body mass of the livestock. The livestock deaths can lead to high beef prices months after the drought crises due to a shortage of supplies as livestock keepers restock/rebuild their herds. Animal offtake plans by agencies such as the Kenya Meat Commission (KMC) can be helpful, but they are costly (Andae, 2021). For instance, in the drought between 2016 and 2017, 5.3% more cattle were slaughtered as an adaptation measure (Government of Kenya, 2018b). Furthermore, disruptions in critical infrastructure such as roads and electricity lines affect trade across the country and beyond (Maende and Alwanga, 2020). Floods in Kenya have been noted to cause economically significant infrastructural and livelihood destruction. For instance, in 2018 floods "*wip[ed] out billions of shillings worth of roads and infrastructure, 8,500 hectares of crop and drowning over 20,000 head of livestock*" (Republic of Kenya, 2020a, p. 3).

In addition, Kenya often imports food and food products duty-free to address food shortages influenced by climate stimuli. This poses a risk of trade wars with other countries especially in the regional economic community as this is often done without full compliance with the established procedures (Kisero, 2023).

As Kenya's county governments look to raise revenue for development and resilience-building interventions, they are establishing regulatory instruments and protocols that have caused intercounty trade problems. For instance, multiple produce cess fees and/or trade license fees imposed by each county have especially been noted to affect the distribution

of agricultural produce and food products from county to county, therefore increasing the food prices or curtailing distribution from areas of surplus to the areas in need, even in times of drought. Often, the government intervenes to avoid the taxes as it distributes food as relief food as traders find it not cost-effective due to the excessive taxation.

Charcoal smuggling/trade has also been mentioned as an adaptation risk, especially in ASAL areas and along the Kenyan border with Tanzania, Uganda Somalia.

*"In terms of transboundary, I'm seeing a lot of linkage especially when you look at issues of lack of food which is driving people to charcoal production, especially in Kwale, in areas bordering Tanzania, Mount Elgon areas up to Busia areas were charcoal production. If you look at Somalia border, this is a major trade." KII19-8*

Another economic dimension of TCARs involves remittances of not just finances but also food items between places. KIIs acknowledge that there are increases in financial remittances to counties affected by climate-related risks. This comes from family members who move to secure economic opportunities outside the affected areas — usually urban areas — to family members left behind. In addition, droughts and other climate-related disasters usually trigger financial remittances from both state and non-state actors in the form of cash transfer interventions of a humanitarian or social protection nature. Besides financial remittances, food remittances—involved the transfer of food products from place to place, usually from rural to urban areas—have been observed (Onyango et al., 2021). These food and financial remittances become affected during climate-related crises in source areas.

Finally, national and local economies are interdependent and shared resources in Kenya. The national economy is a shared resource for the 47 counties, and the county economies contribute to the shared national economy. Thus, counties contribute to the performance of the national economy in terms of its gross domestic product (GDP). Due to the importance of agriculture and tourism to the economy, agricultural and tourism industry counties contribute a significant amount of gross value added (GVA) to the country's GDP. Yet, these are highly exposed to both direct and indirect climate change impacts, including transboundary ones. The adaptive capacities of the country and its counties are intricately intertwined and particularly linked to those of their neighbours—Interviewees mention transboundary risk within the country and in any county with reference to neighbouring

countries and counties. ASAL counties are usually consumers of food produced from in counties and supply meat to the rest of the country.

### 3.4.1.3 (Geo)political TCARs

Carter *et al.* define this category as comprising “climate-related impacts on international relations, resource access and strategy” (2021, p. 4). This definition works well if applied to the international scale. We expanded it in our case to include intergovernmental relations within the country — that is, between national and county governments, among county governments, and between county governments and other foreign governments based on the data we analysed.

Several examples of this impact/risk in Kenya were highlighted by many KIIs where decisions or non-decisions by ‘external’ actors contributed significantly to the outcome. One of them is the case of a programme dubbed the “*Ndengu Revolution*” implemented from 2017 through a partnership between the Kenya Red Cross Society (KRCS) and the county governments of Kitui, Makueni, Machakos, Meru and Tharaka Nithi. The initiative aimed at fostering food security and ‘wealth creation’ in the ASALs by planting the drought-resistant green grams (or mung beans) — locally known as *ndengu* — and selling them at a good price to India, the world’s largest green gram consumer with more than 50% share of the global market (Credence Research, 2023). The programme relied on the promise by the Indian Prime Minister Narendra Modi that his country would buy all the produce from the farmers, a promise echoed by Kenyan national leaders. But in 2018, India banned the importation of pulses, including the green grams from Kenya, because its farmers had produced a lot of the commodity. This created a green gram glut in the local and national markets and left various stakeholders trying to “arrest the situation”. A total harvest of 110,000 tonnes was expected, yet when 92,500 tonnes had been harvested, it was declared that the storage capacity for the commodity was only 7,000 tonnes, leaving most of it in danger of being destroyed by weevils. Prices fell by half to retail at barely ₦40/kg and farmers stared at losses in disappointments (Business Daily, 2018).

An equivalent situation ensued when in November 2019, Pakistan also stopped the importation of green grams from Kenya under mysterious circumstances which the East African Grain Council (EAGC) found discriminatory:

*“...so, when we engaged them they told us that they had made some revisions on their rules and requirements for exporting green grams into their market... some of our members in Ethiopia have received export permits and also some members from Tanzania have received...And interestingly the conditions that have been attached to the import permits that they have been given from Pakistani are different from the ones that have been set for Kenya...We are very worried because that means that we will not have a market for our green grams, and the prices are going to crash”. (Executive Director, EAGC). (“Kenyan green gram farmers staring at loses due to lack of export market,” 2020)*

While the above examples involved countries distant from Kenya, there are many more that were highlighted by the KIIs, some of which have been covered in the media. This includes Tanzania’s 2017 auctioning of about 1300 cows from Kenyan pastoralists who had been found grazing across the border, and the then president was quoted as saying that Tanzania is not grazing grounds for cows from neighbouring countries. Earlier the same year, the Tanzanian police had confiscated and burnt 6,400-day-old chicks imported from Kenya (e.g., see Kajilwa, 2017; The East African, 2020; Vidija, 2021). The pastoral community in question is the Maasai community who live on either side of the border and move about depending on seasonality in search of pasture and water for their animal. Such decisions constrain the adaptive choices of such communities, making it hard for them to cope with the impacts of climate change and variability the way they have done for many years before. This affects many communities in the 16 counties that share an international border with the five countries neighbouring Kenya. Consequently, these borderlands have emerged as places of particularly high vulnerability especially due to limited statehood and weak governance institutions, migrations and, due to the porosity of the borders, increased fluidity of citizenship.

#### **3.4.1.4 Psychological TCARs**

These refer to the “impacts brought about by actions of different actors and particularly the media, based on their perceptions and communication of cross-border risks and opportunities” (Carter et al., 2021) – or “cognitive filter” according to Benzie et al., (2019, p. 768) after Hildén *et al.* (2016). This category includes the psychological, mental, and emotional impacts of TCARs. Examples of these that emerged from interviews include stress associated with just thinking about the challenge. Concerns included declining trust of governments (both domestic and foreign); fear of being in danger and without help if

external or international development partners were to pull out; and general 'mental exhaustion' especially among the young people for 'fighting' to be included in decision-making or to have their interests adequately considered by governments. Moreover, a sense of resignation and loss of self-efficacy were also apparent among some KIIs, with a few citing 'stress', 'trouble' or 'lack of care' from the relevant (especially governmental) agencies. These elements emerged more openly in questions regarding justice and decolonialisation, but also when thinking about the future (a temporal dimension fraught with uncertainty) and the sheer complexity of climate risks and adaptation, especially when transboundariness is concerned.

*"So, the moment when we shall have like, a time when the people will become radical and say enough is enough, we want to do things our own way we cannot continue with this form of suffering, then, I think for now we are in serious trouble" (KII23-72).*

*"I feel very stressed. You see, our government will only focus on climate change issues mostly when there is donor money... So, I think we are only interested because there is donor funding involved in most of the climate resilience projects. So, when I see that we are at the mercy of a government that does not care, I think we are in trouble. I think in days to come, it's going to get worse or better if we continue to receive funding from outside" (KII19-9).*

Moreover, psychological TCARs can be linked to mainstream and social media reports of suffering and losses associated with climate change and/or climate response measures in different parts of the country and from around the world. These include reports of deaths of humans, livestock, and wildlife; displacement; the loss of livelihoods; loss of human identities (e.g., fisherfolk or pastoralist communities in different parts of the country forced to abandon their known and adopt other socioeconomic activities); and the impact especially on ecosystems and cultural ecosystem services (CES)—see the discussion of CES under "Social TCARs" below. These findings agree with previous studies on the psychological impacts of climate change, including stress, trauma and the personal costs involved in response to climate change or lack thereof (see, for example, Adams et al., 2021; Bamberg et al., 2015; Doherty and Clayton, 2011) assertion that "being resilient and transforming is stressful and involves significant personal costs" (Adams et al., 2021, p. 303)

### 3.4.1.5 Social TCARS

This is the 'people' category in Carter et al. (2021) or the 'people pathway' in Hedlund et al. (Hedlund et al., 2018). The social TCARS in Kenya mainly relate to the movement of humans especially for economic (e.g., search for jobs, food, water, pastures etc.) or survival reasons (e.g., forced displacement by climate-related events, or by response measures like construction of dams, zoning etc). Both types of movements can often cause conflicts and security concerns, especially where they are perceived as unfair by the recipient communities, or when the recipient/host places are not adequately prepared for the influxes. An example of this is the rural-urban migrations observed in times of risks and urban-rural migration in times of plenty. The few cities in the country cannot sustainably cope with influx from the over 70% population that is rural if rural economies collapsed because of climate change. Vulnerable members of affected communities such as the sick and the elderly have been left behind in cases when others migrate over long distances. Furthermore, separation from family members and one's communities reduces the social capital of those migrating or displaced, especially where they move individually or in small groups. Documentary and KI data suggest that women and girls face increased vulnerability to gender-based (and sexual) violence during migration, when they have migrated, and when travelling long distances in search of water, for example. The country's updated NDC for instance notes:

*"Increased intensities and magnitudes of climate related risks in Kenya aggravate conflicts, mostly over natural resources [...]These impacts are not gender neutral, impacting men, women and other gender groups differently" (Republic of Kenya, 2020a, p. 2)*

Furthermore, displaced persons in the country are often faced with reduced protection and access to basic rights. Some have been reported to be exposed to violence, discrimination and negative perceptions in their destinations, and others have been driven to negative coping strategies including petty theft among other illegal activities. Others become vulnerable to human trafficking for instance, as they have reduced protection. In addition, there have been instances where cross-border migration from Kenya has led to migrants' dispossession of their property including by neighbouring countries where they have been accused of being there illegally or in possession of items that are legal in Kenya but illegalised in those countries. Culturally embedded negative coping strategies, taboos and

traditions are other potential TCARs that migrants may encounter. These include cattle rustling especially among pastoralist communities—arguably to restock livestock lost during climate disasters such as droughts. KIs also observed that, because of depressed sources of livelihood especially in the border regions with Somali, young people become potential easy targets for recruitment into the outlawed Al-Shabaab militant group. In some places, insecurity due to the operations of such groups poses a threat to adaptation and development.

Another social TCAR relevant to Kenya is the impact of climate change on culture and cultural ecosystem services (CES). CES are the “nonmaterial benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experience” (Millennium Ecosystem Assessment, 2005, p. 40). The impact of climate change on CES and their (CES’s) various dimensions have been notably considered in the IPCC AR6 (IPCC, 2022). Various elements point to the effect climate change and response measures have on CES in Kenya. For example, Mt. Kenya has for a long time been a cultural and spiritual icon of near and distant communities. The glaciers on this mountain are declining and projected to disappear in under 30 years (Government of Kenya, 2018b; Prinz et al., 2016), taking away the CES provisioning (including aesthetic appeal and cultural and religious value) it has provided for long. In addition, while droughts threaten game parks and reserves countrywide, others like the Lake Turkana National Parks face risks from what may be seen as developmental and adaptation actions. This UNESCO World Heritage Site has been listed as being in danger, with threats coming from the Gibe cascade dams in Ethiopia and related developments (e.g., the sugar developments) and the Lamu Port, South Sudan, Ethiopia Transport Corridor (LAPSSET).

### **3.4.1.6 Temporal pathway**

The temporal TCAR pathway refers to the (potential) consequences of climate-related triggers over time. Some impacts may be immediate, and others may be delayed. There are many examples of delayed or prolonged climate-related impacts in Kenya. The desert locust infestation in Kenya in 2019-2020 was described as the worst in over 70 years and came after heavy rains in the Arabian Peninsula—caused by an “unusually powerful tropical cyclone” Mekunu (Salih et al., 2020, p. 589)—enabled the locusts’ breeding. The impact on food security was immediate (availability of vegetables and livestock fodder) and delayed

(availability and affordability of food in markets). Another example is the 2019 Indian Ocean Dipole (IOD) described as “unusually strong” which led to October 2019 being described as one of “the wettest months on record since 1981” by FEWSNET. At the time of writing, Kenya and the rest of the Horn of Africa are on track towards the sixth consecutive failed rainy season and experiencing the worst drought in over four decades.

Future (projection) risks are important for intergenerational equity considerations, which are emphasised in Kenya’s climate policy instruments. Future risks are contemplated as threats to development and resilience visions. Also, because of where the country is located – along the equator – the temporal dimension of TCARs may shift as the tropics develop “novel climatic conditions and undergo local changes in average climates beyond past variability” unlike the temperate and polar climates (Garcia et al., 2014, p. 486).

Perceptions of and management approaches to TCARs in Kenya are associated with institutional memory or lack of it. As new risks emerge, institutional memory and experience become less relevant for tackling impacts, as was seen in the 2019-2020 desert locust invasion. For instance, commenting about the desert locust plague, some KIs noted:

*“...the timing, I think it's what was not really quite clear, but it's not the first time being experienced in Kenya. It was experienced sometimes back but I think the invasion this time is as it was being indicated, it's what has not been experienced in the last 70 years. So it means it has been there. I think this time, the intensity or the magnitude in which this came in place was much more. So that's why I think it has really picked across the media, the impact people have really felt, and yeah, and I'm sure much of the generation now have never experienced something like desert locusts, me included, so it was a thing that people were really worried about, because you don't know how to deal with it. You see something you have never experienced, you need to start learning how to deal with it...” KII21-34.*

*“...the risk not being common, since the 70s we've had a surveillance structure for desert locust stationed in Kenya. And of course, at that time, they were doing the surveillance bit of things. But I think, you know, when you don't face a risk that common or frequently you tend to lose interest in it. And that is what basically happened. Because I remember, these guys were like, when they were trying to come up with the Secretariat and the management team at the national level, they were asking if we have a locust specialist in the country. You know, we got entomologists yes, but none was a specialist in locust behaviour and management. So guys had to be sourced from across the world, in areas where the risk has been there for a while. So in a way, I will say the risk awareness or how aware you are of a risk will inform*

*your preparedness. On other risks, of course, the Kenyan government is prepared but for desert locusts, the surveillance mechanisms, the response mechanisms to control, they were not that well. Because I remember I was in some discussions at national level and at county level, and they were saying oh, 'we have to wait for a chemical to come from Japan, so we are waiting for this particular chemical that is ordered'. So the gaps are there" KII21-27.*

### 3.4.2 Factors influencing TCARs in Kenya.

After discussing the TCARs and their impact pathways above, this section focuses on the second research aim; to discuss the factors that predispose Kenya to TCARs. Collectively, these factors influence all dimensions of risk – i.e., hazards, vulnerability, exposure, sensitivity, and coping capacity. We find that Kenya's TCAR challenge is influenced by several endogenous and exogenous factors (see Figure 6). We discuss these factors following the TCAR categories/impact pathways above.

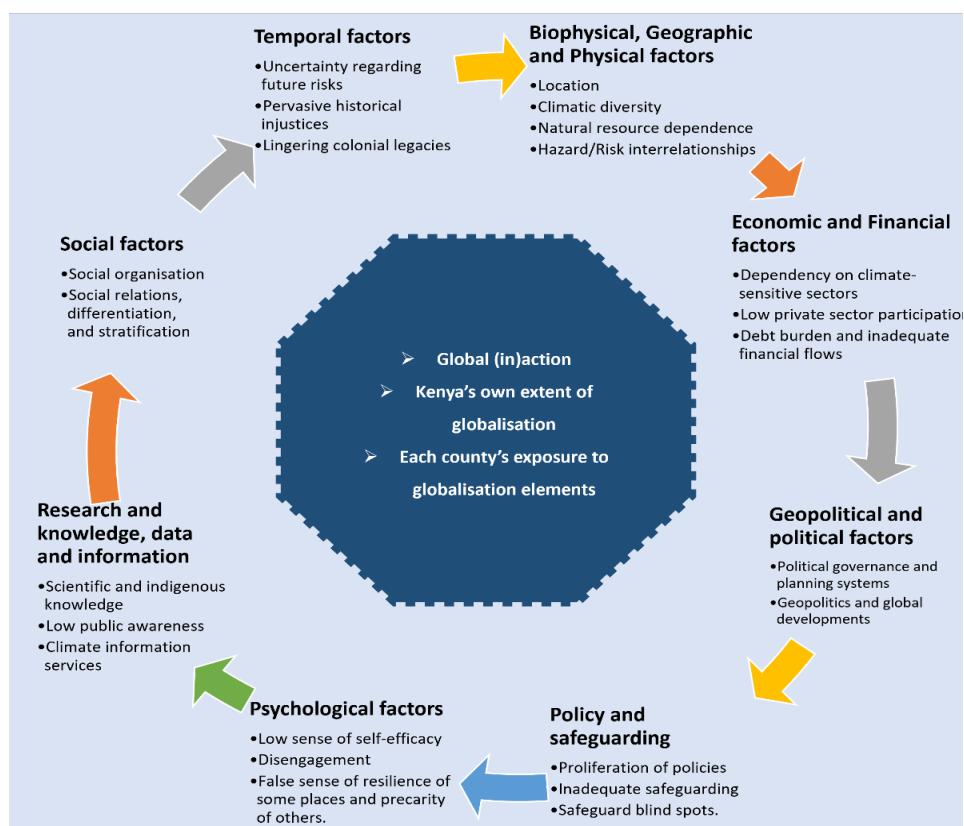


Figure 6. TCAR predisposing factors for Kenya at national and subnational levels.

#### 3.4.2.1 Biophysical, Geographic, and Physical Factors

Because TCRs arise from the interaction between climate change and physical environments, they are particularly linked to the physical location of places and their

geographical position and characteristics – e.g., borderlands, coastlines, riverine zones, upstream or downstream places, or location in arid and/or semi-arid regions.

**Location:** Kenya's TCARs are partly influenced by its geographic location. The circulation of the Intertropical Convergence Zone (ITCZ) strongly influences its climate and weather. Location thus affects Kenya's physical exposure to climate-related phenomena such as the El Niño & La Niña (El Niño-Southern Oscillation); and the Indian Ocean Dipole (IOD). Counties located in international borders are also more exposed to risks from neighbouring countries, and this is more problematic because, as non-state governments, they are constrained from engaging in foreign affairs. Thus, they are 'unequal neighbours' to the countries they border. This complicates matters further especially because it becomes difficult to access information or data from across the border or even engage directly in adaptive interventions.

Another observation around location is that the border counties have been marginalised for a long time and are remote from Nairobi. Thus, getting quick action from the diplomatic machinery of the State is usually challenging and time-consuming. Furthermore, the number and quality of neighbours matter in vulnerability and risk reduction as this might create havens of resilience or "clusters of vulnerability" (for more details, see Birkmann et al., 2021). From the IPCC reports and Birkmann et al.'s analyses, Kenya's vulnerability to TCARs can be said to be due to its location in 'climate hotspots'. The latter's analyses of the averages from the INFORM Index 2019 and WorldRiskIndex 2019 vulnerability components show that, among its neighbours, only Tanzania is in the same 'vulnerability category' as Kenya while the other four are in a more vulnerable category. This potentially makes Kenya more exposed to both TCARs, especially TARs due to the increased chance of reduced or inadequate adaptation action from these countries. Some counties have more neighbours than others — e.g., Isiolo neighbours nine subnational governments whom they would have to deal with. Others have more foreign than domestic neighbours. For example, due to its location, Mandera County borders two countries and one county, which exposes it to different dynamics regarding risk governance (*see Chapter 4 for more discussion about this boundariness*). Furthermore, human-wildlife conflicts are observed to be more intense in locations bordering national parks.

**Climatic diversity:** Kenya has one of the most diverse climatic profiles in the world, all concentrated in a small land area (Beck et al., 2018). This is an important factor for climate change purposes, described in detail in the country's second National Climate Change Action Plan (NCCAP):

*"Kenya is equatorial with a complex and variable climate that ranges from warm and humid in the coastal region, to arid and very arid in the interior. The central and western highlands, which make up about 18% of Kenya's land area, are bisected by the Rift Valley, and have a temperate climate with medium to high rainfall. These highlands are the productive zones of the country, having high to medium agricultural potential" (Government of Kenya, 2018b, p. 9).*

This means that proximity between places with different types of climate (e.g., ASAL and non-ASAL, or different levels of aridity), and therefore different socioeconomic activities and/or culture is relatively short—arid regions are principally pastoral while semi-arid regions are predominantly agro-pastoral. This creates fertile grounds for climate-related problems subnationally, including intercommunal, and interethnic conflicts due to clashing cultures and socioeconomic activities as affected populations migrate to adapt. Hazard, risk, and impact diversity as well as differential exposure mean that there is often no readily available unified voice or approach to adaptation or risk governance subnationally. In addition, climatic diversity predisposes those in the 'less vulnerable' areas to encroachment by those in 'highly vulnerable' areas. This increases the likelihood of clashes in adaptive mechanisms, for instance as pastoral communities move into agricultural lands with crops farmed and perhaps a different (private) land tenure system. Here, it is not the climatic diversity that often leads to (violent) conflicts. Rather, other cultural, historical, social, and political factors—e.g., the legacies of colonial and neocolonial discourses and actions based on such climatic conditions, the associated ethnicised socioeconomic cultures and livelihood pathways, and the creation, development and transformation of (ethnic) boundaries—appear to be more problematic intervening variables. Thus, conflicts are, in this case, often 'adaptation risks' rather than 'climate risks'.

**Transboundary natural capital dependence:** Many communities in Kenya rely on natural resources for socio-economic development and sustenance. These resources are highly transboundary subnationally—e.g., water (from rivers and lakes), forests complexes (Mau, Nyandarua Ranges, Mount Kenya, Mt. Elgon etc.)—which creates tensions between the

'upstream' and 'downstream' users when the resources became scarce under climate-related impacts. Urban areas and cities depend on transboundary resources from near and distant rural areas for their survival. For instance, Nairobi gets most of its water from Murang'a and Nyandarua Counties, and this has been a source of tension in times of scarcity. Climate change is not the only threat to these resources. Development and adaptive activities such as the construction and operation of dams and water diversions at various stages (planned, under construction, or operational) in many transboundary river basins in Kenya and neighbouring countries, often without adequate international water cooperation instruments or consultation between users is a major cause for concern. Kenya's economy relies heavily on several transboundary ecosystems, including lakes, rivers, and the Indian Ocean and their basins; mountains; forests; underground aquifers; and wildlife.

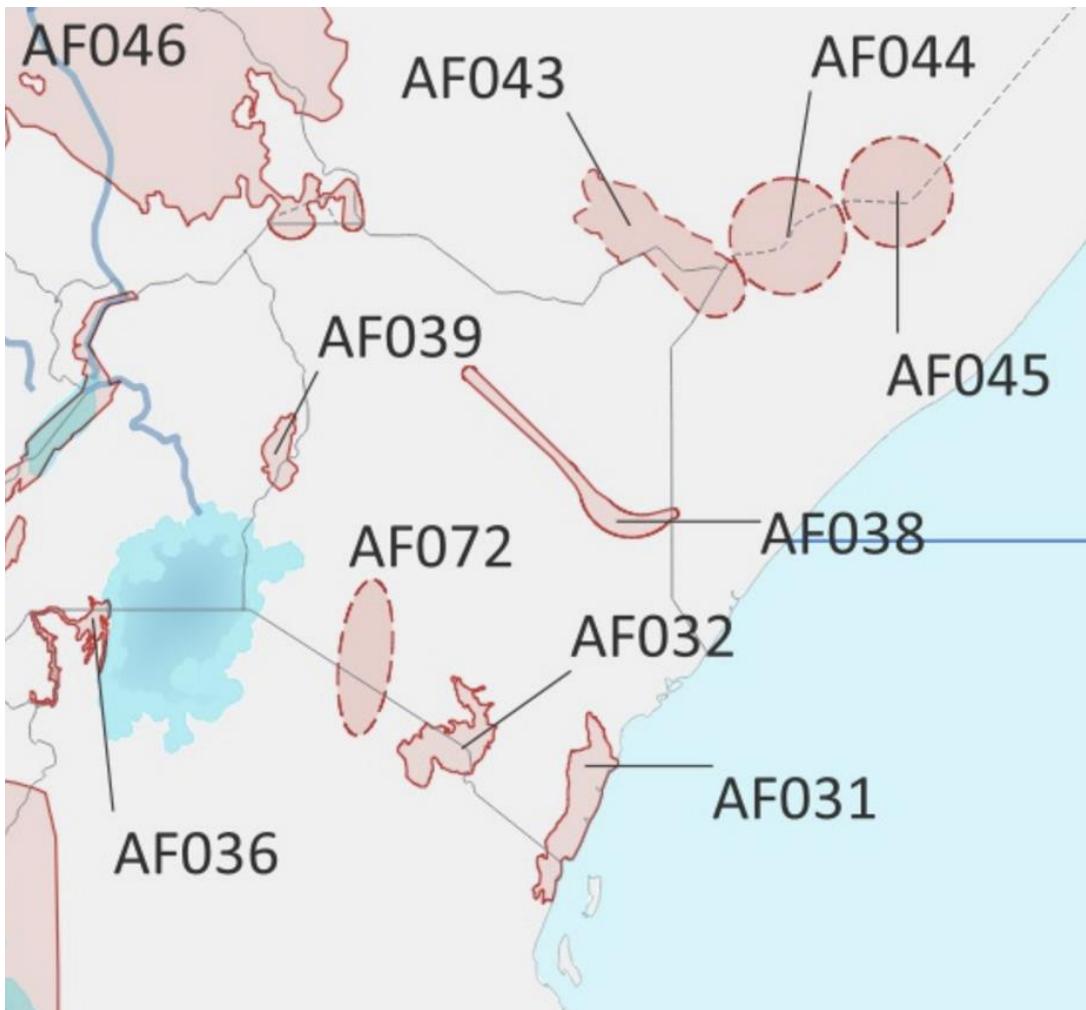
Kenya is one of the most water-scarce countries globally, with less than two-thirds (64.7%) of the global benchmark per capita water availability of 1000m<sup>3</sup>. Water access varies from county to county and between urban and rural areas. The average distance travelled (mainly by walking) to the nearest water point is considerably long especially in ASAL counties and in dry seasons, with some travelling for over 30 kilometres. Water scarcity in Kenya is worsened by climate change and is compounded by its "*sharing of over half the rivers, lakes, and aquifers with neighbour countries*" (Government of Kenya, 2018b, p. 62). Five of the 59 transboundary river basins in Africa are shared with Kenya. Notable transboundary basins include the Lake Victoria Basin and the Nile River Basin. Kenya also has seven transboundary aquifers, three of which it shares with Tanzania and the rest with one of the remaining neighbours (see Map 1). It is concerning that, according to the most recent data from the UN-Water (reporting period 2020-2022), only 26.75% of the overall transboundary basin area has an operational arrangement for water cooperation. Moreover, only about a third (35.91%) of the transboundary river and lake basins are covered by an operational agreement while transboundary aquifers (see *Table 6*) are not covered at all.

*Table 6. Transboundary aquifers Kenya shares with other countries.*

<b>Aquifer Code</b>	<b>Aquifer Name</b>	<b>Country(ies) Shared with</b>	<b>Area (km<sup>2</sup>)</b>
<b>AF031</b>	Coastal Sedimentary Basin I/Karoo Sedimentary Aquifer	Tanzania	15,389
<b>AF032</b>	Kilimanjaro Aquifer	Tanzania	13,153
<b>AF038</b>	Merti Aquifer	Somalia	12,304
<b>AF039</b>	Mount Elgon Aquifer	Uganda	4,874

<b>AF043</b>	Dawa	Ethiopia & Somalia	30,648
<b>AF046</b>	Sudd Basin	Ethiopia, South Sudan	332,607
<b>AF072</b>	Rift Aquifer	Tanzania	19,086

*Data Source: (IGRAC, 2022)*



*Map 1. Location of transboundary aquifers Kenya shares with other countries.*

Solid lines indicate that the respective aquifer boundaries are confirmed while dotted lines indicate the boundaries are unconfirmed. (Adapted from IGRAC, 2022).

### 3.4.2.2 Economic and Financial Factors

Kenya is highly vulnerable to transboundary climate-related risks due to several economic and financial factors. These factors are interconnected and can have significant impacts on the country's economy and livelihoods and its ability to adapt to climate change. We highlight some of these factors that emerge from the data we analysed.

Firstly, Kenya's economy is heavily dependent on climate-sensitive sectors (e.g., agriculture, tourism, and energy) and much of the population relies heavily on climate-sensitive

livelihoods (e.g., pastoralists, smallholder farmers on rainfed fields, fishing communities in the lake regions and coastal areas). An official statement at the devolution conference of 2021 suggested that *“about 40% of the gross domestic product, and 70% of overall employment being derived from natural resource-related sectors, such as agriculture, mining, forestry, fishing, tourism, water supply, and energy”* (S21-5). Deviations in various sources of data notwithstanding, agriculture contributes about 33% of Kenya's GDP and another 27% indirectly from its linkages with other sectors, employs over 40% of the total population (70% of the rural population), and accounts for about two-thirds of Kenya's export earnings (FAO, 2023). Suppressed rainfall due to the ongoing drought in the region severely impacted agricultural production (see Table 7), resulting in a 1.6% contraction, four times the 2021 contraction of 0.4% in the sectoral GVA for 2022 (KNBS, 2023).

Table 7. Maize, tea and milk output changes for 2021 and 2022: declines attributed to depressed rainfall.

Agricultural produce	Unit	Output in 2021	Output in 2022	% change (YoY)
<b>Maize -</b>	Bags, millions	36.7	34.3	-6.5
<b>Tea</b>	Tonnes, thousands	537.8	535.0	-0.5
<b>Milk (marketed)</b>	Litres, millions	801.9	754.4	-5.9

Source: KNBS, Economic Survey 2023

The impact of such climate-related occurrences on maize production has led to a three-year continuous increase in the quantity of maize imported to reach 793,751.5 tonnes in 2022 (see Table 8)—leading to increasing maize and maize products prices and a cereal and cereal products inflation rate of 18% in 2022 (KNBS, 2023). As highlighted in Table 8, changes from year to year can be quite substantial.

Table 8. Five-year (2018-2022) statistics on maize in Kenya.

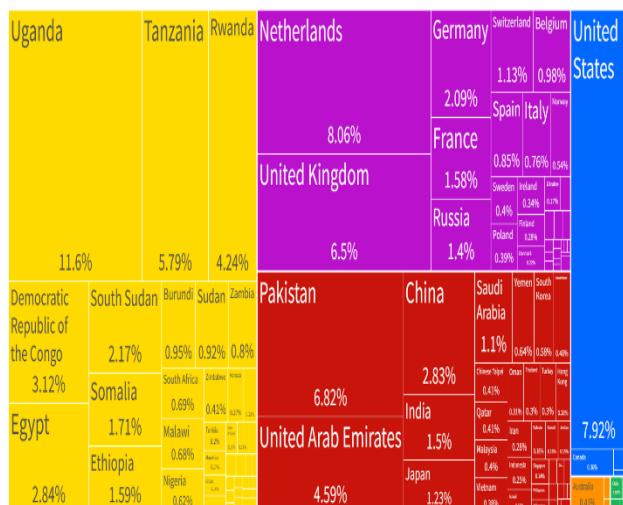
Item	2018	2019	2020	2021	2022	% change
Domestic exports of maize* – in tonnes	2,673.3	3,128.8	6,640.6	5,127.6	3,824.7	-25.4
Values of domestic exports maize* – in KES million	513.8	508.7	1,147.7	642.8	320.8	-50.1
Imports of maize* – in tonnes	529,558.3	228,783.5	273,472.2	486,525.0	793,751.5	63.1
Average annual retail prices per Kg of loose grain maize	49.20	47.24	55.42	55.22	67.72	22.6

\*Unmilled maize, excluding sweet corn.

Source: KNBS, Economic Survey 2023

Considering that agriculture in Kenya is about 98% rainfed (Karuri, 2021), temperature and rainfall variability and unpredictability pose significant risks to agricultural productivity with dire consequences for both food security and earnings from important cash crops like tea and coffee. Approximately 90% of the wildlife—the mainstay of Kenya's tourism sector—is in the particularly vulnerable ASALs. Consequently, it is estimated that drought kills more wildlife than poaching in the country. ASALs also account for over 70% of Kenya's livestock population, and their vulnerability to climate change portends risk throughout the country. Energy-wise, of the 3,321.3MW of total installed capacity in 2022, 838.9MW (25.3%) constituted hydropower, a highly climate-sensitive source of electricity. Droughts have an especially negative impact on hydropower generation due to low water levels in hydroelectric dams. This high climate sensitivity implies that any disruptions caused by extreme weather events have severe economic impacts and affect both the short-term and long-term development goals of the country. For instance, the current prolonged drought and those in recent years have caused crop failures, livestock deaths, reduced productivity, and increased food prices, affecting the livelihoods of millions of people. In addition, climate-related disruptions in the country and source countries for Kenya's tourists have been noted to adversely affect local and international tourist flows, and therefore the revenue from a sector that contributes about 11% to the GDP and employs about 12% of

a. Export destinations 2021 (Total Exports: US\$7.15B)



b. Import origins 2021 (Total Import: US\$23B)

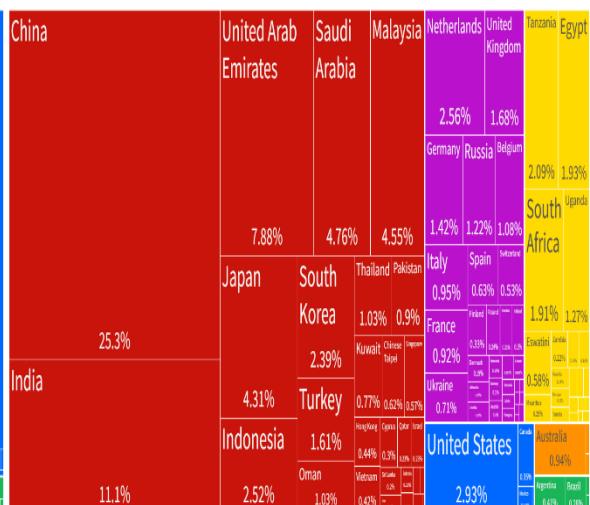


Figure 7. Kenya's trading partners in (2021)

Data source: OEC (<https://oec.world/en/profile/country/ken>)

the population. In addition, Kenya's top trading partners are in Asia and Africa, regions that are the most vulnerable to climate change (see *Figure 7*).

Secondly, Kenya's external debt has increased over time and has been cited to limit the country's ability to invest in climate adaptation and resilience measures amid other competing priorities such as health and education (Guguyu, 2022). The country's high debt burden limits its fiscal space for climate resilience-building. Additionally, limited access to financial resources, including limited access to favourable climate financing options like grants and concessional loans, limits its ability to provide timely support to vulnerable communities to avert climate-related disasters. Further expensive external loans for development and climate action are likely to increase Kenya's debt distress and continue hurting the economy and the country's adaptive capacity. Servicing such facilities was highlighted as a factor of reduced financial resources for adaptation in the country and a contributor to delayed disbursement of funds to county governments. This affects the performance of these devolved governments charged with the actual implementation of climate change strategies. One KII observed:

*"I was talking to some of the governors today, they are saying that actually the government, the national government, is struggling to pay the equitable share, [...] the national government for the last four months has not sent them money. So, the implication of that is that the county governments like Marsabit and the rest cannot do any meaningful response because they don't have money [...]. So, it means that Kenya cannot effectively respond to the impact of the raging drought, which is of course, climate change driven because, to a large extent, a lot of our revenue goes to servicing the debt" KII23-72.*

The negative impacts of climate change on the economy further reduce Kenya's ability to fund its activities using its revenue as own-source revenue generation is reduced and development resources are reallocated to deal with climate-related crises. For instance, following the 2018 floods, the government allocated over KES75 billion in response actions including fixing the roads destroyed by the rain (Omondi, 2018). Consequently, the government often resorts to increased borrowing to fill the gaps. Kenya's external debt has been increasing exponentially in the last two decades, a period characterised by increasing climate and political shocks and related economic losses (see *Figure 8*).

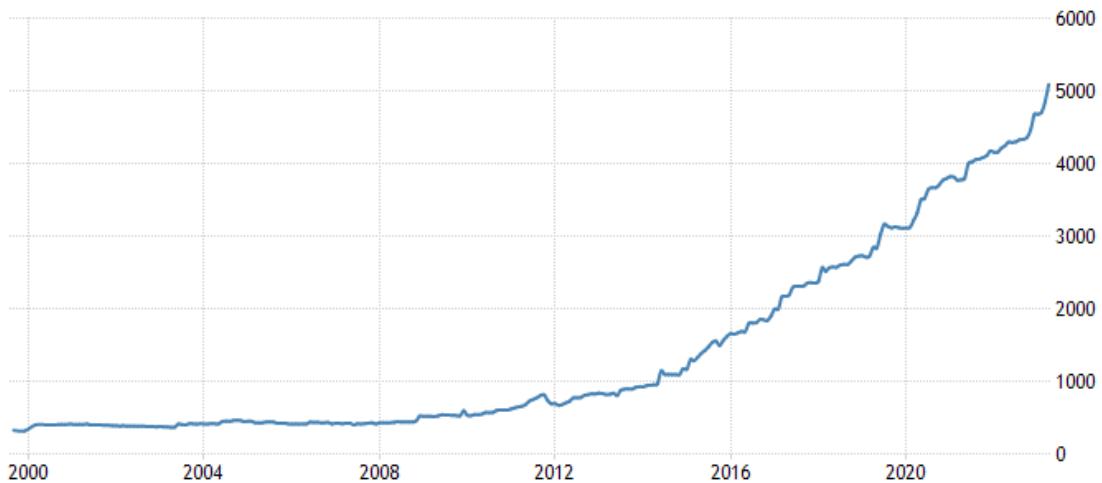


Figure 8. Kenya's external debt burden since the 2000s

Data source: Trading Economics, Central Bank of Kenya.

Thirdly, and augmented by the above factor, Kenya's overreliance on international development partners for climate action makes it vulnerable to external factors such as changes in foreign aid priorities, climate disruptions and political instability in donor countries, and international economic shocks. To illustrate, Kenya's first and updated nationally determined contributions (NDCs) were respectively 100% and 87% conditional on international support. The majority (87%) of the estimated US\$62 billion budget for implementing Kenya's updated NDC (2020) is expected to come from outside as "international support". Although there is agreement that Kenya's focus is on adaptation (with less attention on the separation between adaptation and mitigation), the proportion of the cost of adaptation needed from international support is higher (90%) than mitigation's (79%). This overdependence on external support for adaptation exposes the country to significant transboundary risk, especially considering that past promises of international support have not been kept. Additionally, almost all climate plans in the country are developed with significant external support (Government of Kenya, 2018b, 2016, 2010, 2010). This dependence limits policy autonomy and leads to policy, funding, and implementation gaps in the country. For example, little progress was made under the first NDC since it was mostly implemented with domestic resources despite it being fully conditional on international support (Republic of Kenya, 2020a). This then makes it challenging for Kenya to design and implement development and climate policies that align well with its unique circumstances and priorities, including long-term climate adaptation measures.

Finally, Kenya has experienced rural-urban migration as people move into places perceived to offer higher chances of improved welfare especially as rural economies highly dependent on rainfed agriculture become untenable. Urban areas in Kenya are themselves quite vulnerable to climate-related hazards such as flooding and sea-level rise in the coastal regions. As more people move into these areas, the demand for resources such as water, energy, and food increases alongside the pressure on social amenities such as sanitation, housing, transport, and waste management. This has the potential to accelerate rapid urbanisation and related challenges including urban sprawl and overcrowding, thus compounding vulnerability and exposure of these urban areas and cities to more risks. Furthermore, some urban areas in central Kenya have become "*ghost towns*" after having "*collapsed due to decline of agricultural activities which earlier triggered and supported the growth of urban centres*" (Government of Kenya, 2015, p. 110).

### **3.4.2.3 Governance, Geopolitical, and Political Factors**

Kenya is particularly vulnerable to TCARs due to a range of governance, geopolitical, and political factors. These include the structure and nature of its own political governance and planning systems and processes (including public participation), underdevelopment and fragility in neighbouring countries (especially Somalia, South Sudan, and parts of Ethiopia) and counties, lack of cooperation and coordination with domestic and foreign neighbours, and political corruption.

The fragmented devolved political governance and planning systems in Kenya tend to ignore TCARs and instead focus attention and resources on what is '*within*' each governance domain's mandate and scope. KIs noted that transboundary issues are often emotive, complex, and resource-intensive and that the governors tend to shun them especially when it is difficult to justify spending resources (often allocated to each unit based on their plans) on them to the electorate. The electorate's marginal cognition of climate change and such transboundary issues further complicates engagement with them. Moreover, climate-induced migration across national and subnational borders creates seasonal/transient populations that are rarely taken into consideration in planning and portend challenges for both rural and urban recipient areas. Additionally, public participation in governance and planning processes is regarded as inadequate and often described as only a tick-box exercise in the country. Some KIs noted that the transition to devolution has been

challenging as many people have “*been unsure of what to do*” (KII23-61) and how to participate in the devolved governance processes in the country.

KIIs highlighted that corruption is a considerable problem in the country and has led to overpricing (to cater for kickbacks, for instance) and extensive siphoning of the resources dedicated to poverty reduction and resilience-building initiatives. Furthermore, corruption was highlighted, mostly by KIs, as one of the key reasons for disregarding and not adequately enforcing environmental standards, thus exacerbating the vulnerability of the country to environmental and climate challenges. On the contrary, key climate change policy documents did not belabour corruption as only Kenya’s Climate Change Act 2016 and NCCAP 2018-2022 each mention “corruption” once: the Act requires the Cabinet Secretary for the National Treasury to “*develop a strategy and make regulations setting [...] to enhance integrity and to eliminate corrupt practices*” (Article 25.9) while the NCCAP observes that “*The war on corruption is also helpful because it will ensure resources are applied to their intended purposes, which is beneficial to NCCAP 2018-2022*” (2018b, p. 28). Nonetheless, over 91% (43/47) of the CIDPs mention corruption, which confirms the concerns of KIIs about the prevalence and significance of corruption in the country. Although Busia, Embu, Kisii and Makueni CIDPs do not mention corruption, it is unlikely that there is no corruption in these counties or that they are not affected by corruption from elsewhere.

Kenya's underdevelopment and fragility, especially in Somalia and South Sudan, make it more vulnerable to cross-border climate impacts. Economic activities such as pastoralism are particularly vulnerable, and development activities in neighbouring countries tapping into transboundary resources such as dams can worsen this vulnerability. War and instability in Yemen, Somalia, and Ukraine further add to Kenya's vulnerability to climate impacts. Furthermore, referring to the country's blue economy sector, its third five-year medium-term plan under its long-term development blueprint (Vision 2030) recognises transboundary challenges that limit the utilisation of transboundary resources, including disputes, piracy, and insecurity in transboundary water bodies:

“*...Inadequate policy integration and uncoordinated development in the Blue Economy sector; [...] Inadequate sharing of Maritime information at the international and regional levels; [...] insecurity at sea, piracy, and fishing gear thefts; Inadequate regional institutional framework for collaboration in some of the trans-boundary*

*water bodies; [...] climate change..." (Republic of Kenya, 2018, p. 69)*

Lack of or inadequate cooperation and coordination with neighbours, both countries and counties, also contribute to Kenya's vulnerability. Political party differences and political corruption further complicate matters. Disputes over inter-county levies and harmonized levies also affect the cost of doing business, as highlighted by KAM's Regulatory Audit Survey 2020. With increased demand as counties develop, there is also increased competition for natural resources, leading to frequent hazards and climate variability, which further displace people and reduce their social capital and support systems.

#### **3.4.2.4 Psychological Factors**

TCARs in Kenya are influenced by several psychological and cognitive factors that are observed from the data, and which need to be addressed for effective CARG in the country. Some of these factors include:

**Mental stress related to climate:** Climate change can cause mental stress and anxiety, especially for individuals who live in or have friends and relatives living in areas prone to climate risks. The constant threat of climate change can lead to psychological distress, which can affect people's decision-making and ability to cope with these risks.

**Loss of self-efficacy, leading to resignation:** When individuals or communities feel that they have no control over the impacts of climate change, they may experience a sense of helplessness and resignation. This loss of self-efficacy can lead to a lack of motivation to take mitigative or adaptive action against climate risks. This is especially the case in TCARs which are replete with complexities and uncertainties that can overwhelm stakeholders.

**Disengagement climate change apathy:** Climate change apathy is the tendency for individuals or communities to disengage from climate-related issues, often due to a lack of understanding or awareness of the issue. This disengagement can lead to a lack of action or investment in climate change mitigation and adaptation measures. As observed, many Kenyans, even the literate, may associate droughts and climate-related events with sins and, consequently, the solution as "repentance" and "prayers" for divine intervention. We observed that even leaders at the top of the political hierarchies advance this narrative.

**Resignation from governance matters:** Many Kenyan communities and social groups such as the youth may feel disenfranchised from governance processes, leading to a sense of resignation or apathy towards climate change policies and programs. This can lead to a lack of participation in decision-making processes, making it difficult to address climate risks effectively.

**False sense of resilience in some places and precarity in others:** There may be a false sense of resilience in some places that have historically experienced less severe climate impacts, leading to a lack of preparedness for future climate risks. Conversely, communities that have experienced frequent climate-related disasters may feel a sense of precarity, leading to a lack of investment in long-term climate change adaptation measures. Over time, some counties that were thought to be resilient are becoming more exposed to climate risks and in need of relief and humanitarian interventions – e.g., Nyeri, Meru and other counties around Mt Kenya. Some sections of these so-called resilient and high-productivity counties are arid, e.g., Kieni in Nyeri County (bordering Laikipia) and Northern parts of Meru County (bordering Isiolo).

#### **3.4.2.5 Social and Demographic Factors**

Kenya's TCARs are influenced by several social and demographic factors which interact in complex ways to shape how distinct groups experience climate change risks and affect their vulnerability and adaptive capacity. Social relations, differentiation, and stratification play a crucial role in shaping vulnerability and influencing the extent to which communities can work together to address climate risks. Communities and governments in Kenya form alliances based on social, cultural, and political factors, as seen in the formation of regional economic blocs (REBs) since the advent of devolution for example. Differentiation and stratification based on ethnicity, class, and gender have contributed to social exclusion and marginalisation, thereby exacerbating vulnerability. Power, wealth, and resource disparities create differentiated exposure and sensitivity to climate risks. For instance, the urban poor and rural communities that rely on subsistence farming are more vulnerable to climate risks than the wealthy who have access to better infrastructure, and financial resources, and can afford to relocate to safer areas.

Gender disparities emerged as women and girls are particularly affected by climate change, as they often bear responsibility for domestic and agricultural work. With these responsibilities, certain options such as migration to other areas become challenging for them as acknowledged by both the KIs and policy documents. For example, the country's second NCCAP observes:

*"Women are vulnerable to climate change. Their role as primary caregivers and providers of food and fuel makes them more vulnerable when flooding and droughts occur. Drought compromises hygiene for women and girls, as the little water available is used for drinking and cooking. It also negatively effects [sic] women's time management in the household. When nearby wells and water sources run dry, women travel long distances to search for water" (Government of Kenya, 2018b, p. 14).*

Varying from county to county, women particularly in rural areas also have limited access to resources, education, and decision-making, which affects their ability to cope and adapt. Low literacy and education are recognised factors of vulnerability for various reasons. For example, the Baringo County CRP acknowledges that "*low literacy levels limit farmers from diversifying their sources of income to alternatives that could cushion them from the shocks of climate change*" (MoALF, 2018, p. 10) and portend a challenge to climate information. It further acknowledges that,

*"The most vulnerable would be the less educated, the resource-poor farmers, women and the youth. Farmers in these categories have little access to resources and information that is required to cope with the challenges caused by the hazards" (2018, p. 14).*

The marginalisation of certain social groups and communities has been a cause for agitation for rights and even calls for secession in Kenya. Pastoral communities like the Maasai and Turkana and Indigenous communities such as the Sengwer and Ogiek have historically been marginalised from political and economic processes in the country, leading to reduced access to adaptive resources and services. Due to their minimal political representation, these communities continue to face problems from changing climatic conditions and responses to climate change from the government and powerful entities, which has in some cases led to drawn-out legal contestations. Their reliance on forest resources and traditional livelihoods, such as beekeeping, hunting, and gathering are threatened by deforestation, desertification, and reduced rainfall. Marginalised groups including people with disabilities

often face additional challenges in accessing resources, services, and information needed for informed adaptation action. Pastoral and Indigenous communities in Kenya are also more likely to live in areas prone to forced displacement due to climate responses such as afforestation and restoration of forests, water towers and catchments. In addition, cultural differences including in the social and value systems, and language barriers shape vulnerability in complex ways. Cultural beliefs and practices can both help and hinder people's ability to cope with climate risks. Interviewees noted that Kenyan communities have varying levels of understanding of climate risks and different coping mechanisms especially based. This has led to inter-ethnic misunderstandings, lack of coordination, and ineffective climate responses. For example, traditional knowledge and practices of pastoralists have helped them cope with droughts for years, while taboos around food consumption and waste disposal can exacerbate the impacts of floods on their water, sanitation and hygiene and sanitation; and their norms around gender and education can leave their populations less equipped to adapt and diversify their livelihoods in a changing or changed climate.

**Mistrust or distrust among ethnic groups:** Communities that are suspicious of one another may be less likely to work together to address climate change impacts, leading to siloed responses and increased vulnerability to climate change. For example, pastoralist and agropastoral communities often have conflicting interests and approaches to natural resource utilisation and management. This often leads to conflicts over resources such as water and grazing lands, whose escalation in recent times has been associated with climate-related changes in the environment. Also, pastoral communities have been accused of invading farmlands and conservancies, often by force and using powerful weapons. The ensuing destruction, including of property and lives. This has led to distrust and lack of cooperation, making it difficult to develop effective, cooperative responses to climate risks between such communities. This is augmented by the disenfranchisement created by the marginalising, (re)bordering, and (re)ordering policies and practices of colonial and postcolonial administrations in Kenya, including favouritism of some communities over others in social, political and economic participation, developments and investments.

**Population growth:** Population growth and population characteristics are crucial elements in climate risk management. Kenya's population has grown more than six times since

independence, from 8.6m to 55 million in 2023 (see *Chart 2 panel (a) and panel (b)* for the 2023 population distribution by age and sex). Its population is the third largest amongst its neighbours but is projected to be overtaken by Uganda by 2050.

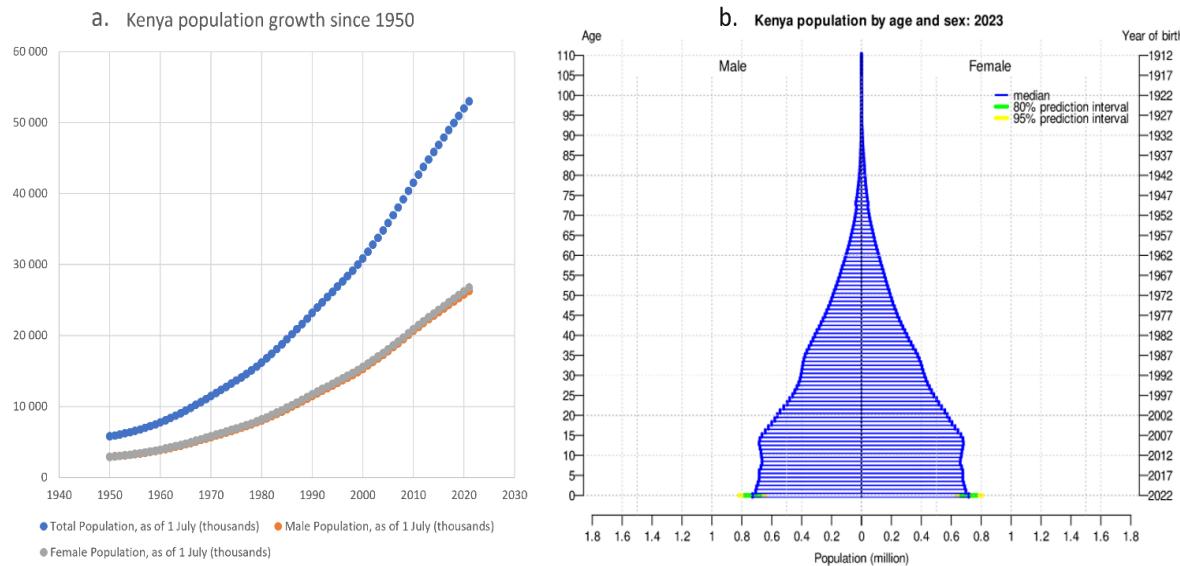


Chart 2. Kenya's population growth since 1950 (a) and the population by age and sex in 2023 (b).

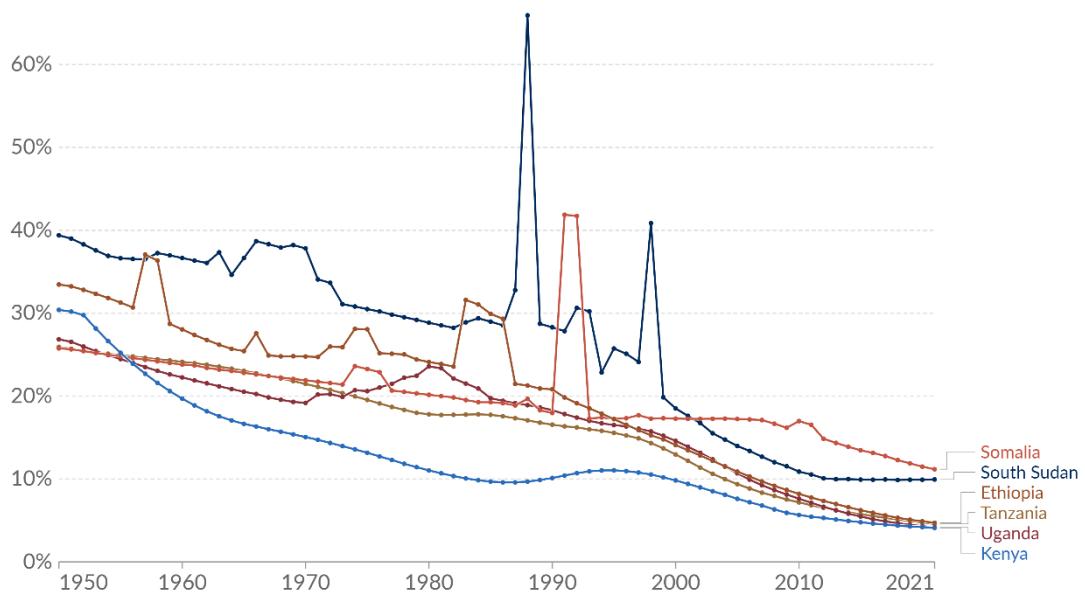
Data source: United Nations, Department of Economic and Social Affairs, Population Division (2022). World Population Prospects 2022, <https://population.un.org/wpp/>

Kenya and its neighbours have low child mortality is low, which is similar in all countries except for Somalia and South Sudan which have median under-five mortality rates (U5MR) of 104.5 and 101.9, respectively (see *Chart 3*). This implies that the region is going to have a large population in the coming years, which will put more pressure on the natural resources that are scarce and inadequate even for the current population size. This can increase cross-border conflicts with Kenya's neighbours as well as put pressure on the regions that are perceived to offer better chances of welfare, including urban areas. This can also lead to rapid urbanisation with its attendance challenges and exacerbate pressure on the environment and ecosystem services in the country. Potentially overwhelmed systems from neighbouring countries could lead to an influx of people seeking services and livelihoods in the country, which could further the pressure on service provision in the country and potentially spark social conflicts. Already, some border counties such as Mandera contend with this challenge, including in the provision of health services to Somalia and Ethiopia citizens across the border. Internally, expanding populations in many counties have caused encroachment into forested areas (for agriculture and settlement).

## Child mortality rate

The share of children who die before reaching the age of five.

Our World  
In Data



Source: United Nations, World Population Prospects (2022)

OurWorldInData.org/child-mortality • CC BY

Note: This is the probability of a child born in a specific year or period dying before reaching the age of five, if subject to age-specific mortality rates of that period. This is given as the share of live births.

Chart 3. Child mortality rate for Kenya and its neighbours between 1950 and 2021.

### 3.4.2.6 Temporal Factors

TCARs in Kenya are influenced by a range of temporal factors, including the 'Eastern African climate paradox, the future of pastoralism as a livelihood option, pervasive historical injustices, and lingering colonial legacies (see Nangulu-Ayuku, 2007 for a more detailed discussion of the precolonial and postcolonial Kenyan State).

The "Eastern African climate paradox" is that, while climate models project increased rainfall, observations show a decline in the MAM long rains over East Africa. This, as Wainwright et al. (2019, p. 1) observe, "confounds use of climate projections for adaptation planning across Eastern Africa". Coupled with the general uncertainty about future climate-related risks and trends in climate adaptation, this becomes a significant temporal factor of TCAR in Kenya and the region. This unpredictability makes it difficult for policymakers to predict future risks and develop appropriate adaptation measures.

The future of nomadic pastoralism as a livelihood is another temporal factor of TCARG in Kenya. Pastoralism is a traditional way of life for many Kenyans in ASALs. It developed in response to past environmental changes. But it is threatened by current observed climate change alongside other factors such as land fragmentation, encroachment, privatisation of

rangelands, population growth, sedentarisation, and modernisation (Bruyere et al., 2018; Cousins, 2000; Flintan, 2012; Robinson and Flintan, 2022). The study by Bruyere et al. (2018) indeed raises questions about the future of pastoralism as currently known, especially as more members of the pastoralist communities prefer and seek non-pastoralist career and livelihood options.

Pervasive historical injustices including as a result of colonial and postcolonial discourses and practices also affect climate risk governance in Kenya. For instance, land ownership and access to land-based resources have been major sources of conflict in Kenya for decades, with some communities feeling marginalised and disenfranchised. Historical injustices, such as the forced displacement and resettlement of communities during colonial rule and subsequent land grabbing, have created a situation where some communities have more access to resources than others. This inequality affects the ability of communities to adapt to climate change and undermines the effectiveness of climate risk governance measures. There is a risk that this could re-occur and/or be reinforced as various powerful actors, including the government, implement large-scale adaptation interventions such as infrastructures in rangelands and other places that would have previously or hitherto been considered marginal or ‘unoccupied’ lands (see, for example, Alden Wily, 2018; Flintan, 2012; Lind et al., 2020; Robinson and Flintan, 2022).

Finally, lingering colonial legacies, such as colonial boundaries and administrative structures, also affect climate risk governance in Kenya. Colonial histories are critical foundations for the development of some areas and marginalisation of others, as well as systems and modes of production—e.g., alienation of land (e.g., Njoka et al., 2016). Many of the political borders that exist in Africa were created by colonial powers and do not reflect the cultural or geographic boundaries of the people who live there. These boundaries can create conflict and prevent communities from working together to manage climate risks. Furthermore, administrative structures that were put in place during colonial rule may not be suited to the needs of contemporary and future climate governance. Getting rid of such has been at the centre of governance reforms in the country, albeit with mixed success. In general, the very idea of the Kenyan nation-state is a colonial creation—there is a wide range of literature about such legacies of colonialism and postcolonialism in Kenya (see, for example, Aalders, 2021; Ahluwalia, 1996; Ambani and Kioko, 2022; Nangulu-Ayuku, 2007;

Nasong'o et al., 2023; Nyadera et al., 2020) and in Africa more generally (see, for example, Agbese and Kieh, 2007; Everatt, 2019, 2019; Kenneth, 2017; Mbembe, 2001; Omeje, 2015).

### **3.4.2.7 Global Climate Change (in)action**

Kenya and other countries, regions and communities that have contributed the least to the climate change problem continue to suffer from its impacts. To them, the climate risk is transboundary as it originates from outside their borders and from the activities of others, namely the top historical greenhouse gas (GHG) emitters. The inadequate and slow climate action by the global community especially by the developed countries and highest GHG emitters is perhaps the number one source of the climate change threat to Kenya and many countries outside the global north classification. This is especially more serious for the small island developing states (SIDS), the least developed countries (like most of Kenya's neighbours) and developing countries like Kenya. This climate justice issue is well-argued and demonstrated in scholarly literature, policy documents and climate fora (including at the UNFCCC). The policy documents and statements reviewed and KIIs in this study strongly acknowledge this. But even the existence of policies and regulations such as the Paris Agreement is not adequate without action. Some KIIs, for instance, claim they "*were duped as Africa with the unclear adaptation goal*" (KII19-4) in the Paris Agreement while others decry inadequate consideration of elements relevant to Kenya, including small-scale agriculture and nomadic pastoralism. Kenya's Third Medium Term Plan (2018-2022) also recognises "*Trans-boundary climate change issues such as cross-border adaptation initiatives*" as one of the "challenges" under the climate change sector (Republic of Kenya, 2018, p. 110).

Indeed, regardless of Kenya's ambitious actions to combat climate change, the risk remains if there are countries not addressing the same adequately. S21-2 for instance supports this with the argument that "*individual states cannot by themselves alone comprehensively address climate change...Good faith and mutual trust are equally important*". Nevertheless, insufficient adaptation financing support to Kenya and other developing countries and the continued rampant GHG emissions hurt the very foundations of international cooperation such as good faith and mutual trust. The High-Level Statement made by Kenya's President William Ruto on behalf of the Africa Group and Kenya COP27 ('Africa's COP) in Sharm El Sheikh conveys the frustrations of African countries as expressed in this excerpt:

*"As we speak, the pledge made 13 years ago in Copenhagen, committing USD 100 billion annually, remains unfulfilled. Such egregious and unexplained default is a major cause of persisting distrust. Neither is there any sound reason for the continuing pollution" S22-1.*

Inadequate adaptation by other countries too—as demonstrated by every Adaptation GAP report—is a source of transboundary risk for Kenya.

#### **3.4.2.8 Policy and Safeguarding Aspects**

**The proliferation of policies:** Kenya's vulnerability to TCARs is influenced by policy and safeguarding factors. While there are many policies instruments and institutions aimed at addressing climate change have emerged within the last decade, there is a concern among most KIs that they are more for public placation and create an illusion of adequacy and action. Policymakers and practitioners alike agree that Kenya has 'many good policies' that are not implemented adequately or at all. But often, the policies are sectarian and sometimes conflicting. Furthermore, there may be a lack of evidence-based policy- and decision-making in the 'rush' to develop policies to especially meet 'donor conditions'.

**Inadequate safeguarding and blind spots:** Inadequate safeguarding and safeguarding blind spots are major challenges for TCARG in Kenya. Existing safeguards do not adequately address TCARs, and they are rarely considered in most disaster risk management and adaptation interventions in the country. Furthermore, even existing safeguards are not always dutifully enforced, partly due to the inadequate capacity of the watchdog, the National Environmental Management Authority (NEMA). Additionally, many adaptation initiatives are often considered 'small projects' that fall outside of the outdated safeguards, leaving them and the communities they intend to serve vulnerable to TCARs.

Finally, Kenya has no social risk safeguarding policy and mechanisms, which is a significant gap in the country's climate and disaster risk management framework. Social safeguarding is essential to protect vulnerable communities from the impacts of climate change, such as displacement, loss of livelihoods, and social inequalities. Addressing these policy and safeguarding gaps is crucial for building resilience to transboundary climate-related risks and achieving sustainable development in Kenya.

### **3.4.2.9 Research and Knowledge, Data, and Information**

Low (public) understanding awareness of climate change and response dynamics emerged as another critical factor of transboundary risk in the country. Whereas most people are aware of the climatic changes and seasonal variations of rainfall, only a small proportion understands the real cause of these changes being experienced in the country. As a result, there are usually more prayers locally (among ordinary citizens but also involving government officials) in response to the problem than calls for systemic change or appropriate climate and disaster risk reduction measures at the policy level. Based on this, section 8(2)(c) of the Climate Change Act 2016 obligates the formulation and implementation of a national “public education and awareness strategy on climate change” that is “gender and intergenerational responsive”. Furthermore, all the key climate change documents include elements on increasing, raising, or enhancing ‘awareness’ of climate change dynamics including response options and technologies. The “*Ndengu revolution*” case, for example, highlights incomplete understanding even among those with reasonable understanding and charged with public policy and programmes. Additionally, it demonstrates the risk posed by the unpredictability and inadequate information about climate responses by foreign entities to adaptation efforts.

The role of data, knowledge and information in risk governance is thus well established and challenges around these in Kenya's context are evident. For instance, although the National Adaptation Plan (NAP) 2015-2030 recommends “*adaptation indicators at county, sectoral and national levels for monitoring and evaluation (M&E) ...[to] guide the collection of data and information on adaptation outcomes*” (Government of Kenya, 2016, p. 2), there are significant capacity challenges at all these levels, but especially at the nascent county governments, newly-established climate change institutions (e.g., CCD and NCCC) and sectors that are traditionally not directly involved in environmental and climate change matters. In addition, Furthermore, data generation, quality, sharing and dissemination even between governments is a significant challenge in the country. Perhaps, this is what led the REBs to identify the need to “*establish a climate monitoring infrastructure*” (Government of Kenya, 2018b, p. 98).

As admitted by KIIs, policy documents and official statements reviewed, there is (a need for) an increased plurality of disciplines involved in transboundary situations. Nonetheless, there

is little cross-disciplinary contact to facilitate transboundary exchanges that are mutually beneficial. Furthermore, from the admissions of KIIs, Indigenous knowledge is not as valued by the scientific elite, and it rarely affects the substance of decisions made. Indeed, transboundary exchanges of knowledge between communities and counties are rarer, ad hoc, and too unstructured to inform formal decisions. Sometimes, there is no common medium for collaboration, such as when communities speak different languages (e.g., the Meru and Isiolo people, or Kitui and Garissa communities) or have had histories of conflict.

**Climate information services and their performance:** Climate information services (CIS) form a critical factor in climate risk governance. There is widespread scepticism about climate information services (CIS) in the country. KIIs and documents analysed admit that many smallholder farmers (who are the majority among farmers) have inadequate access to detailed CIS and many distrust projections from weather forecasts and thus tend to ignore them. For illustration, despite warnings of below-average rainfall (which came true) in each of the last five rainy seasons, many farmers planted their farms at their usual time, but crops failed due to failed rains. As we write, it is projected that many parts of Kenya and the rest of the Horn of Africa region will experience the sixth failed rainy season in March-April, but it is most likely that this trend will continue.

The CIS are often inadequate and inaccessible to the potential end-users most vulnerable to climate-related risks and impacts. This leaves most of these prospective implementers of climate and disaster risk reduction interventions ill-equipped to make the relevant decisions. Furthermore, the generation, content, design, and dissemination of CIS in Kenya pay little to no cognisance of the transboundary dimensions of climate- and weather-related impacts and risks. On one hand, the regional and national forecasts are too general to inform microlevel decisions (e.g., when to plant by smallholder farmers). On the other, the downscaled CIS is nuanced, especially in border areas and its utility value is lowered. Information disseminated is usually focussed on one area (e.g., county or sub-county), which leaves end-users unaware of potential impacts in the neighbouring or adjacent scales that may be material to their operations. For instance, when there are warnings of failed rain in the ASAL areas, the non-ASAL areas are often unaware. Movements of people from the ASAL areas may find the recipient non-ASAL areas unprepared. This phenomenon is observed

between rural and urban areas, where there is rural-urban migration in “*times of scarcity*” and urban-rural migration as “*people return to their farms in times of plenty*” (KII19-1).

### 3.4.2.10 Kenya's extent of globalisation

Globalisation has been suggested as a key driver of and a central justification for concern about TCARs. I consider this in the context of Kenya to determine its significance for Kenya's TACR challenge. Kenya's globalisation is moderate, with noteworthy integration into the global economy, progress in social globalisation, and mixed political globalisation. The KOF Globalisation Index (KOFGI), which measures economic, social, and political globalisation, ranks Kenya 116<sup>th</sup> out of 196 countries in 2020 with a score of 55, indicating a moderate level of globalisation (see *Chart 4 for the country's de facto and de jure globalisation*).

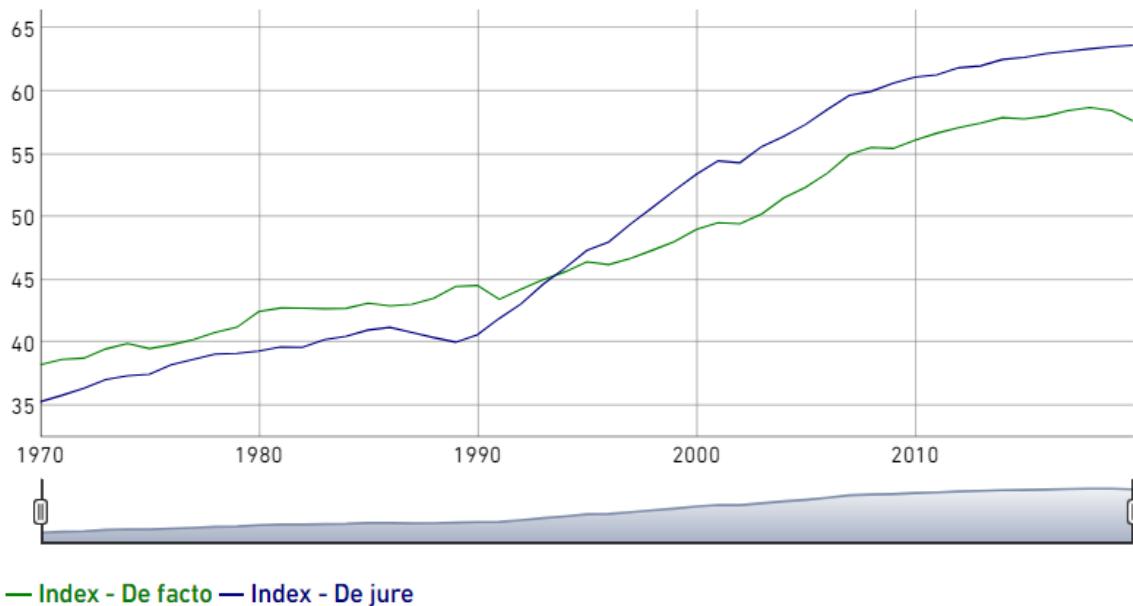


Chart 4. Kenya's *de facto* and *de jure* globalisation between 1970 and 2019.

De *facto* globalisation measures actual flows and activities, while *de jure* globalisation measures policies, resources, conditions, and institutions that, in principle, enable or facilitate actual flows and activities.

**On economic globalisation**, Kenya has an open economy, which has helped its integration into the global economy, especially through trade and investment. It has a well-developed financial sector, and the Nairobi Securities Exchange (NSE) -founded in 1954 is one of the top stock exchanges in Africa — and has attracted foreign direct investment (FDI) into crucial, climate-relevant sectors such as agriculture, energy technology and infrastructure. The country is a member of several trade blocs and organisations, has ratified the African Continental Free Trade Agreement (AfCFTA) and signed several free trade agreements with

individual countries such as the United States and China. It ranks 165/192 countries on the KOFGI. According to the World Bank, its merchandise trade as a percentage of GDP has increased from 45% in 2000 to 60% in 2019. Kenya's **social globalisation** has been enhanced through cultural exchange, increased migration, and cross-border flows of goods, services, information, and ideas. This has been eased by the growth of the internet and social media which connect Kenya to the rest of the global community. The country has a relatively high number of immigrants, and its citizens have an elevated level of outward migration. The country is also a member of the United Nations (UN) and has signed and ratified various international treaties and conventions, showing its commitment to global cooperation. The KOF Globalisation Index ranks Kenya 97<sup>th</sup> out of 187 countries in terms of social globalisation, indicating that the country has moderate social globalisation. However, Kenya still faces challenges such as income inequality and poverty, which could limit the benefits of social globalisation for the population.

**Political Globalisation:** Political globalisation refers to the increasing interdependence of countries and the spread of international norms, laws, and institutions. The KOF Globalisation Index shows that Kenya scores moderately (78<sup>th</sup> out of 187 countries) in terms of political globalisation. But Kenya has experienced mixed results in terms of globalisation. On the one hand, the country has made considerable progress in democratisation and governance — evidenced by multi-party elections since 1992, a relatively free press, and the adoption of a new constitution in 2010, which introduced devolution and strengthened the rule of law. Kenya is also an active member of the international community, participating in regional and international organizations such as the Intergovernmental Authority on Development, the African Union, the United Nations, and the World Trade Organization, and often leads in international processes relevant to climate governance and sustainable development. On the other hand, Kenya has experienced significant political instability, for thousands of people, many of whom are yet to be resettled. Moreover, there have been concerns about political corruption, which could limit the benefits of globalisation by creating an increased sense of political and governance risks for (potential) international development and climate change partners.

**Exposure to Global Shocks:** While globalisation has brought many benefits to Kenya as described above, including increased trade from access to global markets, investment, and

access to technology, it has also exposed the country to global shocks such as fluctuations in global commodity prices, financial crises and economic downturns, pandemics, geopolitical crisis and supply chain shocks associated with (climate-induced) impacts in distant places. The 2008 global financial crisis had a significant impact on Kenya's economy, mainly through reduced demand for exports and decreased FDI. The COVID-19 pandemic has also had a significant impact on Kenya's economy, with disruptions in global trade and reduced tourism inflows.

### **3.4.3    Highlights**

Most of the TCAR pathways and the influencing factors in Kenya are not directly influenced by globalisation. They could also exist independently of globalisation. As scale (spatial, temporal or otherwise) is a critical dimension of social, political, economic and physical attributes of the environments in which TCAR analyses occur (e.g., Cash et al., 2006; Hamilton and Lubell, 2018; Petrović et al., 2018), it could significantly influence the findings regarding the nature of TCARs and the nature of suggested solutions or approaches for addressing them (Adger et al., 2007; Chan et al., 2016b; Eakin and Luers, 2006; Farinosi et al., 2018). At the national and subnational scales, neighbourhood effects – or more appropriately, "*spatial contextual effects*" (Petrović et al., 2022) – seem to be more important factors of TCAR, in tandem with other related studies (e.g., Birkmann, 2007; Birkmann et al., 2021; S. Blackburn, 2014; Brooks et al., 2005; deFur et al., 2007).

Despite the importance of temporal factors, their inclusion in risk assessment in Kenya is limited and often superficial. This also applies to risks from climate response measures which are often overlooked in climate policies and strategies or treated in completely different domains. This can be attributed to data needs and the uncertainties associated with their assessment and the underlying politics. Furthermore, TCARs are often complicated by the occurrence of several predisposing factors simultaneously or in close succession in some areas. While climate risks portend a cascade of effects independent of response to any order of effects, TCARs are complicated and fast evolving as adaptation interventions are implemented by the various actors at different scales in and out of the country. The country needs to adopt an increasingly holistic assessment and deliberate consideration of TCARs in its strategies for climate resilience building. This means not just paying attention to the climate risks but also being vigilant on climate (in)actions in all

sectors and by all linked stakeholders (e.g., neighbours, trading partners, development partners, host countries for Kenyans etc).

## 3.5 CONCLUSION

The overall goal of this Chapter was to review, analyse and discuss, the TCAR challenge in/for Kenya (Section 4.1) and the factors influencing them (Section 4.2). The results highlight the significance of the TCAR challenge in Kenya and the array of multidimensional factors influencing it. It has also demonstrated the relevance of 'local' contexts and 'local' characteristics of socioecological systems in transboundary risk contexts. Importantly, the results reiterate the significance of the 'scale' and 'the boundary' in question in the discussion of 'transboundary' risks. It shows that TCARs are not only relevant at the international level but are also significant at national and subnational levels. Additionally, while globalisation is an amplifying factor, the results suggest that TCARs remain relevant even when globalisation and/or its effects are weak or absent. The Chapter has also highlighted the importance of adaptation (in)actions in the analysis and governance of TCARs, underscoring the relevance of the distinction between TCRs and TARs in TCAR analyses.

This study points to several areas of further academic exploration and could be replicated in other (similar or different) national and subnational contexts for comparison and new context-specific insights and exploring approaches for the assessment and governance of TCARs particularly focusing on national and subnational levels. One aspect of this could focus on the extent to which TCARs are or could be considered within the existing CARG arrangements. Beyond the 'international cooperation' suggested in the literature, exploring cooperation at other levels (e.g., subnational or regional cooperation) for TCARG would also be worthwhile.

## 4 CHAPTER 4

### 4.0 TRANSBOUNDARY CLIMATE AND ADAPTATION RISK GOVERNANCE UNDER DEVOLUTION: SOCIAL CONTRACTS, POLITICAL ECONOMY AND DECISION SPACES

#### Abstract

*The nature of and changes in political systems can influence the creation and governance of climate and disaster risks. One approach that has become increasingly favoured in development and governance circles is devolution. Kenya's ambitious devolution "experiment" sanctioned by the 2010 Constitution has fundamentally changed its governance landscape. This Chapter analyses its impact on transboundary climate and adaptation risk governance (TCARG) in the country. It examines how the devolution of political, fiscal and administrative powers and resources to county governments has affected the social contracts and decision spaces for the design, implementation and coordination of adaptation, including accountability and participation of 'local communities' in decision-making, particularly its transboundary dimensions. Utilising a mixed-methods approach to a case study research design and drawing from the same 130 policy documents as in Chapter 3 and with additional spatial socioeconomic data and statements/speeches, the results show mixed impacts of devolution on adaptation and TCARG. While it has provided opportunities for greater local participation and flexibility in adaptation planning and implementation and enhanced local ownership of climate and disaster risk management, devolution has also created additional boundaries and layers of governance and increased fragmentation of governance arrangements. New dimensions of citizenship rights and entitlements, bring accountability, coordination and capacity challenges at multiple levels, thus complicating adaptation and TCARG. These challenges play out in the attempts to deliver on the multiple social contracts as codified in the Constitution and derived devolution-related instruments, and as expected by citizens of the newly created county governments. Consequently, devolution has influenced core political economy processes that affect the adaptation and*

*TCARG, including enclosure, exclusion, encroachment, and entrenchment. The Chapter concludes with recommendations for improving adaptation and TCARG in the context of devolution in Kenya.*

**Keywords:** Social Contracts, Political Economy, Decision Space, Transboundary Climate Risk Governance, Devolution, Adaptation, Decentralisation.

## 4.1 INTRODUCTION

### 4.1.1 Background and Context

Political systems are central to the creation and propagation of climate and disaster risks, vulnerability, and exposure on one hand, and the nature of coping capacities and management options on the other (Adger, 2006; Blackburn and Pelling, 2018; Cardona et al., 2012). Political structures are vessels through which power and resources flow to create spatial, social, and temporal differentiations in riskscapes – that is, the “temporalspatial phenomena that relate risk, space and practice” (Müller-Mahn et al., 2018, p. 197). The risks, governance institutions and resilience-building processes are creations of the prevailing sociopolitical and political economy systems (Huitema et al., 2016; Kasperson et al., 1988; Sovacool and Linnér, 2016). The importance of sociopolitical systems and relations is fundamental in the theory and practice of climate change and disaster risk governance. Some have argued that “managing climate and disaster risk is a deeply political act sitting at the interface of popular expectations, legal mandate, and political fiat” (Blackburn and Pelling, 2018, p. 1). The roles of sociopolitical creations such as institutions, legislations and policies, and related norms such as democracy, legitimacy, accountability, inclusion, and knowledge, in ‘resilience’ studies are well established but not always fully understood (Bäckstrand and Kuyper, 2017; Blaikie et al., 1997; Boyer-Villemaire et al., 2014; Brooks et al., 2009; Cossens, 2013; Finnis et al., 2015; Garcia et al., 2022; Lake, 2014; Widerberg and Pattberg, 2017).

Important questions remain about empirical details in specific cases, multi-scale interactions and the implications of changes in political systems. For example, how do such changes influence resilience visions, priorities and outcomes, and constrain or facilitate adaptation and transboundary climate and adaptation risk governance (TCARG)? I explore

these questions in the context of Kenya, a developing country that is undergoing ambitious political system change. I then draw insights into how devolution as a governance and development construct (often implied in mantras like “locally led” or “community-based”) performs in the light of transboundary risks and globalisation.

#### **4.1.2 History and Potential Impact of Devolution on Governance in Kenya**

Kenya is implementing one of the most rapid, radical and ambitious devolution initiatives in the world (Ambani and Kioko, 2022; Cornell and D’Arcy, 2014; Kanyinga, 2016; Muwonge et al., 2022; Opalo, 2020; Steeves, 2015; Taka and Northey, 2020). Until 2010, Kenya ran a hierarchical, centralised governance system with one central government whose functions were implemented through tiered administrative units, essentially inherited from its colonial times (Ngigi and Busolo, 2019). But the new Constitution promulgated in 2010 (Republic of Kenya, 2010) introduced a two-tier, deeply devolved governance system. It divided Kenya’s territory into 47 counties (Article 6(1) and First Schedule), effectively establishing 48 governments in one country: one national and 47 county governments. The Constitution precisely provides that the “governments at the national and county levels are *distinct* and *interdependent* and shall conduct their *mutual relations* on the basis of *consultation and cooperation*” (Article 6, *emphasis own*), rather than any being subordinate or superior to the other. It distributes functions between, and assigns fiscal responsibilities to, each government (Fourth Schedule). The supremacy of this constitution is so deep that its “validity or legality” cannot be challenged (Article 2(3)). It also binds everybody, and invalidates “Any law, including customary law, that is inconsistent with...and any act or omission in contravention of” it (Article 2(4)). Similarly, no State authority can be claimed or exercised outside of its provisions (Article 2(2)). Furthermore, through Article 10, it creates a set of “national values and principles of governance”. These “...bind...all persons whenever any of them applies or interprets” the Constitution, “enacts, applies or interprets any law; or makes or implements public policy decisions”, including on climate and disaster risk governance. There have only been two elections where county and national governments have served two five-year terms (2013-2017, 2017-2022) under this system of governance and numerous challenges are facing both the national and county governments. As of May 2023, the legitimacy of the national government is deeply contested by the opposition (AFP,

2023; Mersie, 2023; Musambi, 2023a, 2023b; Otieno, 2023). Also, county governments complain that “...devolution is under threat from the National Government...” (Waiguru, 2023). One of the threats cited is the “unprecedented” four-month delay in disbursing the equitable share funds that county governments rely on to deliver their devolved mandates.

Devolution has a long-contested history in Kenya, and this is not the first time it has been entrenched in the Constitution. Although academic interest in Kenya’s devolution has only been stoked in the last decade (especially after the 2013 elections), the idea of devolution in the country predates the Kenyan republic and forms part of the issues in the struggle for independence in the country as well as post-independence contestations. *Majimboism* (Swahili for federalism or regionalism) was a key issue in the campaigns for the last pre-independence elections in Kenya in 1963 (Ambani and Kioko, 2022; Anderson, 2005). KADU’s strong backing of *majimboism* was an insurance for its constituency which was mainly comprised of the smaller communities—they believed regionalism would politically and economically protect these communities from the dominance of larger, even more urbanised communities, by giving them more say in their own affairs and protecting their rights, especially on ownership of land (Anderson, 2005). The *Majimbo* Constitution was then introduced in 1962. It provided for a bicameral parliament like the one in the 2010 Constitution and resulted in the division of the country into eight regions, seven of which were semi-autonomous. Efforts to recentralise began in earnest after the 1963 elections, making the president Head of State and Head of Government, and re-established the bureaucracy controlled by the president.

When Jomo Kenyatta died, Daniel Arap Moi took over as the second president of independent Kenya and quickly continued with efforts to consolidate his position including a constitutional amendment in 1982 to make Kenya a *de jure* one-party state (Nyadera et al., 2020). The postcolonial rule under Moi had many similarities to the British colonial regime, including in terms of the concentration of power in the hands of an individual and favouritism of some communities and places considered friendly to the—colonial or postcolonial—government and marginalisation of others. In his rule, Moi wielded most of the state powers just as the governor did as the Queen of England’s representative in Kenya. Favouritism and cronyism happened in the postcolonial regimes sometimes under the guise of democratisation. An example of this is the District Focus for Rural Development strategy

which was Moi's decentralisation approach to "create for the people and their chosen representative a whole new world of opportunity" at the district level in response to the "needs and aspirations of *wananchi* [Swahili for ordinary citizens]" (Barkan and Chege, 1989, p. 431, read this for more on the politics of reallocation in the country). But in their retrospection and reflection on this, Ambani and Kioko (Ambani and Kioko, 2022, p. 65) observe that:

*"District Focus was no democratisation policy. Instead, it was archetypal of the politics of the President Moi era, where the co-optation of dominant but excluded political and societal players was undertaken to shore up political support for the ruling Government."*

About a decade later, the 'one-party' section of the constitution was repealed in December 1991 after much pressure from within and beyond Kenya. This restored multipartyism and paved the way for political liberalisation in Kenya. Moi's rule over Kenya was particularly authoritarian and corrupt. He ruled using what has been described as "*a strategic mixture of ethnic favouritism, state repression and marginalisation of opposition forces, utilising violence, detention and torture*" (Steeves, 2006, p. 211). In this rule, "*State predation featured, with looting of finances, land grabbing and property seizure*" (Steeves, 2006, p. 211) and extrajudicial murders were rampant (Ambani and Kioko, 2022; CKRC, 2005). These first two post-independent regimes together with the colonial rule in Kenya midwifed the so-called historical injustices, including social, political and economic marginalisation of some communities as well as dispossession of land and other productive capital. In fact, Ambani and Kioko sum this up as, "*Political patronage and exclusionary policies pursued by successive post-colonial governments caused skewed distribution of state resources, which benefited areas connected with state officials or those who supported them*" (2022, p. 171). Thus, Kenyans wanted a new social contract that would address their needs and make them feel "like free Kenyans" in the post-independence era. This happened on 4 August 2010 when, through a national referendum, 68.55% (6,092,593) of the electorate voted in favour and 31.45% (2,795,059) against the new Constitution of Kenya as the ultimate social contract henceforth. Its promulgation was a culmination of a protracted drafting process thought to have been quite inclusive, which "fuelled much of the hopes among the citizens" (Nyadera et al., 2020, p. 4).

### 4.1.3 Transboundary climate and adaptation risks (TCARs)

In the past decade, there has been growing interest in understanding and addressing transboundary impacts and risks *from climate change* on one hand and the impacts and risks *from climate response measures* on the other. These have been regarded as transboundary climate and adaptation risks (TCARs), and defined as the:

*“...potential consequences or outcomes that could occur as the result of transboundary climate change impacts, the transboundary effects of adaptation decisions made by one or more countries or the transboundary effects of mitigation actions on countries’ adaptation options”* (Opitz-Stapleton et al., 2021, p. 10).

This interest is justified by the nature of climate impacts and the potential impacts of responses to these impacts, set within the context of contemporary society. First, climate change impacts are not constrained by borders. They can affect multiple countries, regions, and ecosystems – simultaneously or sequentially. For instance, sea-level rise can cause flooding and displacement of populations across borders, while changes in rainfall patterns can lead to water scarcity and food insecurity in neighbouring or distant areas. Second, adaptation and mitigation measures can have both positive and negative transboundary impacts creating winners and losers. For example, the construction of a dam or a seawall in one country can affect water flow or coastal erosion in neighbouring countries. TCARs can exacerbate existing social, economic, and political tensions among countries. Third, the contemporary world is increasingly globalised and interconnected. Thus, the above two elements can be amplified and cause significant impact or disruption far from their initial source. Coordinated action, involving collaboration and cooperation across borders is required to address these concerns and reduce climate risk and promote adaptation without redistributing or creating additional/new risks for ‘others’, and reduce the probability of conflict and unplanned displacement, and protect ecosystems and biodiversity – which are often transboundary in nature.

### 4.1.4 Gaps in Current Knowledge

The above definition of TCARs highlights the prevailing bias towards the ‘international’ boundaries between states (Bednar-Friedl et al., 2022; Benzie and Persson, 2019; Challinor et al., 2017; see other examples from Hedlund et al., 2018). Although Carter and colleagues expand the range of borders to include those that may be “administrative (e.g., between

sub-national jurisdictions)" (Carter et al., 2021, p. 2), TCARs and TCARG are rarely studied at the subnational level (*Chapter 3 addresses TCARs and this Chapter focuses on TCARG at national and subnational levels*). Also, other important boundaries need to be considered (Lidskog et al., 2010). Most discussions and studies of transboundary climate governance call for stronger multilateralism and bilateralism to address climate change, often implying cooperation between and among countries. These discussions usually pay little attention to, or take for granted, the character of the political systems in these countries which affect the ability and propensity to cooperate as well as address the transboundary risks themselves.

Furthermore, there has been no analysis of TCARG set within a wider political governance and public sector reform process, despite the acknowledgement that climate actions are deeply political and are rarely implemented independently (Eriksen et al., 2015; e.g., Solecki et al., 2017). Also, while politics and political elements such as institutions and policies are recognised as influential in adaptation, political system change and its impact on these elements have not received similar attention. Finally, there is limited empirical analysis of TCARs in LMIC contexts. This study addresses these gaps using a lens and analytical framework identified by Blackburn and Pelling (2018) concerning the application of "social contracts". I explore its ability "to address complex questions around the politics of adaptation" and explore "questions around responsibility and entitlement for citizen security ... and expectations dictating "who" is responsible for "what" in risk governance, and the conditions under which the legitimacy and practice of current ways-of-governing are challenged and renegotiated" (2018, p. 6).

Indeed, transboundary climate and adaptation risk governance (TCARG) requires a commitment and operationalisation of deep cooperation across multiple scales and actors, including unequal and dissimilar entities such as state and substate or non-state, citizens and non-citizens, marginalised and privileged, public and private. Operationalising such deep cooperation requires adequate political will, legitimacy, accountability etc., and the involvement of unconventional actors in the climate and disaster risk governance field. These are politically entrenched, and the quality and any change in political systems could positively or negatively affect the cooperation and resilience outcomes. Yet, as Nyandiko observes, the role of devolution (a popular change in such political systems) in "supporting

DRR and CCA hence community resilience has not been given adequate attention in academic discourse" (2020, p. 2).

### **4.1.5 Objectives and Research Questions**

This study examines the implications of Kenya's ambitious constitutional devolution programme for the governance of TCARs. It provides empirical evidence on the potential for devolved and (semi)autonomous governance to shape responses to transboundary risk and explores the potential and pitfalls for "locally led" action, especially in light of increased interdependences of labour and services and other factors under globalisation. It identifies the opportunities and challenges for TCARG *associated* with devolution in Kenya. The following research questions are explored:

RQ4.1 How does devolution affect the nature of (trans)boundariness in the context of CARG in Kenya?

RQ4.2 What are the key opportunities and challenges for (T)CARG associated with devolution in Kenya?

Section 4.2 provides a literature review on devolution, transboundary governance, and governance of transboundary climate-related disaster risk. Section 4.3 describes the methodology and methods used in the study. Section 4.4 presents and discusses the results and their implications while Section 4.5 concludes the Chapter and provides recommendations including for further research.

## **4.2 LITERATURE REVIEW: THEORY AND CONCEPTS**

### **4.2.1 Theoretical foundations**

Based on the study objectives and the research questions, three relevant strands of literature are briefly developed for this study: devolution, social contracts and political economy, as they apply to climate and disaster risk governance.

#### **4.2.1.1 Devolution**

Devolution has been widely adopted in many countries to improve governance, promote participatory democracy and provide better service delivery to citizens (IEA, 2010; Kanyinga, 2016). Many definitions exist regarding the form and extent of devolution, but there is

consensus that it is about the transfer of power, authority and responsibilities from a central government to lower-level administrations (OECD, 2001). The transfer can be done by the central governments themselves or by constitutions. As Barrett recalls, “[d]evolution is a significant, authorized, and permanent transference of capacity to governing institutions with often constitutionally mandated legislative and decision-making powers” (2015, p. 119). This is the kind of devolution being implemented in Kenya. It has been applied in various fields including development, climate governance, health sector, and political and economic governance. In climate and disaster risk governance, devolution is considered an approach to bring decision-making closer to the people (to be) affected by the policies and programs, or to improve the effectiveness of interventions more tailored to local conditions (Sophie Blackburn, 2014; Hesse and Pattison, 2013; Nyandiko, 2020). Devolution is also viewed as a way to promote democracy, accountability, participation and inclusivity among other norms and principles. The concept has been operationalised in climate change and disaster risk governance via approaches such as ‘community-based’, ‘locally led’ action, ‘place-based adaptation’ etc.

#### **4.2.1.2 Social Contracts Theory**

The social contract theory has been used to analyse the impacts of climate change and disaster risks and to propose the development of response mechanisms. In recognition of the complex nature of the problem and the urgency of the solutions needed, scholars across the academic disciplines have over time argued for the need to rethink the existing, or create a new, social contract for and with industry, scientific and policy institutions and communities concerning climate change (Adger et al., 2018, 2013; Carey et al., 2014; e.g., Castree, 2016; Jackson et al., 2017; Lubchenco, 1998; O’Brien et al., 2009; Tompkins and Eakin, 2012; Unsworth et al., 2016; White, 2007). In this discourse, the *social contracts* lens, as opposed to the classical singular social contract, is emerging as an “analytical lens on the politics of adaptation” (Blackburn and Pelling, 2018, p. 2). Until relatively recently, this analytical lens had not been conceptualised adequately. Blackburn and Pelling (2018) thus developed a conceptualisation of social contracts in adaptation. However, it is known that such social contracts for climate and disaster risks do not operate independently of other components in the public sector or of the political systems that define the broader social contracts. The novelties of the social contracts lens in the analysis of climate change and adaptation risks are unmistakable. Blackburn and Pelling summarise these as:

*"(a) highlighting tensions between need, obligation, and entitlement that underlie contestations over "who" is responsible for "what" in risk governance; and (b) drawing attention to boundaries of social acceptance surrounding risk and risk management actions, and hence to the conditions under which legitimate adaptation pathways are negotiated and contested."* (2018, p. 2)

I conceded such understanding increases the suitability of the social contracts construct as a basis for exploring TCARG. It applies to Kenya, especially under devolution, where such contestations and negotiations have happened and are, arguably, still happening on a large scale with repercussions for climate and adaptation governance (see section 4.1.4 for further justification).

#### **4.2.1.3 The Political Economy of Adaptation**

There are many reasons to incorporate political economy in the analysis of climate governance, the overriding one being the uncontested conclusion and advice that climate adaptation and disaster risk governance must be understood within the political economy of power and resource distribution (Adger, 2006; Blackburn and Pelling, 2018; Huitema et al., 2016; Sovacool and Linnér, 2016; Tanner and Allouche, 2011a). For instance, Adger (2006, p. 270) concludes that "environmental change does not exist in isolation from the wider political economy of resource use". Blackburn and Pelling concur with this and note that "Geographies of power and agency will ultimately determine the priorities that are embedded in adaptive pathways" (2018, p. 2). These considerations are especially central to the questions around transboundary climate and adaptation risks and their governance. Sovacool *et al.* (2015, p. 616) have usefully proposed a "typology of processes" that can augment the "understanding of how the political economy plays out" in adaptation scenarios: *enclosure*, *exclusion* (political dimension), *encroachment* (ecological dimension), and *entrenchment* (social dimension). They consider enclosure as a process with an economic dimension involving "Capturing resources or authority: transferring public assets into private hands, or the expansion of private roles into the public sector" and exclusion as a political process involving "Marginalizing stakeholders: limiting access to adaptation decision-making processes and fora" (Sovacool and Linnér, 2016, p. 3). They describe encroachment as a process with an ecological dimension involving "Damaging the environment: intruding on biodiversity areas or other areas with predisposed land uses, or interfering with ecosystem services" and entrenchment as a mainly a social process

involving “Worsening inequality: aggravating the disempowerment of women or minorities and/ or worsening concentrations of wealth” (Sovacool and Linnér, 2016, p. 3).

Their conceptualisation that political economy “involves the study of struggle, or the processes by which some actors benefit from particular systems or processes at the exclusion of others” (2016, p. 18) is particularly relevant in the context of TCARG where differential climate change risk perception and response are more likely to result into benefits and harm for others. Such struggles are central to the practice of governance and politics of adaptation. The utility of this ‘4Es’ framework has been secured through various studies, including its application to the case of Kenya to explore “adaptation winners and losers” in energy-related projects (Lomax et al., 2021). I propose that this 4Es framework can help to understand and explain the workings and implications of *social contracts* in (T)CARG contexts even under devolution. I, therefore, use it to analyse the political economy implications on CARG policy and practice following the change in Kenya’s political system and evolution of social contracts in the country.

## 4.2.2 Conceptual framework

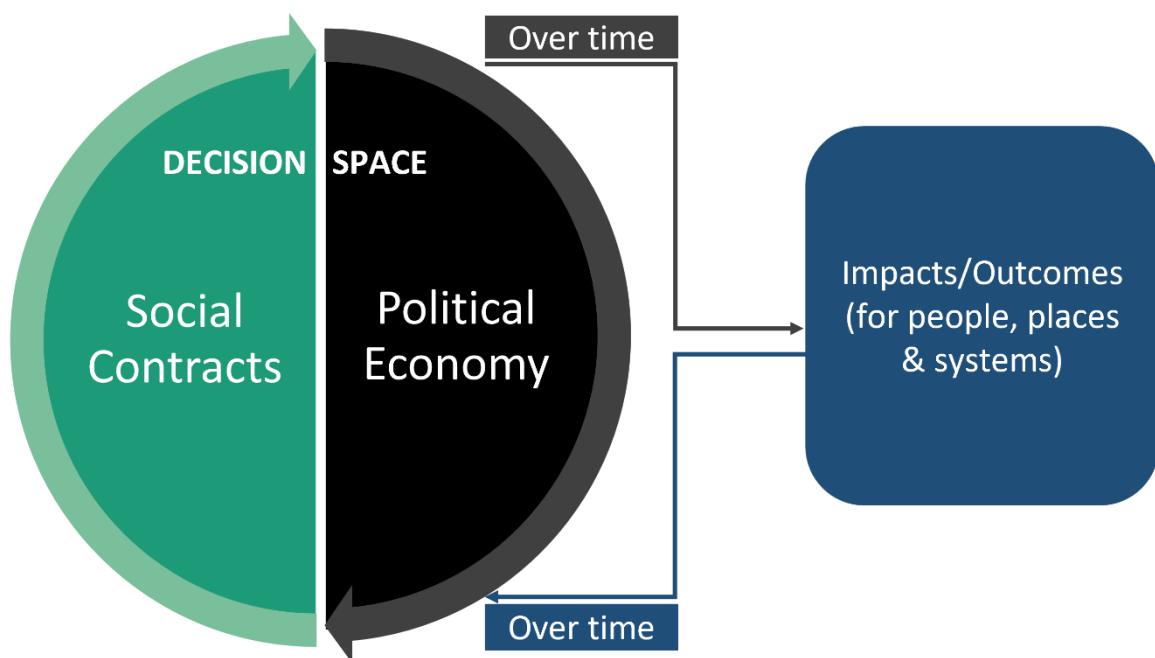


Figure 9. Conceptual framework for Chapter 4.

I conceptualise the decision space for TCARG as a factor of the interactions between people, places, and systems over time and happening within a multidimensional space defined by at least three elements: risk pathways, boundary types and boundary levels. Climate governance decisions are performed according to various social contracts crafted at each of these elements.

I build a conceptual framework based mainly on the above interrelated theories but also informed by the wider scholarship on environmental, climate and disaster risk governance. Generally, the framework suggests that the bidirectional interactions between *social contracts* in Kenya and the *political economy* of adaptation influence the decision space for (T)CARG with differentiated outcomes for nested social-ecological systems (SESSs)—i.e., people, places, and systems - over time (see also Chapters 3 and 5 for nuanced views of these elements). These outcomes can, over time, influence the political economy conditions and elements (including ideas and interests) and lead to the renegotiation of existing social contracts or the creation of new ones. This is in fact what necessitated devolution in Kenya and might be driving climate policies at both levels of government in the country. Thus,

$$\text{Social Contracts. Political Economy} \leftrightharpoons \text{Decision Space} \leftrightharpoons \frac{\text{Outcomes for SESSs}}{\text{Time}}.$$

The social contracts theory is used to understand and explain how obligations, responsibilities, expectations, and relationships are allocated and operationalised in climate and adaptation governance (Adger et al., 2013; Blackburn and Pelling, 2018; Castree, 2016;

D'Agostino et al., 2021; Loewe et al., 2021; O'Brien et al., 2009). Over the past decade, there has been a growing recognition that social contracts are not fixed or singular, but instead can be constructed, re-negotiated, or even revoked. Some analysts have suggested that there are distinct yet intersecting forms of social contracts and that a pluralistic approach is useful for analysing adaptation governance (e.g., Adger et al., 2013; Blackburn and Pelling, 2018; O'Brien et al., 2009) and in social science more broadly (e.g., Loewe et al., 2021). This Chapter supports this perspective and highlights especially the multiple social contracts framework proposed by Blackburn & Pelling (2018), consisting of "imagined", "practiced", and "legal-institutional" social contracts.

As conceptualised in Figure 9, climate and adaptation decisions are made, and interventions implemented, within the limits of *decision spaces* (for TCARG in this case). The decision space involves and depends on *people*, *places*, and *systems* and their interactions over *time*. It is also multidimensional and thus defined by at least three elements I consider integral to transboundary risk governance scholarship: *risk pathways*, *boundary types* and *boundary levels*. The nature and extent/size of the decision space for TCARG, and what is (dis)allowed in it are determined by the applicable social contracts crafted at each of these elements. In other words, I propose that the decision to operate within the boundary levels and types and the risk pathways of focus is not arbitrary. The social contracts can thus expand or constrain the decision space by their expansion or contraction of these elements. In addition, social contracts are deemed ubiquitous, and therefore present in each of these elements. The crafting, (re)negotiation and implementation of such social contracts is understood within the political economy underpinning the social-spatial distribution of power and resources over time, and mediated through the prevailing sociopolitical and economic systems.

People are contingent in this equation as they are *the* conscious parties to the social contracts—that is, the obligations, responsibilities, expectations and execution of the social contracts or otherwise are by people individually or through their social organisations and institutions. Places are another critical variable in this equation which also has utility in social contracts and political economy whose "traditions have viewed place as a frequent focus of struggles over power, control, and equity, with scale only one of many factors shaping how places work" (Wilbanks, 2015, p. 70). Place is critical in understanding TCARG for many reasons including the differentiated 'sensemaking' where "what makes sense for one place

seldom makes sense for many others" in adaptation and resilience and 'reality-shaping' where "the dynamics and sustainability of places defined at any geographical scale are in fact shaped by and a shaper of realities at other scales" (Wilbanks, 2015, p. 70). In addition, social contracts are designed and implemented within particular places. Systems are crucial in CARG because vulnerability to climate risks is augmented or reduced/reversed through them (see *Chapter 3 for a general explanation of these systems*). I utilise Sovacool and Linnér's (2016) 4Es framework to analyse the impact of devolution and TCARG in Kenya.

Utilising the above three variables in the context of the 4Es framework especially addresses what Lomax *et al.* describe as its "important limitation", namely, "that it does not give adequate consideration to the socio-ecological system within which an adaptation project is situated" (2021, pp. 1–2). My premise here is that social contracts for (T)CARG are crafted, (re)negotiated and implemented through governance processes shaped by the underlying political economy. In this sense, political economy can be viewed as the complex interactions of people, places and systems in adaptation and TCARG. Changes in the political economy conditions (e.g., with regards to power, resource access and use, etc) can upset existing social contracts (leading to amendments or crafting of new ones), and the amended or new social contracts often have political economy implications. Thus, combining these two frameworks enables a much deeper exploration and understanding of the impact of devolution on adaptation and TCARG through the Kenyan case study.

## 4.3 METHODOLOGY

### 4.3.1 Research Design, Data Collection and Sampling Strategy

This study utilised a mixed-methods approach to a case study research design. Data collection was through literature review, analysis of 130 official documents, 77 key informant interviews (KIs) with 72 respondents, observation through site visits and as a participant at the *Kenya 7<sup>th</sup> Annual Devolution Conference* (23<sup>rd</sup>–26<sup>th</sup> November 2021). The devolution conference was themed "*Multi-level governance for climate action*" and the sub-theme was "*Sub-National mobilization in unlocking the full potential of climate action during and after pandemics*". At least 60 state and non-state institutions directly involved in climate governance in Kenya were represented in the interviews. Some were independent

consultants at the time of the interview. Each interview lasted about 90 minutes. The analysed documents included statements/speeches of 32 officials/speakers who were not interviewed. They included three Kenya high-level statements at the UNFCCC COPs (see *Table 3 in Chapter 3 and Appendices 3 and 4*). Fieldwork and site visits were done in three waves: October 2019 to January 2020, November 2021 to January 2022, and November 2022 to January 2023. Some interviews were conducted remotely outside of the fieldwork visits.

Documents were selected and key informants (KIs) were recruited through purposive and snowballing techniques. Some KIs were identified from LinkedIn as their profiles indicated they held “climate change” roles. Others were identified from events attended. Collection of policy documents was mainly through official websites (including by referral from interviewees) but some were shared through personal communication. Other specific data were collected from different official sources and are cited accordingly.

### **4.3.2 Data Analysis Methods and Techniques**

Qualitative and quantitative analyses were performed on the data. Documents were analysed through content analysis (Drisko, 2016; Elo and Kyngäs, 2008; Hsieh and Shannon, 2005; Neuendorf, 2017) and thematic analysis (Braun et al., 2019; Braun and Clarke, 2006; Nowell et al., 2017; Terry et al., 2017), and interviews mainly through thematic analysis. These were simultaneously employed following a combination of both deductive and inductive approaches for a more complete understanding of the subject (Neuendorf, 2018).

Audio and audio-visual data were first transcribed before analyses. The text data were first coded based on a coding framework developed from the literature and research questions. Coding was done iteratively using NVIVO and emerging themes were included inductively in subsequent coding iterations (see *the codebook in Appendix 6*). I also incorporated mapwork in the analyses and used the observations made from pre-existing maps or those generated based on the data collected.

In the presentation and discussion of the results, *italics* are mainly used to denote direct quotes from the data, excluding quotes from academic literature — unless they are italicised in the original sources, or when emphasising something, in which case this is explicitly stated

as '*own emphasis*' in italics. Quotes from KIIs and statements/speeches are coded and cited in a manner that shows a distinction and provides the date and number of the item. For instance, **S21-2** shows that the data source is a statement (**S**) made in 2021 (**21**) and it is statement number two (**-2**), while **KII19-1** would refer to a key informant interview (**KII**) made in 2019 (**19**), and it is interview number one (**1**).

## 4.4 RESULTS

### 4.4.1 Overview of the Results

The results in this Chapter demonstrate that devolution has profoundly transformed the boundariness of the Kenyan territory and society at different levels and dimensions with implications for adaptation and (T)CARG. Kenya's constitutionally sanctioned devolution created the current devolved governance units, the counties, which have become centres of sociopolitical powerplay and economic performance. The domestic jurisdictional boundaries of these governance units are demarcated, along with their embedded actors (e.g., the governors and the governed) and the expressly allocated powers and functions. Climate change response, and disaster and environmental management are some of the functions shared between the two levels of government (Fourth Schedule, and Articles 185(2), 186(1) and 187(2)), effectively delimiting their respective decision spaces under the new social contract. While prevailing political economy conditions including globalisation have normatively (inter)nationalised climate and environmental policymaking, devolution has localised their other arenas, including risk assessment, implementation of direct interventions, and evaluation of impacts.

The Constitution of Kenya is the country's ultimate social contract that provides the basis and modalities of the interactions of actors in the decision spaces formally created—but also has influences on informal interactions. Despite creating two levels of government, the Constitution does not suggest hierarchical relationships between the national and county governments (see *Figure 11*). This is perhaps a deliberate attempt to insure against challenges similar to those observed under previous dispensations, including potential excesses by the 'higher level' government and its agents to the detriment of the 'lower level' governments and the people of Kenya, to whom "*all sovereign power belongs*" (Article 1(1)). Instead, the 2010 Constitution expressly stipulates that the "*governments at the national*

and county levels are distinct and inter-dependent and shall conduct their mutual relations on the basis of consultation and cooperation" (Article 6(2)). The *distinctness* here refers to the separation of powers and the creation of governance boundaries of various types and levels across which cooperative, collaborative, and consultative efforts are to occur in the performance of the individual or shared obligations and functions (see Appendix 9 for the list of functions assigned to each level of government). Thus, it delineates and protects the various decision spaces from 'outside' interference and provides the modalities for interactions between the multiple actors involved particularly in the formal but also the informal processes of governance in the country. This also influences the risk pathways relevant for each actor as they perform their (assigned) roles and responsibilities (see Figure 10).

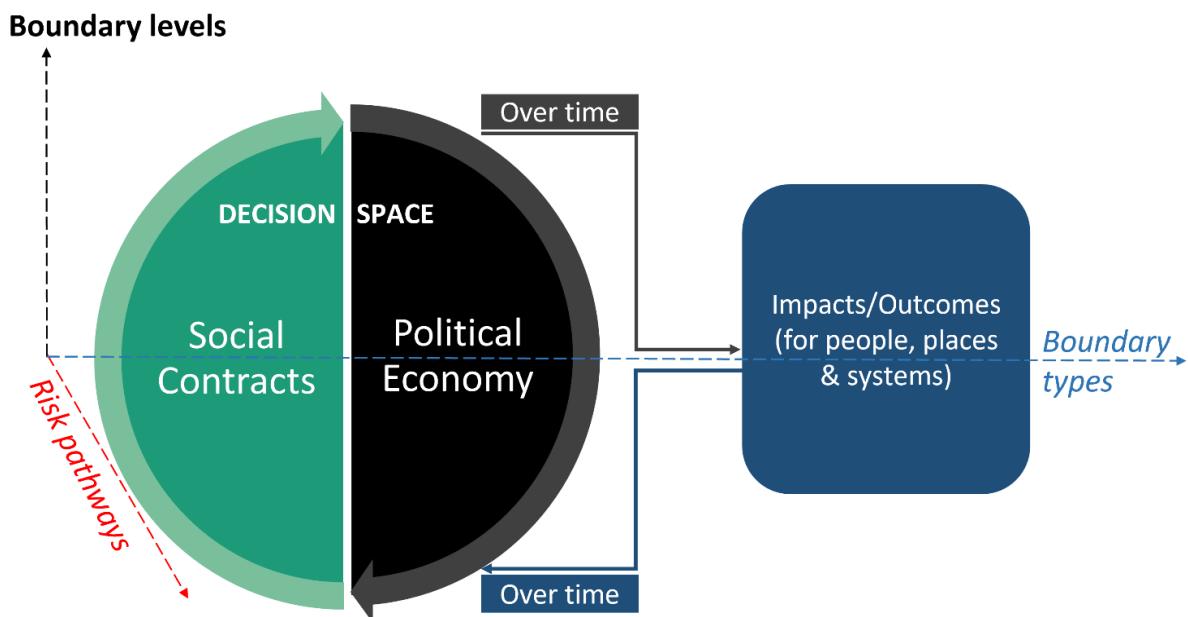


Figure 10. Conceptual framework applied to three TCARG elements: risk pathways, boundary types and boundary levels.

The layers of governance and the profound multilevel separation of powers simultaneously inspire and obscure governance in the country, including through the political economy processes discussed in subsection 4.4.6. Within the resultant fragmented framework and increased autonomy, each actor is faced with its set of challenges and is endowed differently with resources and capacities for performing their mandates. Each governance unit is responsible for and accountable to a particular territorial constituency (i.e., *"its residents"*). This complicates the prospects and presents real challenges and opportunities for (T)CARG in Kenya. The new actors look to consolidate their territories, deliver their defined mandates,

and entrench themselves within the new constitutional dispensation's power play. The climate change spectre shapes this performance in a country highly vulnerable to climate-related risks and impacts and presents both formidable challenges and opportunities.

Some of these challenges—especially those related to the implied and practised parochialism—can be surmounted and opportunities exploited better with intentional effort and focus. This can be driven by increased recognition and consideration of the extent to which occurrences and omissions outside each governance unit matter for their resilience and success in delivering their climate- and non-climate-related mandates and functions. The prevailing political system is significantly influencing this, and suggestions have been advanced that might require a reinterpretation of the social contracts at play or the creation of new ones, just as it happened with the adoption of the 2010 Constitution and the 1969 and 1963 constitutions before it. New mezzo-level outfits such as the regional economic blocs (REBs) comprised of the established governance units have indeed started to emerge and are incorporated as crucial actors in the transboundary discourses around climate change, adaptation, disaster risk reduction, development and environmental issues.

#### **4.4.2 Kenya's 2010 Constitution: The Supreme Social Contract**

Recalling its history reviewed earlier in the Chapter, devolution in Kenya is a creation of the renegotiated supreme, hegemonic social contract codified in the 2010 Constitution. Hence, it cannot be satisfactorily understood independent of this Constitution's context, which is Kenya's "*supreme law*" (Article 2(1)). Therefore, I briefly highlight the insights gained from the analysis of the Constitution and the other data regarding the Constitution (*see also Table 12 for the prevalence of "constitution" in Kenya's climate policy documents*).

The centrality and supremacy of the 2010 Constitution in the social, economic, political and environmental governance processes in Kenya is indubitable and is appreciated in all the climate change laws and policies. The Constitution's apperception of the vulnerable and marginalised groups and communities (Articles 21(3), 56, 216(4) and 260) and its recognition, promotion and protection of rights and fundamental freedoms of all (Articles 26-51, especially 42 and 43) lay a strong basis for addressing vulnerability to climate-related risks and impacts. For the vulnerable and marginalised, the Constitution offers special

protection (e.g., Articles 10(b), 20(5), and 43), promotion (e.g., Articles 52-57, 174 (e), 201(b)(iii), and 204), participation in “the political process” (Article 91(1)(e)) and representation (e.g., Article 100).

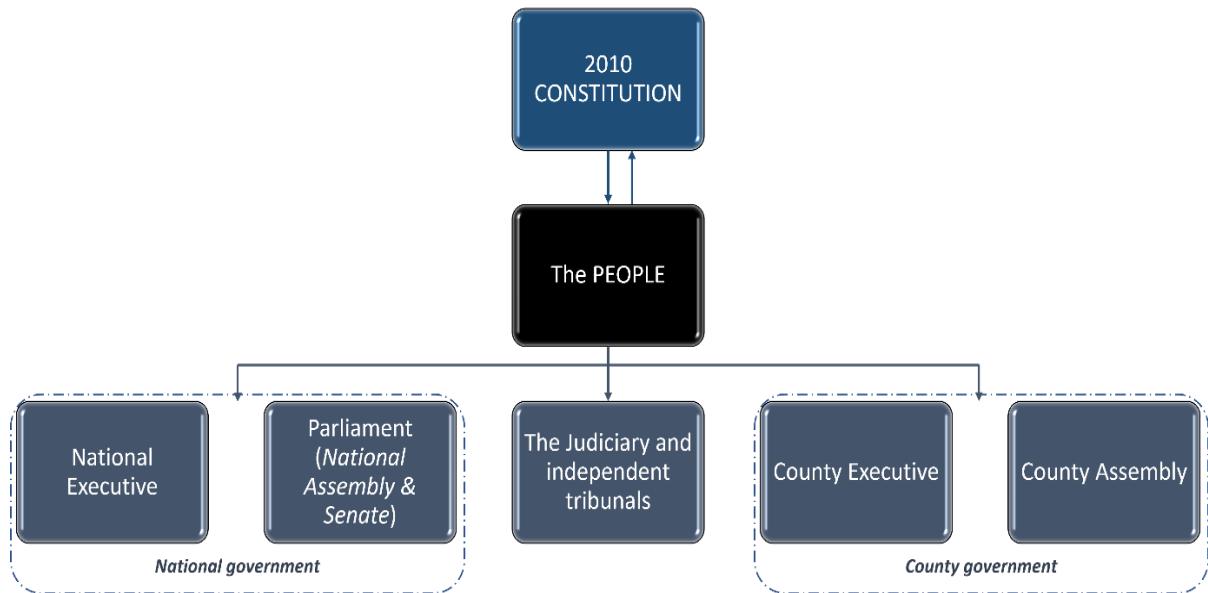


Figure 11. The social contract arrangement in Kenya under devolution.

Note that the Constitution implies no hierarchical relationship between the national and county governments. (Compiled by the Author from Kenya's 2010 Constitution).

Its far-reaching “*Bill of Rights*” forms “*an integral part of Kenya’s democratic state and is the framework for social, economic and cultural policies*” (Article 19(1)), correspondingly laying a foundation for climate change adaptation and risk governance. These are to be protected, promoted and enjoyed under devolution, including through climate action. However, the results illustrated show that climate change affects the protection, promotion and enjoyment of at least 23 (88%) of these rights (see Table 9).

Table 9. Climate impact on Kenya's Bill of Rights under the 2010 Constitution.

Article #	Subject Rights and Fundamental Freedoms	Climate-impacted? (Yes/No)
26.	Right to life	Yes
27.	<b>Equality and freedom from discrimination</b>	Yes
28.	Human dignity	Yes
29.	<b>Freedom and security of the person</b>	Yes
30.	Slavery, servitude and forced labour	Yes
31.	<b>Privacy</b>	Yes
32.	Freedom of conscience, religion, belief and opinion	Yes
33.	<b>Freedom of expression</b>	Yes
34.	Freedom of the media	Yes
35.	<b>Access to information</b>	Yes
36.	Freedom of association	Yes
37.	<b>Assembly, demonstration, picketing and petition</b>	Yes
38.	Political rights	Yes

<b>39.</b>	<b>Freedom of movement and residence</b>	<b>Yes</b>
40.	Protection of right to property	Yes
<b>41.</b>	<b>Labour relations</b>	<b>Yes</b>
42.	Environment	Yes
<b>43.</b>	<b>Economic and social rights</b>	<b>Yes</b>
44.	Language and culture	Yes
<b>45.</b>	<b>Family</b>	<b>Yes</b>
46.	Consumer rights	Yes
<b>47.</b>	<b>Fair administrative action</b>	<b>Yes</b>
48.	Access to justice	Yes
<b>49.</b>	<b>Rights of arrested persons</b>	<b>No</b>
50.	Fair hearing	No
<b>51.</b>	<b>Rights of persons detained, held in custody or imprisoned</b>	<b>No</b>

Furthermore, the “*national values and principles of governance*” (Article 10) and “*values and principles of public service*” (Article 232) established therein constitute a robust set of the rules of the game underpinning public sector administration in Kenya post-2010. Moreover, and perhaps most notably, it established and institutionalised devolution in Kenya (Articles 174-200) which is now *the modus operandi* for Kenya’s everyday development, politics and governance, including climate change and adaptation governance. It demarcates the decision spaces and underpins the interactions of actors in the spaces.

The constitutional review leading to the 2010 Constitution was itself a reconsideration of social contracts that did not work well for the people of Kenya, particularly leading to undesirable social, political, and economic conditions. It was motivated by the desire to address the multifaceted ills and negative outcomes markedly founded on the colonial structures and ethos and perpetuated by post-colonial governments in Kenya (CKRC, 2005; Ndung’u, 2014) including through previous constitutions and duly enacted laws and policies (Republic of Kenya, 2010). These included rampant excesses of an extremely powerful President and presidency, corruption and marginalisation and exclusion of the local voices (Cheeseman et al., 2016; CKRC, 2005). Some, argue that such a state was bound to fail because,

*“The colonialists bequeathed a state designed to deliver clientelism, corruption, ethnic tensions, police brutality, socio-economic deprivation, and marginalisation and inequities on the basis of gender, sex, age, disability, and ethnicity, among others”* (Ambani and Kioko, 2022, p. 3).

These governance vices eroded the adaptive capacities of many communities, especially the drylands which form up to 89% of Kenya’s territory and whose low carrying capacity

predisposes them to climatic and environmental changes (CKRC, 2005; Hesse and Pattison, 2013). The 2010 Constitution was, therefore, an attempt to “*decolonise the State by democratising it to entrench ordinary people at the centre of power, and to de-tribalise, de-urbanise and accommodate all groups*” (Ambani and Kioko, 2022, p. 3), an aspect evident in its letter and spirit. This is apparent in its redefinition of the political, functional and temporal boundaries and spaces within which climate-relevant action happens. It also departs significantly from previous social contracts—including the colonial ones—that were non-inclusive, marginalising and disempowering based on such boundaries among other social, economic, and political considerations. This is particularly evident in the way it redefines decision-making processes, resource allocation, and public participation in the country with the intent of addressing historical imbalances and injustices and promoting more equity in the country. This approach departs from the prevalent postcolonial strategy of co-opting the “dominant but excluded political and social players” to bolster “political support for the ruling Government” described by Ambani and Kioko (2022, p. 65)—recall section 4.1.2 for context. In addition, it elaborates certain rights further “*to ensure greater certainty as to the application of those rights and fundamental freedoms to certain groups of persons*”, i.e., “*children*”, “*persons with disabilities*”, “*youth*”, “*minorities and marginalised groups*”, and “*older members of society*” (Articles 52-57). Many studies and policies agree that these groups are usually more vulnerable to climate and disaster risks (for example, Bradshaw and Fordham, 2013; Cardona et al., 2012; Cutter, 2017; Government of Kenya, 2018b; UNDRR, 2015; UNISDR, 2009) and therefore often defrauded by prevailing social contracts. This recognition of the rights and agency of groups and communities that have been historically marginalised—a central tenet of decoloniality—is essential for equitable and just climate action.

Additionally, “*future generations*”—usually ‘unrepresented’ in most social contracts and social contract theories (Adger et al., 2013; O’Brien et al., 2009)—are represented in Kenya’s new social contract. Certainly, the Constitution recognises them and their rights, and cites the posterity as justification for the protection of the environment (e.g., Preamble and Article 42); and incorporated in the “*equitable*” sharing of “*the burdens and benefits of the use of resources and public borrowing*” (Article 201(c)). This forms part of the basis for climate action in Kenya, with similar terms being used in almost all the climate change legislative, policy and strategy documents. Its generous provisions on environmental and natural

resource management and conservation (Articles 42, 69-72), its imposition on the State obligations regarding the environment, and its sharing of the responsibility for climate change response between the national and subnational governments portend and entrench environmental justice and environmental constitutionalism (*see Figure 12 for climate-relevant keywords references in the COK 2010 and Appendix 7 for their disaggregation*), moving away from the colonial appropriation, alienation, and monopolisation of the environment (e.g., land, forests etc) for the imperialist economic compulsions (see, for example, Shanguhyia, 2023 for more details on Kenya's environment under colonialism).

#### **4.4.3 Social Contracts, Devolution and TCARG**

It is almost impossible to imagine T(CARG) in Kenya outside the devolution context. Its extent and nature are founded on the renegotiated *ultimate social contract*—the Constitution—and it enjoys similar protection and supremacy. Nonetheless, as an idea in practice, devolution is a social contract in its own right (*also see Chapter 5 for the CARG rationales in Kenya*). It seems to have evolved simultaneously from what Blackburn and Pelling (2018) call “imagined” and “practiced” social contracts over time to become also entrenched in the “legal-institutional” social contracts in Kenya. It has become so valued amongst the citizens of Kenya that one analyst—a director of an institute for development studies in Kenya—argued that “...*devolution is something that one cannot touch or do away in this country without there being a revolution...*” (S23-4). Other data lead to a similar conclusion that devolution is treasured by the people of Kenya and is an integral element of the new social contracts in the country. For instance, during the 7<sup>th</sup> Devolution Conference, the then Governor of Makueni County suggested that devolution was irreversibly entrenched:

*“This nine years going into 10 years, many things have happened and when you visited the exhibitions, you were able to see some of the innovations, some of the things that are happening in each of our 47 counties. And we are happy to note that in this meeting as we consider where devolution has gone, as we consider climate change, we are happy, very happy to note that devolution really has settled and it is irreversible” (S21-12).*

Its oft-regarded radical and ambitious changes fundamentally reconfigured the form, content and performance of government and governance in the country. It redefined the

actors, their needs and rights, and the allocation of obligations, responsibilities, and resources across space, social groups, and time.

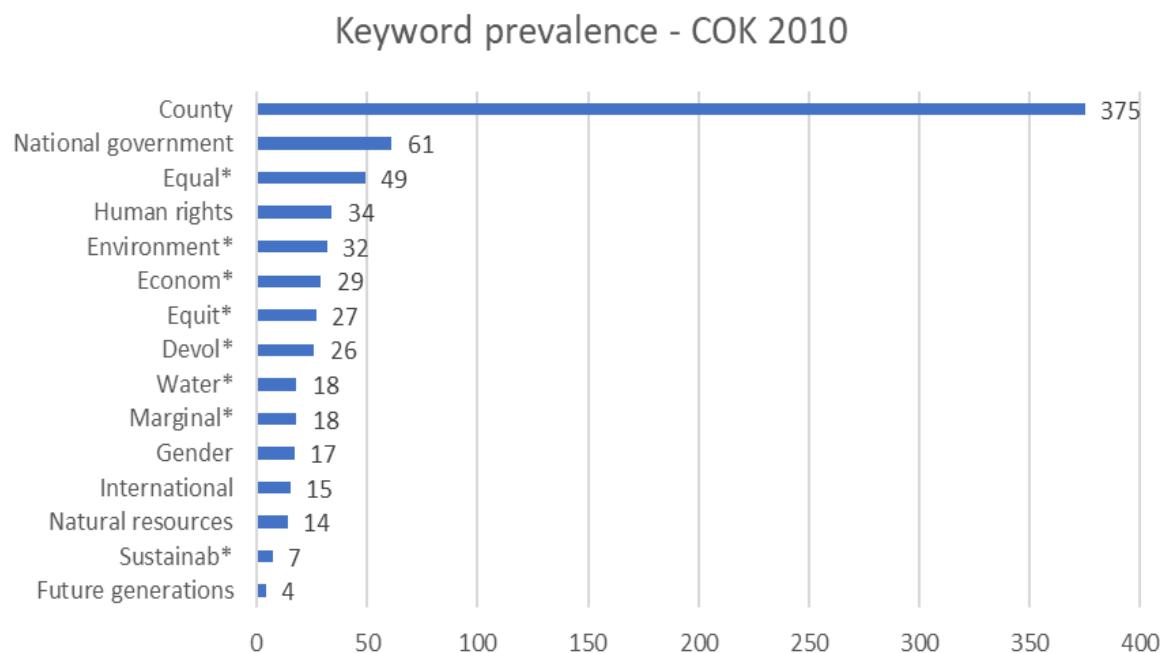


Figure 12. Reference of select climate- and devolution-relevant keywords in the COK 2010.

Climate risks and response strategies are especially imagined within the (shifting) boundaries, domains and levels of devolution with little attention paid to dynamics outside each domain. Conversely, these social contracts and resultant governance architectures are being influenced by the transboundary dimensions of climate risks and adaptation on one hand and of their governance on the other, through various platforms and processes of (re)negotiation, (re)definition of identities and (re)interpretation of relationships (see *Table 11 and Section 4.4, and Chapter 5 for more details on these*). The multiple social contracts framing fits in the analysis of (T)CARG in this Chapter as it helps further explain the adaptation governance elements and dimensions. In Table 10, I highlight how the three types of social contracts manifest in Kenya through the adaptation governance dimensions based on Termeer *et al.*'s (2017) seven elements, Heinen *et al.*'s (2022) 'five dimensions' (*further described and utilised as the 'CARG pentagon' in Chapter 5*).

Table 10. Critical elements of the social contracts for (T)CARG under devolution in Kenya.

Social Contracts	Legal-Institutional Social Contracts	Practiced Social Contracts	Imagined Social Contracts
<b>Key actors (governors) judges?</b>	Governments: National government; 47 county governments	Markets Private sector; Voluntary sector (NGOs, CSOs, FBOs; PBOs)	Individuals Individual citizens; Citizens in collectives (e.g., communities); non-citizens
<b>Legitimation</b>	Elections; Mandate ( <i>Executive power</i> )	Self and others (based on prevailing laws and policies of the location)	Citizenship – birth; membership – belonging; socialisation; self
<b>Framing</b>	Obligation	Opportunity	Survival
<b>Interdependence</b>	High; intergovernmental; diplomatic	Market-based; free market economy	Erratic
<b>Governing</b>	Litigation and legislation; public service and administration.	Product/Service- specific	Everyday life and survival
<b>Rules of the game</b>	Legislation and policies ( <i>laws</i> )	Commercial contracts, agreements	Social and individual norms and principles.
<b>Boundaries</b>	Physical; political; sacred - rigid	Abstract, fluid	Physical; political; not so sacred, not so rigid;
<b>Timing</b>	Defined	Variable	Sporadic
<b>Relationships</b>	Duty-bearers vs. rightsholders; Governments vs. Citizens	Suppliers vs clients, or stakeholders (for the voluntary sector)	Rights-holders and consumers/clients; family; tribal/ethnic.
<b>Sectoral alignment</b>	Sectoral and cross- sectoral strategies		No distinction between sectoral services or products
<b>Limits (limited by)</b>	Jurisdiction, mandate, scope, capacity.	Scope, mission, interests and capacity	Citizenship, residency, capacity.

Additionally, I illustrate these in Figure 13, suggesting clarifications of what might be situated at their intersections (*in panel (b)*) and exemplifying the principal actors and the types of relationships between them in the different social contracts' arrangements (*in Panel (c)*). While advancing the multiple social contracts perspective here, I suggest that the design and implementation of (T)CARG cannot possibly happen without, and ought to consider these dynamics and dimensions to contribute to transformational adaptation, climate justice and resilience building.

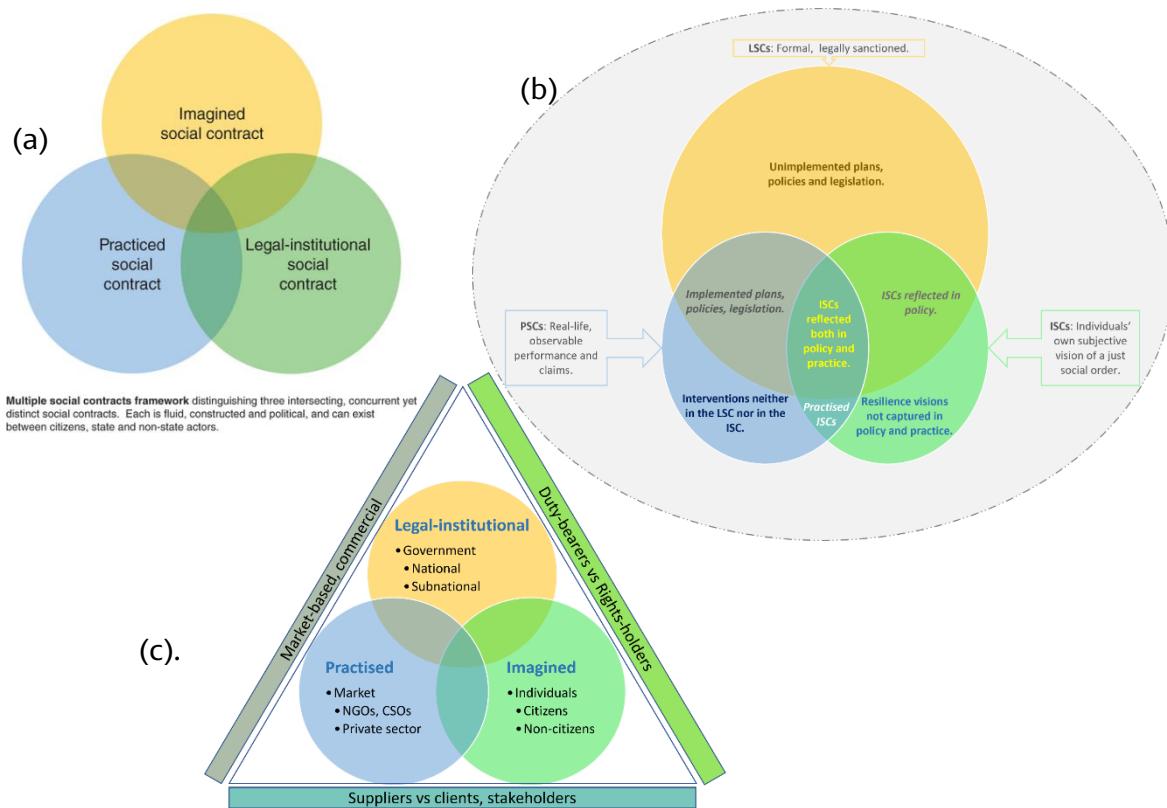


Figure 13. Social contracts for adaptation

Panel (a) is Blackburn and Pelling's (2018) conceptualisation — available at:

<https://wires.onlinelibrary.wiley.com/cms/asset/f610a0a7-bf2e-475b-9b88-83b76dd09255/wcc549-toc-0001-m.jpg>; panel (b) illustrates the enhanced multiple social contracts framework clarifying what might be found in the intersections of the social contracts; and panel (c) exemplifies the key actors responsible for the 'enforcement' of each type of social contracts and the types of relationships between them in the different social contracts' arrangements.

#### 4.4.4 Devolution Impact on CARG-relevant Boundariness

Devolution has profoundly altered the social, spatial, functional and temporal boundaries of Kenyan society. In the new social contract, the old physical and social boundaries and relationships were reimaged, and new ones were created (see *Figure 14* for details on this). It altered the socio-spatial (i.e., place-based) and socio-temporal (i.e., timing and planning) rhythms of governance in Kenya—such as specifying the dates for elections ("second Tuesday in August, in every fifth year" (COK Articles 136(2)(a), 177(1)(a) and 180(1)), budget making and spending (Articles 220-224), reporting (e.g., Articles 59, 132, 234, 240-241, 254) including financial reporting (e.g., Articles 213, 225, 228-229, ) etc. It created new spaces for participation and demand of rights for citizens and their groupings as well as (potential for) new spaces for cooperative policymaking and implementation, akin to what Hamilton calls "collaborative policy forums" (Hamilton, 2018, p. 3). These forums under

devolution include those established under the County Governments Act, 2012, such as the *"structures for citizen participation"* (in Article 91), the *County Development Boards* (Article 91A) and *consultative forums* (Article 54), and form spaces for multiscale interactions in the changed political system. Thus, devolution recalibrated the scales of governance and the politics of scale in Kenya (refer to *Table 11*). This also created the need for, and a rethink of, resource development and sharing; data, information and knowledge; guiding standards, norms and principles across the aforementioned boundaries. Furthermore, it reconfigured and created new layers of accountability relations and citizenship in one country.

Generally, devolution has resulted in observable spatio-temporal alterations as its implementation gains traction. The observation that *"there is no corner of this country that doesn't have something to show in terms of progress and in terms of development"* (S23-4) is incontrovertible. Perhaps in agreement with the label of devolution as Kenya's "biggest political transformation since independence" (Cheeseman et al., 2016, p. 1), this excerpt from Kenya's fourth President's statement at the Seventh Annual Devolution Conference—which focused on climate change action—further conveys the esteem in which devolution is regarded in Kenya and the impact associated with its implementation:

*"Of all the programmes Kenya has implemented since independence to spur socio-economic development, devolution has had the deepest and most far-reaching impact on the lives of Kenyans. Indeed, today the devolution achievements and dividends are a visible reality in all parts of the country. Everywhere you go across the country, you find more empowered communities and note major improvements in infrastructural development, health care and basic services, as well as service delivery"* (S21-10).

The services mentioned are some of the devolved functions in Kenya. Others include agriculture, county transport, trade development and regulation, county planning and development, county public works, and disaster management (see *Appendix 8 for a full list of the allocation of functions between the national and county governments*). Most of the devolved functions are climate-relevant and fall within sectors identified in Kenya's climate change legislative and policy instruments, including its updated first nationally determined contribution (NDC) (Republic of Kenya, 2020a).

Some of the above impacts of devolution on CARG-relevant elements are further elaborated in the subsections below. These are not exhaustive but rather illustrative of how such elements are impacted by devolution.

#### **4.4.4.1 Impact on Boundaries and Boundariness: Unbordering and (re)bordering**

Boundaries are the foundation of any ‘transboundary’ phenomenon or discussion. Borders are central to social contracts partly because they, as Balibar observes, fulfil “several functions of demarcation and territorialization – between distinct social exchanges or flows, between distinct rights, and so forth” (2011, 79). Devolution in Kenya resulted in the unbordering and (re)bordering of the country, thus qualifying as a *bordering practice*, following Guentner et al.’s understanding of bordering practices as,

*“...measures taken by state institutions – whether at territorial frontiers or inside them – which demarcate categories of people so as to incorporate some and exclude others, in a specific social order” (2016, 392 [emphasis in original]).*

Devolution in Kenya created 47 counties across Kenya’s territory whose boundaries are legally defined by the Constitution (Article 188), each with its own elected county government (Article 176). This transformed Kenya from a country with one government (*as in Figure 14a*) to one with 48 legitimate governments and consequently created a significantly patterned boundariness both domestically (*as in Figures 14b and 14d*) and internationally (*see Figures 14c and 14e*). These (new) bounded units define the framework, decision spaces, and rationale for social contracting, governing and enforcement with implications for transboundary governance of economic development, tangible public financial and natural resources, and other climate-relevant elements (*see Chapter 5 for more on the rationales and territoriality of CARG based on these*). For instance, while discussing the country’s national circumstances relevant for climate change, Kenya’s current updated NDC states:

*“The Constitution of Kenya creates two levels of Government, namely: the National Government and 47 County Governments that have defined mandates and functions. The National Government has the responsibility of formulating policies that will ensure that the country transforms to a low carbon climate resilient development pathway, and of ensuring that programmes are put in place to deliver its obligations under the United Nations Framework Convention on Climate Change (UNFCCC)”*

(Republic of Kenya, 2020a, p. 2).

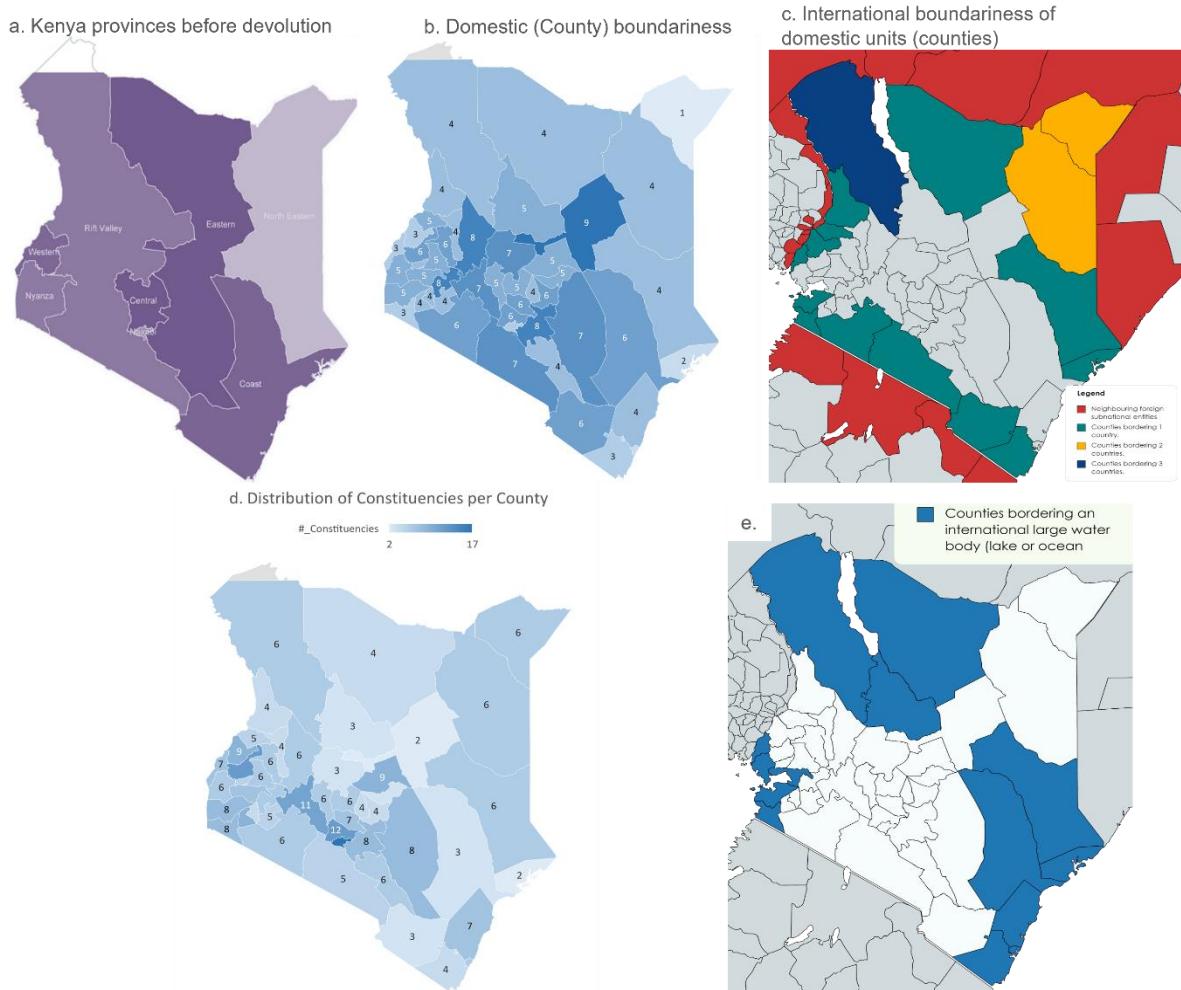


Figure 14. Visual displays of the impact of post-2010 devolution on legal-political boundariness in Kenya.

Source of boundaries data: IEBC

This explicitly shows the national and county governments are formally authorised to make decisions that affect climate risk and adaptation governance and outcomes, their respective mandates—suggesting the kind of decisions they are authorised to make—and interactions between them including through planning and implementation of such decisions (see subsection 4.4.4.3 for more details) resource allocation and utilisation (see subsection 4.4.4.7 for more details), as well as sharing of relevant data, knowledge and information (see subsection 4.4.4.8 for more details). Further, devolution created 290 constituencies and 1450 county assembly wards (CAWs) within each county. These are not spatially distributed equally (see Appendix 9 for distributions of constituencies and CAWs per county). For instance, Isiolo which borders nine other counties has only two constituencies and 10 CAWs, while Nairobi bordering only three other counties has 17 constituencies and 85 CAWs (see

*Figure 14d*). This is material to transboundary (climate) governance in the country in various ways. For example, the number of these units in a county influences the number of elected representatives and the amount of resources (including personnel and finances) for that county. Additionally, it shapes the layers of relations and the number of decision-making centres in the exercise of power relevant for TCARG—e.g., the more neighbours each governance unit has, the more it is exposed to TCARs due to the multiplicity of transboundary sources, relations, and decision-making centres. Furthermore, Kenya's 3,457 kilometres of land boundaries are shared between the five countries (Ethiopia 867 km; Somalia 684 km; South Sudan 317 km; Tanzania 775 km; Uganda 814 km). Devolution distributed this between the 16 counties with an international border (see *Figure 14c*). Consequently, any transboundary phenomenon involving especially the neighbouring countries (international level) fundamentally involves and is borne foremost by the county governments (at the subnational level)—as seen in the aftermath of the desert locust swarms from Somalia, contestations in Turkana around the impact of the construction of the Gibe cascade dams along the Omo River (see *Chapter 2* for more on such). In addition, this spatial (re)demarcation of boundaries closed access to land for some and opened access for others, signifying the political economy implications of the political system change to resource access. Land in Kenya is an emotive issue, and the unbordering and (re)bordering implied (re)allocation of land and land-related resources as borders shifted and new ones were created.

#### **4.4.4.2 Recalibration of Scale and Scalar Politics**

Scale and politics of scale are central to climate change governance in general but are particularly vital in transboundary contexts. They determine the kind of relationships possible and/or practical across each scale. Devolution generally involves power shifts to lower levels of authority. In the Kenyan context, devolution did not follow this hierarchical construction of 'handing' power to a lower level, in which case the higher level can revoke these powers at will. Instead, it led to a breakup of the entire governance landscape with bidirectional accountability checks at both the national and subnational levels. The scale and related politics of scale are shaped by the above demarcations emanating from devolution, which are also material to climate governance. For example, one KII noted:

*"...the way our governance systems are structured, it means that we have to operate*

*within specific jurisdictions and within the laws. And basically, we have to operate within the governance structures within any boundary. So, whether they are county level or national level, our intervention to climate change, or how we address climate change, has to be informed by that..." KII21-21.*

For instance, devolution created six elective positions (all on the same day), four of which are primarily devoted to the county level (see *Table 11*), signifying the centrality of the county as an administrative and political forum/unit for development and political participation. The “constituencies”—which are electoral units for the election of the members of the National Assembly (COK Article 89(1))—receive development funding from the national treasury through the National Government Constituencies Development Fund (NG-CDF). Since the NG-CDF is in reality “a national government fund” (Republic of Kenya, 2015 Article 4(1)(a)), projects falling within the devolved functions (e.g., water, health etc.) are ineligible for funding from it. Clearly, constituencies are therefore conduits of national government funding and functions within each county. They are indeed recognised as platforms “*for identification, performance and implementation of national government functions*” (Republic of Kenya, 2015 Article 3(b)). While their total number remains the same as stipulated in the ultimate social contract, their names and boundaries are reviewable by the Independent Electoral and Boundaries Commission (IEBC) “*at intervals of not less than eight years, and not more than twelve years*” (Article 89(2)). The number of CAWs on the other hand is reviewable “*periodically*” alongside their names and boundaries (Article 89(3)). These create interesting power relations and performative politics in the country, which often complicate public participation and understanding, and therefore meaningful accountability checks with implications for climate and governance processes and operations.

*Table 11. Recalibration of scale and politics of scale in Kenya's devolution.*

<b>Electoral units</b>	<b>Elected representatives</b>	<b>Jurisdiction</b>	<b>Authority and Key functions</b>
<b>Country</b>	The <b>President</b> (alongside their predetermined Deputy who is the Running Mate in the elections)	<b>Country</b> (National)	Head of State and Government, exercises the executive authority of the Republic, assisted by the Deputy President and Cabinet Secretaries; also, a symbol of national unity (COK, Articles 131-132).

<b>Constituency</b>	Member of Parliament, National Assembly (MP)	<b>Constituency</b> (also national/ <b>country</b> , through the National Assembly arm of the Parliament).	"The National Assembly represents the people of the constituencies and special interests in the National Assembly" (COK Article 95).
<b>County</b>	The <b>Governor</b> (with their preselected Deputy, who is the Running Mate in the elections)	County	Chief executive of the county government and head of the county government (CGA, 2012)
	Senator	County	"The Senate represents the counties, and serves to protect the interests of the counties and their governments." (COK, Article 96)
	County Woman Representative	<b>County</b> (also national, through the National Assembly arm of the Parliament)	Promoting the interests of women and girls, especially in their counties but also across the country (COK Articles 97(1)(b) and 100).
<b>County Assembly Ward</b>	Member of the County Assembly	<b>Ward</b> (also the county through the County Assembly)	Legislation, oversight and representation at the county level.

**Separation of powers:** Before devolution, Cabinet Secretaries (CSs)—then called ministers—were MPs representing a constituency. The new Constitution separated these such that CSs are now technocrats without a political base and are in fact not meant to engage in politics, while the MPs are now meant to only focus on representation, legislation and oversight. Climate legislation in Kenya recognises these as the boundaries of social contracting. The NCCRS 2010, which was developed before the 2010 Constitution, did not mention the word “constitution”, and “county” was referred to only twice, and both are most likely typos (*as shown in Table 12*).

#### 4.4.4.3 Planning and Public Administration

Devolution (re)focused attention on counties as key players in national development. Pre-2010, districts were the “main operating unit primarily responsible for administration budgetary allocation” (Barrett, 2015, p. 126). These were often created at the discretion of the Executive (i.e., the President) perhaps as political goodies, perhaps meant to sway the

electorate, as the creation of these units usually occurred before general elections, as in 2002, and 2007.

Counties are now the *de jure* planning units for national development and budgetary allocations. They are also the *de facto* implementing units for most of Kenya's international commitments that have subnational implications including on climate change and disaster risk reduction. County planning makes linkages to, for instance, national instruments and international frameworks such as the Paris Agreement, the Kyoto Protocol, the Sendai Framework, the sustainable development goals, the Africa Agenda 2063 etc., often seeing them as justification or guiding principles for action on issues such as climate change and economic development at the local level.

Devolution also defines the political, functional, and temporal boundaries instrumental in determining the risk pathways, boundary types (including temporal, e.g., *"Form, content and timing of budgets"*), levels of action (i.e., county, national or shared) and the responsible stakeholders (see Figure 3). Many functions formerly by the central government were allocated to county governments. Certainly, most of the elements and interventions relevant to CARG now fall in the remit of the county governments. Thus, the county governments became what Barret describes as "smaller replications of central government" (2015, p. 125). This is evident in the post-2010 climate change legislative and policy documents' increased reference to the constitution, devolution and devolved units post to as illustrated in Table 12.

*"Now, what we are seeing now is we are seeing a change, where most of the donor-led initiatives, because they are multi-county, allows or gives them an opportunity to benchmark or to learn from each other. But at planning stage, it is in silos. Why? Because the issues affect their people, so they don't think about the other county. It's only, okay, they talk about, other counties come in when there's a shared resource."* (KII19-1)

Table 12. Frequency of keywords signifying reference to devolution in Kenya's climate legislative and policy documents.

Document	"constitution"	"devol"	"county"	"counties"
<b>NCCRS-2010</b>	0	3*	2**	0
<b>NCCAP-2013-2017</b>	22	7	105	13
<b>NCCAP-2018-2022</b>	13	12	200	67
<b>CCA-2016</b>	12	0	39	0

<b>ATAR-2018-2022</b>	9	24	162	169
<b>NAP-2015-2030</b>	2	9	68	13
*All in reference to the then devolved funds that could benefit climate response: the Local Authority Transfer Fund (LATF) and the Constituency Development Fund (CDF).				
** Both are most likely typos.				

CARG as contemplated under devolution in Kenya exhibits and allows for multilevel interlinkages. The CIDPs make references to national and international instruments with regard to their climate change and DRR action. For instance, the Busia CIDP states that it established a directorate of disaster management *"in line with the provisions of The Sendai Framework for Disaster Risk Reduction 2015-2030..."* while the Baringo County Disaster Risk Management Policy (BCDRMP) *"is an outcome of the Baringo County Government's recognition to national and international commitments in addressing risks in the county..."*. CIDPs are developed using guidelines developed at the national level while the county spatial plans are linked with the National Spatial Plan (2015–2045)—which actually stipulates that the *"National Department of Physical Planning will co-ordinate and pursue the cross-border spatial aspects by coordinating preparation of regional development plans"* (Government of Kenya, 2015, p. 254). National climate change policy and planning also explicitly recognises Kenya's international obligations as a driver for its climate policymaking. In fact, the Climate Change Act, 2016, requires that the formulation of the National Climate Change Action Plans be *"informed by...international law and policy relating to climate change"* (Republic of Kenya, 2016 Article 13(5)(f)).

As the supreme law of the Republic, the COK 2010 binds everyone and organs at "both levels of government" (Article 2(1)). It also recognises and adopts the norms of international law, including "treaty or convention ratified by Kenya" - Article 2(5) and 2(6) - into Kenya's legal system. This fact of transboundariness is acknowledged *de jure* in climate change instruments and *de facto* in climate change interventions in the country. The influence of international actors in the planning processes – e.g., development of climate change action plans etc. (e.g., through FLLoCA, Covenant of Mayors, ADA, EU etc.) was apparent from the KIIs and policies analysed. For example, it is acknowledged that the two NCCAPs *"would not have been possible without"* support provided by development partners (Government of Kenya, 2018b, p. iii, 2013, p. X). The role of international and non-governmental

organisations and consultants is evident and explicitly acknowledged in such planning documents.

#### **4.4.4.4 Norms and principles.**

In Article 174, the Constitution outlines nine “*objects of devolution*”. From a closer examination, these objectives seek to advance some DRR/Climate-relevant aims, norms and principles as synthesised in Table 13.

*Table 13. Objects of devolution in Kenya and the DRR/climate-relevant norms and principles.*

<b>Article 174: Devolution of government aims to:</b>	<b>DRR/Climate-relevant norms and principles</b>
<b>a)</b> promote democratic and accountable exercise of power	Democracy; participation; accountability; transparency; rule of law.
<b>b)</b> foster national unity by recognising diversity	Diversity; identity, social justice and equity.
<b>c)</b> give powers of self-governance to the people and enhance the participation of the people in the exercise of the powers of the State and in making decisions affecting them	Local agency; inclusion; public participation; empowerment; inclusivity.
<b>d)</b> recognise the right of communities to manage their own affairs and to further their development	Local agency; democracy; contextualisation; community-based action; local knowledge.
<b>e)</b> protect and promote the interests and rights of minorities and marginalised communities	Demarginalisation; human rights; inclusivity; equity; representation.
<b>f)</b> promote social and economic development and the provision of proximate, easily accessible services throughout Kenya	Poverty; sustainable development; service provision
<b>g)</b> ensure equitable sharing of national and local resources throughout Kenya	Equity; social justice; resource-sharing.
<b>h)</b> facilitate the decentralisation of State organs, their functions and services, from the capital of Kenya	Decentralisation; devolution; localisation.

i)	enhance checks and balances and the separation of powers	Accountability; transparency; good governance; rule of law.
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**Intergenerational equity considerations:** Intergenerational dimensions of climate risks and risk governance are evident in both the primary and secondary data. There is a clear acknowledgement and general agreement within the interview and documentary data that each generation passes on risks and capacities and can affect the resilience chances of subsequent generations. This is recognised formally, for example, as demonstrated in the articulation of the need for the development and implementation of “intergenerational responsive” plans, programmes and strategies in climate response. The country’s Climate Change Act, 2016, wherein “intergenerational” refers to *“with reference to equity among present and future generations and equity in the present generation”* (Republic of Kenya, 2016 Article 2), requires both the national and governments to *“mainstream intergenerational and gender equity in all aspects of climate change responses”* (Republic of Kenya, 2016 Article 3(2)(e)). Past generations are indicted for causing the climate change problem that current generations have to deal with, although culpability is different for past generations in the global north and in the global south. For example, past generations in the global north are accused of selfishly and sometimes ignorantly pursuing harmful development pathways that led ‘us here’ while past generations in the global south are accused—albeit with caution and questions about their capacity and options to hold the global north to account—for not doing something adequate about it. Current generations’ obligation to the posterity is also acknowledged. Future generations are often cited as justification/motivation for climate action.

Although intergenerational equity is often highlighted as a goal for climate action, it is not clear how this is (to be) achieved. Insufficient involvement and consideration of the views, needs and aspirations of the youth and children in climate adaptation were decried by interviewees. Some suggested that youth invitation to participate in climate change planning processes is usually a ‘*tick-box*’ exercise meant to satisfy formal and legal provisions on the inclusion of marginalised and public participation in governance and public programmes. While intergenerational exchanges (knowledge sharing and mentorship) on climate change are viewed as crucial, platforms for such are inadequate and ‘not youth-friendly’. Inadequate representation of the youth in public sector governance

(civil service) is often cited as a hindrance to intergenerational equity and progress. There are efforts to “*increase awareness*” of climate change issues among school-going youth and children through the inclusion of climate change in the curriculum, a task led by the Kenya Institute of Curriculum Development (KICD) — as acknowledged by some KIIs and in policy documents such as the NAP 2015-2030, NCCRS 2010, and the NCCAPs (2013-2017, 2018-2022).

If implemented well, devolution can amplify the voices of marginalised groups and communities and help them to ‘catch up’ and not be left behind further by the rest of the country. This could also help reduce the glaring inequalities that augment the differentiated exposure to climate-related risks. Provisions such as the equalisation fund can help towards this end.

#### **4.4.4.5 Public and NSA Participation Spaces**

Devolution in Kenya expanded spaces for the participation of the public and non-state actors (NSAs) in policy processes relating to TCARG. The Constitution elevated public participation in all governance matters affecting them, including in planning and public administration processes and the operation of the governance units discussed above. As public participation is another devolved function (under the counties), different governors determine how much they dedicate to public participation in processes such as the CIDP development and evaluation, development of climate change policies and strategies, or natural resource management. This may be governed by different social contracts in the form of public participation Acts (to be) developed by each county government.

As a result of the multiple spaces created by devolution, and as a result of devolution itself, there are numerous opportunities for forum shopping by NSAs and other policy entrepreneurs to lobby, advocate for and push their preferred solutions for inclusion or adoption. In addition, development partners now have increased options for direct engagement with the county governments which might be less bureaucratic than the national government. Furthermore, even the development partners with fewer resources now can choose to work with one or a few county governments—a phenomenon currently observed in many counties as they develop and/or implement their climate change policies, legislations and regulations. These findings agree with Taka and Northey’s conclusion that

Kenyan “CSOs are cautiously redefining roles, offering expertise when devolved governments struggle, and standing up to powerful interests of corporate lobbies with varying degrees of success” (2020, p. 1740). Each of the devolved units and functions provides pathways and opportunities for claims to, and contests over, power and legitimacy even in climate change response.

An important challenge to TCARG is that, because of the design of devolution and responsibility for public participation, only residents of a given county are mostly consulted or involved to the exclusion of ‘outsiders’ (who don’t live or vote in that county), including neighbouring counties. One KI explained:

*“What happens in the counties is they plan in silos. It’s about ‘our people, our issues’. And why is it so? It’s because these plans are usually through participatory processes. The Constitution says, actually mandates, that the counties need to consult their people. Now, what we are seeing now is we are seeing a change where most of the donor-led initiatives, because they are multi-county, allows or gives them an opportunity to benchmark or to learn from each other. But at planning stage, it is in silos. Why? Because the issues affect their people so they don’t think about the other county. It’s only, okay, they talk about other counties or other counties come in when there’s a shared resource” KII19-1.*

#### **4.4.4.6 Political and Climate Change Knowledge and Accountability**

Amidst the complexity of the transformations in Kenya’s political governance system, most Kenyans have some understanding of the concept of devolution and what some of their rights are. This understanding can be attributed to the multiple avenues created for political and civic education before and after the advent of devolution, including in the actual implementation of the ensuing changes. Most of the climate change policies and legislation in Kenya were (or are being) developed under devolution with more stringent requirements for public participation and accountability. Speaking at the 7<sup>th</sup> Annual Devolution Conference, the Chairperson of the Devolution Donor Working Group noted the shifted accountability requirements and the need to involve citizens emanating from the new constitutional dispensation:

*“It’s very clearly stated in the Constitution, that devolution also needs to be participatory. I think Kenya has come some way in that. But more can be done. It is actually a very good idea to listen to the citizens, to listen to the women, to listen to the youth, to listen to the young men who actually knows what challenges they are*

*facing, and thereby form the new actions for the county governments" (S21-9).*

As counties develop their planning and climate change governance instruments—some of which are further decentralised to the ward level—many more citizens learn about the processes and issues regarding climate change, especially through their participation as required under the new social contract. Some citizens even participate in the leadership of institutions thus established, such as the Ward Climate Change Planning Committees in various counties like Makueni. The need for accountability and prudent utilisation of public resources across the two levels of government is central in planning under devolution as suggested by the Cabinet Secretary for Kenya's National Treasury and Planning in the 2020 revised *Guidelines for Preparation of County Integrated Development Plans*:

*"The Constitution of Kenya 2010 ushered in devolution with the expectation of having the most transformative impact on governance, public administration and resource management across the country. County Governments are required to prepare five-year County Integrated Development Plans (CIDPs) to guide planning and budgeting activities at the county level. The CIDPs should be aligned to national plans such as the Kenya Vision 2030, its Medium Term Plans and the National Spatial Plan as well as to international commitments such as the Sustainable Development Goals. This harmony will ensure effective and efficient use of scarce resources" (Republic of Kenya, 2020b, p. iv).*

As a result of devolution, Kenya's development partners also have had to shift their accountability and programming bases from the national level to include the needs of the counties. The quotation below from the speech by the Chairperson of the Devolution Donor Working Group at the 7<sup>th</sup> Annual Devolution Conference demonstrates this:

*"We also want to thank the Ministry of Devolution for revitalising the Devolution Sector Working Group, because that's how we make sure that what we do from development partners' side matches the needs and the wishes from the counties [...] For me, if we talk about climate mitigation, that needs a global solution. But climate adaptation needs local solutions. And that's where the counties and the devolved levels come into this picture. This is where the impact of climate change is felt [...] And I'm very happy that we are in Makueni County, with the governor, Kibwana, who has actually been a leader on climate change for the counties. They were one of the first to adopt a climate change strategy for the counties and even put in place a Climate Change Fund. This is the way forward. I know almost all counties are working in this direction, which we do appreciate. And the message from us is that we as development partners, we are right there behind you. Climate change is a huge*

*priority for all of us. And we will direct more and more funding and programmes in the future towards climate change. We are already doing a lot in partnership with the local levels. The UN system have a variety of different programmes currently active and today we are also launching the World Bank FLLoCA which aims at doing climate adaptation and solutions at the local level" (S21-9).*

Indeed, the excerpt underscores the shifts in decision-making spaces and the dynamics between various stakeholders in climate change governance, specifically the development partners and the beneficiaries of support, as a consequence of devolution. This transformation signifies a redistribution of power and responsibilities, fostering a more participatory and inclusive approach to addressing climate change. It highlights the opportunities created by devolution for a more nuanced understanding of local contexts and needs, thereby enhancing the effectiveness and relevance of climate change strategies and actions. Furthermore, it promotes accountability and transparency, strengthening the overall governance framework. This empirical evidence points to the pivotal role devolution plays in shaping and fostering collaborative and context-specific climate change governance in Kenya. This is further corroborated by one county Governor at the same event, highlighting the role of counties and County Assemblies in climate change policy and legislation, and the need for effective collaboration and funding:

*“...as we consider climate change, we are happy, very happy to note that devolution really has settled and it is irreversible. And one of the things that indicate this to me is even in the sphere of climate change counties have actually done more than was expected. Because, although it may be a relatively new phenomenon on the continent, in terms of dealing with climate change, about now 33 counties have already passed climate change legal frameworks, after policy, and even dedicated funds for climate change adaptation. And that in itself says volumes about how these counties are considering the challenge of climate change [...] The question now is really working together to make sure that there is funding at these levels [...] and we hope in this meeting, we are going to have a very robust resolution saying how this will happen in a very concrete way so that we don't talk, go away and nothing much happens thereafter. And even the 14 counties that have not passed this legal and policy framework are at the tail end of it, and we congratulate the County Assemblies for a job well done in this area” (S21-12).*

One of the key challenges to furthering accountability in political and climate change governance in Kenya is the limited understanding by the public of how devolution functions in practice and the resulting difficulties in assigning responsibility for service provision. This

finding is in agreement with Opalo's claim that "Devolution complicates citizens' ability to assign responsibility for the provision of public goods and services to different tiers of government" (2020, p. 849). This misattribution of function and responsibility can be attributed to the enormity and complexity of the changes being implemented, augmented by the fragmented layers of governance and the numerous processes and actors involved. As observed from the interactions and exchanges during the Devolution Conference, this challenge is not limited to regular citizens but is also evident among the officials of civil society organisations, both levels of government, and the private sector. Commenting on the disconnect between funding allocated and projects implemented and the need for strong accountability mechanisms in climate financing, the Senator for Mombasa County stated:

*"I think the accountability begins with the people from the CIDP, from the annual plans. That's where we have to inculcate the accountability mechanism so that by the time the funds are coming in the public that is supposed to benefit from those projects are able to know how much is coming in, and how that fund is going to be used. You have seen situations where money has come in, but if you look on the ground, the projects that were intended to be utilised for have not been implemented" (S21-15).*

A private sector representative (from the Chamber of Commerce and Industry) observed a similar disconnect between what is written (in plans, policies, manifestos) and what is actually implemented 'on the ground' and asked to know how accountability could be improved. The then Principal Secretary in the Ministry of Devolution responded:

*"I think I'll start with a question from I think Kitheka from Machakos. And I think his question was, we've got so many policies, very good policies, action plans, strategies, but at times, there is very little on the ground. And I think I'll, I don't have a quick fix to that. But as a Ministry of Devolution, we, and I believe, if you look at the way the Constitution was crafted, was to ensure that government gives full disclosure, and involves its citizens in the design, and the implementation of the program. So on the basis of that, the Ministry has been developing, and supporting county governments on ensuring that there is meaningful public participation, and also ensuring that governments have a system in place for public disclosure, so that when there are programmes going on, they disclose so that the monitoring also can be done by the citizens themselves. Because when you hear of a dam, it's going to benefit the citizen, not the government. And so when the government discloses, it is the people to make sure that they follow it up [...] And so what am urging us all is that, as citizens also we have a responsibility. When we hear an announcement, and we don't see*

*movement on the ground, we have structures, we have systems, you have your MCA, you have local leadership, who can reach to the administration, Ward Representatives, whom you can approach and say, we heard this, we're not seeing any action. And that way it drives and pushes accountability on all of us" (S21-14).*

The interaction below between two officials, the questioner representing a subnational government entity and the responder representing a national government ministry further highlights the knowledge asymmetry and accountability nuances under devolution in Kenya:

**Question:** *"...Kipkurui Chepkwony is my name, the Secretary General of the County Assemblies' Forum. My question goes to the representative or the peers from Treasury. I want to challenge him for full disclosure on the contents of the funds that he mentioned. Interestingly, he mentioned about four funds that exist and in billions. One disclose to this conference, the much that has then been disbursed to the counties [...] Now, the amounts of money that he mentioned are too huge that I'm sure if those monies could be traced and be utilised effectively, then the challenges that we are seeing on climate fund or on climate action would be limited. So full disclosure so that we know the amount that have gone to the counties... because we are here as devolution stakeholders...Do they come to the counties, as from donor groups, or donor community? Are they aligned within our budgets? And because the factors that are considered by CRA [Commission on Revenue Allocation], I've never seen that component. So it would be interesting that we get full disclosure..."*

**Response:** *"...Ah, in terms of the funds, which I mentioned, I think I did mention very clearly, that these are projects, and these projects could be in any county. So, but the emphasis of Chepkwony, I think it was a little bit emotional in this in terms of transparency and accountability. And I believe I think it's very important for us to be accountable and transparent. And if you want the records, I think they are there. And in any case, the budget-making process, and even allocation of resources is very transparent, in turn, in that Treasury only makes a proposal to the National Assembly, and is the national then that approves the budget. So these funding are in public domain is not something hidden. And I want to reiterate what the PS has said that the government is very transparent in terms of resource allocated. And for FLOCA, for example, we've even developed coding, tracking and monitoring codes within the budget framework such that you can trace these funds to where they have actually been spent through the system. So there is very good accountability mechanism that is inbuilt in terms of ensuring that these funds are used for the purpose they were intended... But I think the issue of accountability is important to all of us, just as Chepkwony has raised" (S21-16).*

Similar challenges are also observed regarding knowledge of climate change processes—as a physical phenomenon and as a governance issue. While most Kenyans have felt the impacts of climate change and seen the variability in seasons, many do not understand the dynamics of climate change and thus resort to insufficient response means. This hampers the quality of citizen participation and their ability to demand adequate action from relevant duty-bearers and to hold them accountable. The most vulnerable and most impacted are usually the least literate on climate and political policies, perhaps because they have the least formal education (see *Chapter 3 Section 3.4.2.9 for example*). Their participation in development-related and climate change governance processes is in practice mediated by what the officials (e.g., the county governors) prioritise and the leadership provided by especially the CSOs. As an example, one KI narrated how their organisation had to intervene to ensure the participation and inclusion of some marginalised communities in the development of the NCCAP 2018-2022:

*"Hii serikali ina, inatuaibisha tu [This government is embarrassing us]. So for you, so my point was, we only look internal, because even when the consultant was developing that particular action plan, consultations actually were done: they went to Mombasa, Nairobi, Kisumu, you know, regional, those cities, those economic hubs, you can say user economic hubs Kisumu, Uasin Gishu, Nairobi, Nyeri, fullstop. Na ikakuwa [And it became a] national document. So for us, we asked them, 'Why are you planning for ASAL counties when you do not engage them?' So we hurriedly wrote some letters, CS akamake [the CS made] some roadside declaration that these guys need to consult the pastoralists. So Ministry wakakuja wakatuambia sasa nyinyi hivi hatuna pesa [the Ministry came and told us 'guys, we don't have the money'], but we want to do this thing. So, tukatafuta pesa, tukapeleka watu [we looked for money and took people] to Nakuru, for a whole week. We gathered representatives because you can't take care of a budget for everybody. So we asked Endorois, Samburus to nominate their people. So we took them to Nakuru, wakakaa chini, they came up with their own thing and ndio tukasubmit [then we submitted]. But we were happy about that because it captured the issues that affect, eh, local people. So we had, we were calling it a consultation for those hunter gatherers, pastoralists and fisherfolks. There's still some communities in Kenya that practice hunting and gathering" KII19-1.*

Most policy documents and all KIIs explicitly acknowledge the lack of adequate public participation in such processes, which limits the input and contribution of indigenous knowledge in the formal climate change decision spaces. As a result, these spaces remain dominated by formal scientific knowledge and evidence. However, there is increasing awareness and calls to enhance the participation of Indigenous Peoples and the integration of indigenous (traditional) knowledge and cultures in climate policy and resilience-building efforts in the country, particularly as a result of the Constitution of Kenya 2010. For instance, Kenya's first updated NDC recognises "*incorporating scientific and indigenous knowledge*" as one of the "*implementation gaps*" that need to be bridged in its commitment "*to enhancing adaption ambition*" (Republic of Kenya, 2020a, p. 14). Also, Kenya's NAP 2015-2030 (Government of Kenya, 2016) acknowledges this gap and commits to "... *enhancing integration of local/indigenous knowledge into early warning systems*" (p. 31) and specific plans to "*promote indigenous knowledge on crops*" (p. 37) and "*conduct capacity building in indigenous knowledge*" (p. 38).

Climate change laws, policies, plans and strategies articulate the roles, rights, obligations and interactions—including the relevant accountabilities—among multiple actors in climate action in the country within the devolved governance system. The institutional structures, roles and responsibilities in climate action are principally set out in the Climate Change Act 2016, which others draw from. For instance, the NAP does this in the section headed "Implementation Roles" (p11-13) and the NCCAP 2018-2022 under the "Delivery and Coordination Mechanisms" section which includes an "Implementation Matrix". This includes the formal and informal processes and their intersections. The inclusion and participation of vulnerable and historically marginalised groups is protected under the Constitution of Kenya and thus included in climate change documents. For example, recognising that groups such as pastoralists, hunter-gatherers, and fisher communities are "a critical constituency", the NCCAP specifically refers to the Constitution of Kenya's recognition of marginalised communities, saying (Government of Kenya, 2018b, p. 120):

*Article 56 of the Constitution of Kenya, read together with Article 260, recognises these groups as marginalised communities for whom efforts must be put in place to ensure their participation and representation in governance and other spheres of life. The livelihoods of these communities are at risk because of climate change, hence adaptation actions should engage them in implementation and monitoring.*

Further, Resolution 11 of the 7th Annual Devolution Conference was particular on accountability under devolution, stating the:

*"Both levels of government shall promote and increase transparency and accountability at all levels and ensure that there is fair participation of all stakeholders, including the marginalized groups, persons with disabilities, women, youth, and minorities - in the development, implementation, and evaluation of policies to ensure their needs, experiences and aspirations are incorporated in the mitigation strategies for climate change".*

There is justifiable formal recognition (e.g., in government documents) of the informal sector actors and processes and contemplation of efforts to consider and include them in the country's climate change interventions, including building their capacities for climate resilience. The NAP, for instance, has action items to "Enhance adaptive capacity and resilience of the informal sector" (p. 26); and "mainstream climate change adaptation in education (formal, nonformal and informal) and training" (p. 29). In fact, the remit of the Climate Change Act 2016 traverses the formal and the informal as well as the public and the private spheres—private entities per the Act include individual persons and non-governmental (referred to as Public Benefit Organisations). For example, under Articles 15 and 16, the Act introduces *"climate change duties"* which it defines as *"the statutory obligations conferred on public and private entities to implement climate change actions consistent with the national goal of low carbon climate resilient development"* (Republic of Kenya, 2016 Article 2). This has far-reaching implications on the governance of climate change in the country as it suggests expanded accountability for private entities and increased reach and roles, particularly for the enforcing authorities.

#### **4.4.4.7 Resource Development and Sharing**

Resource sharing for social and economic development was at the centre of the demand for a constitutional change in Kenya. Correspondingly, devolution in the country seeks *"to promote social and economic development"* (Article 174(f)) by ensuring *"equitable sharing of national and local resources throughout Kenya"* (Article 174(g)). Furthermore, one of the three core 'principles of devolved government' is that *"county governments shall have reliable sources of revenue to enable them to govern and deliver services effectively"* (Article 175(b)). This issue is significantly legislated on but remains one of the key constraints for devolution and, by extension, TCARG. For example, speaking (and responding to questions)

at the 2021 Seventh (and last) Annual Devolution Conference, one of the County Governors remarked:

*"...on the question of anything stopping counties from insuring against drought: nothing, except resource flow. As you know, we are faced with competing interests in terms of the resource flow and the reality of the funding to county government has been a major challenge that we're engaging the national government on. Once that is sorted out, the best place for climate action remains at the county level because we are at the forefront in terms of the first line of defence whenever these problems occur... The most critical issue of climate change and drought response, and as much as the National Drought Management Authority has painted a fantastic picture, the reality is resource flow has been a challenge. The President made a pronouncement, due to a lot of push from us and the international community, of declaring a drought emergency in Kenya and the initial two billion shilling was pronounced to be the initial fund that is going to be released to deal with the drought emergency in the region that it has already affected. As a governor from one of those regions, I will say categorically and authoritatively here, that no resource has gotten to us for responding. We still remain the first line of defence in redirecting resources meant for other programs in trying to respond. And as such the sub-national governments or county governments need to be at the forefront in terms of funding, in terms of strategy for developing, you know, adaptation mechanism in order to make sure we deal with it. I could not imagine if county governments were not in place, if this happened 10 years ago, we would have lost an entire livestock to drought as it is. But because of a lot of adaptation mechanisms particularly in terms of the rainwater harvesting program that has taken shape at our counties and the first line of response in terms of emergency borehole drilling, to follow livestock where they can find little pasture and be able to respond, which is not getting adequate support from the National level" (S21-13)*

This quotation underscores the nuances of implementing devolution and multilevel climate risk and adaptation governance in Kenya. It also highlights the interactions between the various actors, both domestic and external, in the process of governing.

Public financial resources are shared between the national and county governments and their effective management is guided by the Public Finance Management Act, 2012 (Republic of Kenya 2012b) and the division of revenue is guaranteed in the constitution (COK Article 217-219). The Climate Change Act also establishes a bespoke Climate Change Fund to be used to, among other things, *"provide technical assistance to county governments"* (Article 25(8)(d)).

The Parliament still controls the public finances and the resources that are allocated to the counties. For instance, the Senate is mandated to “*determine the basis for allocating among the counties the share of national revenue that is annually allocated to the county level of government*” (COK Article 217). The Parliament as a whole is charged with legislation and oversight for financial control, including climate finance (Articles 225-231) while the Commission on Revenue Allocation (CRA) established under Article 215 is principally responsible for making “*recommendations concerning the basis for the equitable sharing of revenue raised by the national government -- (a) between the national and county governments; and (b) among the county governments*” (Article 216(1)) as well as “*on other matters concerning the financing of, and financial management by, county governments*” (Article 216(2)). ‘Equity’ is such an important principle in the sharing of revenue that the revenue stream is actually called the “equitable share” (and the allocations “equitable shares”). The criteria for determining these equitable shares under Article 203(1) include elements that are unique to each level and governance unit, considers political economy elements include climate-relevant considerations and norms. These include:

“*...developmental and other needs of counties...economic disparities within and among counties and the need to remedy them...the need for affirmative action in respect of disadvantaged areas and groups...need for economic optimisation of each county...and the need for flexibility in responding to emergencies and other temporary needs*”.

The Constitution gives special consideration to the “*marginalised areas*” considering their underdevelopment as compared to other parts of the country. Thus, it established the “*Equalisation Fund*”. (Article 204(1)) to be used:

“*...only to provide basic services including water, roads, health facilities and electricity to marginalised areas to the extent necessary to bring the quality of those services in those areas to the level generally enjoyed by the rest of the nation, so far as possible.*” (Article 204(2))

This kind of place-based affirmative action benefits some places that were previously neglected to the exclusion of others.

Funding through the UNFCCC mechanisms has been limited for both levels of government, but county governments even less than national governments — Kenya’s CARG receives, and is premised on receiving, a significant amount of financing from external sources. For

instance, its first NDC was fully conditional on international support while its updated NDC (Republic of Kenya, 2020a) is contingent upon receipt of 87% of its estimated US\$62-billion budget. Furthermore, between 2005 and 2015, approximately 84% (KES.194 billion, USD 2.29 billion equivalent) of the funding for programmes categorised as having a ‘significant’ or ‘principal’ climate change component” was committed by development partners, while only 16% (approximately KSh37 billion, USD 438 million equivalent) was committed by the GoK (Government of Kenya, 2013, pp. 2, 84, 85). Also, most of the planning and policy instruments so far have been almost fully or significantly supported financially and through technical assistance by international development partners, international experts and consultants.

#### **4.4.4.8 Data, Information and Knowledge Sharing**

The importance of data, information and knowledge for CARG is underscored, but perhaps increasingly so in transboundary contexts. These are often generated at various levels for specific uses, and they are not detached from the sociopolitical governance structure. Rather, they are closely linked with the country’s multilevel planning architecture. For instance, the shift towards development planning at the county level created and led to a surge in demand for county-level and county-specific data, especially after the first county governments were established in 2013. The governance and development planning units created by the Constitution required data, information and knowledge tailored to their respective mandates and areas of jurisdiction. This was crucial in order to enforce their social contracts. For example, since the advent of devolution, the Kenya National Bureau of Statistics (KNBS) has laboured to publish county-disaggregated statistical reports, including demographic (e.g., census) and economic data (e.g., Gross County Product, GCP). The Director General of KNBS clearly comments on this in the 2021 GCP Report:

*“The Constitution of Kenya, 2010, identifies devolved system of Government as one of the key components of governance to promote social and economic development and to ensure equitable sharing of national and local resources. It further provides for functions and powers of the 47 county Governments. It is therefore important to appreciate that information that governs policy formulation at the county level should be informed by county specific data and reflect counties’ performance in key aspects of socio-economic development. Since the enactment of the constitution, the Kenya National Bureau of Statistics (KNBS) has endeavored to publish statistics disaggregated by county. As heterogeneity continue to manifest in county*

*economies, there is need for more disaggregation of statistical information to reflect emerging development trends at the county level" (KNBS, 2022, p. iv).*

On one hand, these units needed a mechanism for objective, data-driven consultation and cooperation in the exercise of their powers and the performance of their allocated functions. This mechanism would also enable the sharing of lessons, ideas and solutions to the issues devolution was meant to address and the obligations it entailed. Prior to devolution, such a mechanism was non-existent and perhaps unnecessary.

In recognition of this need, the Intergovernmental Relations Act 2012 (Republic of Kenya, 2012) was enacted. Among other provisions, it aimed to *"establish a framework for consultation and cooperation between the national and county governments and amongst county governments"*. Its recognition of *"objectivity and impartiality in decision making"* (Article 4(g)) and *"promotion of accountability to the people in decision making and actions taken"* (Article 4(j)) as some of the important principles of such intergovernmental relations demonstrate the centrality of data and envisages intergovernmental structures aimed at, among other objectives, *"providing a forum for sharing and disclosing of necessary data and information"* (Article 5(d)). One of these structures is the Council of County Governors (COG) established by the IGRA to, among other functions, provide a forum for:

*"...sharing of information on the performance of the counties in the execution of their functions with the objective of learning and promotion of best practice and where necessary, initiating preventive or corrective action" (Article 20(1)(b)).*

The COG created the *Maarifa Centre* for this purpose. The online platform contains a lot of different information and data and is described as *"the premier subnational repository for sharing Kenya's devolution solutions"*. The 7th Annual Devolution Conference in 2021 made a resolution in support of this, under Resolution 13:

*"County Governments are encouraged to partner with the Maarifa Centre for information sharing, capacity building, documentation and peer learning on transformative and innovative County models addressing climate change that have worked to accelerate their adoption by other Counties".*

In addition to the COG, the individual counties and their formations (e.g., through REBs) also commission their own research to generate the data and knowledge for their own purposes. Furthermore, other platforms by civil society and devolution practitioners such as the *Kenya*

*Devolution Hub* have emerged for sharing publications and data on devolution, most of which are county-specific. In addition, planning documents such as the CIDPs (see subsection 4.4.4.3), which include a section on 'climate change' also generate county-specific data and information. Moreover, devolution has necessitated further understanding of climate risks at the subnational level, resulting in county-level analyses. For example, nearly every county now has a "Climate Risk Profile" developed under the Kenya Climate-Smart Agriculture Project (KCSAP) with funding from the International Development Agency (IDA-World Bank Group). Each of these states that:

*"This Climate Risk Profile has been conducted within the framework of KCSAP and aims to inform county governments and stakeholders on the climate change risks and opportunities for agriculture so they are able to integrate these perspectives into county development initiatives".*

However, current and reliable data on most climate- and adaptation relevant parameters are hard to come by. The lack of a functional standardised mechanism for sharing data between and within governments portends a further challenge, an issue evident in the analysed policy documents and KIIs. The NAP acknowledges the "*lack of a centralised system of tracking climate finance*" (Government of Kenya, 2016, p. 43) while the second NCCAP (2018-2022) aimed to "*Establish the M&E component of the MRV+ system to report on adaptation actions and benefits*" and have "*the adaptation M&E system fully functional*" by end of June 2023—the KIIs were conducted before this date, and as at end of August 2023, I have not seen any data to suggest that this aim has been achieved.

Indeed, devolution has a significant impact on the role of academia in knowledge generation and dissemination. Under the devolved governance system, academic and research institutions are anticipated to contribute valuable insights that inform climate change decisions at various levels. This expectation is clearly articulated in the National Adaptation Plan (NAP), which states:

*"They will provide the evidence for knowledge based decision making by the national and county governments, private sector, development partners and civil society amongst others. This will be done through research conducted on different aspects of climate change adaptation and resilience, including improving the understanding of climate change attribution in Kenya and providing information on the appropriate mix of adaptation actions in order to avoid maladaptation" (Government of Kenya,*

2016, p. 12).

In transboundary contexts, data-sharing is especially impeded by fear and lack of trust among the stakeholders. While narrating the intricacies of data sharing in a regional climate-related programme in the East African Community, one KII noted:

*"I saw a lot of that politics in the PREPARED program because just talking about data and sharing of data, especially the primary climate data was an issue. It was a big issue... Initially, there was a lot of mistrust on what you're going to do with this data, mistrust on what your neighbours might think or do with the data on particular areas... There was a lot of vulnerability being demonstrated by the countries like, you know, "I'm not gonna share my data. Now you'll know exactly where my weakness is. And that means that you'll be in a better place than I am in terms of planning". So, there was all that concern. In fact, I think we spent almost six months discussing how we'll share data, what kind of data we shared, even consulting, even higher levels of government on what will be shared, converting raw data into metadata, it was just crazy..." KII22-55.*

Other issues noted as potential hindrances to data sharing include a lack of functional sharing mechanisms and systems including websites, and quality of data held by the institutions. Moreover, some critical entities such as the water resource management entities and county governments do not seem to have the capacity and resources to enable adequate data collection, management and interpretation. This is illustrated in this excerpt from a KI working in a government agency:

*"...most of the data are not accurate...So, when somebody who is in charge of managing this kind of data, realises that there are a lot of gaps in their data and also their data is not accurate, they might not be ready to give it out publicly. I can give an example like Water Resources Authority...They are saying that they are not funded enough to be able to collect that data. So I think also the capacity to be able to collect accurate data consistently is lacking within our institutions... I remember when I was trying to get rainfall data, you realise that there's a lot of data gaps in the rainfall data that you've been given at the same time. Most of this data is also not given freely. So, you will have to buy that kind of data from other government institutions..." KII23-64.*

In conclusion, devolution in Kenya has had a profound impact on the country's governance architecture, which in turn has influenced the scales for data and information generation. It has altered the structures for disseminating the knowledge and information produced, thereby affecting the dynamics of knowledge sharing. Furthermore, devolution has

expanded the range of actors involved in this process, fostering new partnerships and platforms. This has enriched the discourse and facilitated a more inclusive and participatory approach to governance. However, this transformation has also brought forth various challenges, particularly around standardisation and quality. These challenges underscore the need for robust mechanisms to ensure the reliability and validity of the data and information generated and shared between and among the various levels and spheres of climate and adaptation governance. Addressing these challenges is crucial for leveraging the full potential of devolution in enhancing governance and decision-making processes in Kenya.

#### **4.4.4.9        Urban areas and cities' governance and management**

Kenya's urban areas and cities (UACs) are vital to the country's well-being and central to the climate change discourse. According to the 2019 census data (KNBS, 2019), almost a third (31.2%) of the population was urban, although the National Urban Development Policy (NUDP) of 2016 suggests that this was about 40% in 2015, and estimated to be at least 50% by 2030 (MoTIHUD, 2016). Moreover, UACs contribute about 70% of Kenya's GDP, the bulk of which is from the five largest UACs — Nairobi, Mombasa, Kisumu, Nakuru and Eldoret — (MoTIHUD, 2016). Urbanisation in Kenya had been on a steady increase since independence but has been accelerated by devolution especially as county headquarters develop.

Kenyan UACs are exposed to, but also export, TCARs especially because of their location but also due to their dependence on, and contribution to, the economic wellbeing of, other UACs and the hinterlands (*see Chapter 3 for more information about this*). For instance, two of the three largest cities in Kenya border or are located in an international water body. Kisumu borders Lake Victoria and is the second largest city (after Kampala) in the transboundary Lake Victoria basin. Mombasa, the oldest and second largest in Kenya is a coastal city and an island in the Indian Ocean exposed to rising sea levels and oceanic inundation. How UACs are governed is therefore an important element in CARG.

Before devolution, UACs in Kenya were governed under the Local Government Act (Cap. 265) under which the responsible Minister had immense powers, including powers to establish or dissolve municipalities, counties or townships; define or alter their boundaries; assign and alter their names; and merge them at will. Any of these entities could not extend

beyond the boundaries of a single province (*illustrated in Figure 14a*). But under devolution, the Urban Areas and Cities Act 2011 (Republic of Kenya, 2011a), giving effect to the Constitutional provision that the “*national legislation shall provide for the governance and management of*” UACs (Article 184), provides for the “*classification, governance and management*” of UACs as well as “*the criteria of establishing urban areas, to provide for the principle of governance and participation of residents*”. Under this Act, the boundaries of an urban area can extend beyond one county. Classification of an area as such comes with benefits including access to a range of resources and capacities not available to other places. One such example is the US\$300 million World Bank-supported Kenya Urban Support Program (KUSP) intended to provide capacity building and institutional support to all 47 counties and direct financial support to 45 counties—Nairobi and Mombasa are excluded.

UACs are unique spaces where scalar politics are increasingly manifested due to increased interactions of both levels of government in service provision, and where the risk of misattribution of responsibilities by citizens is potentially high. For example, while the management of UACs is vested in the respective county governments, UACs’ administration is exported or delegated to other entities—such as the powerful Boards of cities or municipalities (which are body corporates), city or municipal Managers, and town Administrators—who can further (e.g., in the case of the Boards) delegate certain functions to “*general or special purpose*” committees they establish to help them “*regulate or manage [their] affairs more efficiently and as may be necessary for the performance of its functions*” (Article 26). The national and its agencies are active in UACs too. The loci of service provision and resilience in UACs thus shift often and have many layers to them. Transient populations and undocumented migrants are common in UACs and increase when people move in after rural livelihoods become less tenable due to climate-related impacts. They present challenges to UACs as their citizenships, and therefore rights and entitlements, are fickle and in the borderlines of the mandates of the county and national governments, and because of their most probable non-membership to citizen fora under the UAC Act 2011 (Article 22). In UACs, therefore, the interactions between the multiple social contracts are elevated and more complicated, which has consequences for accountability and democratic processes.

#### 4.4.5 Prospects for TCARG under Devolution in Kenya

The impacts of devolution on CARG-relevant boundariness (*discussed under Section 4.4.4 above*) can hinder or facilitate transboundary cooperation or cooperation between and among the created governance spaces in different ways and for varied reasons. Devolution in Kenya has already had both positive and negative impacts on (T)CARG in several ways as highlighted in Table 14. These respectively imply opportunities and challenges to the prospects for TCARG in the country. The elements are essentially derived from the previous section and help to extend the analysis into the negative and positive impacts of devolution on the prospects for TCARG in the country.

Table 14. The positive and negative impact of devolution on prospects for TCARG

Element	Positive impact	Negative impact
<b>Social-spatial boundariness</b>	Creation of 47 counties each with a complete government to run affairs and deliver services closer to the people.	Social-spatial fragmentation; climate-vulnerable regions lumped together, creating clusters of vulnerability; unequal neighbours (e.g., Kenyan counties vs. foreign states, county inequalities); entrenched negative ethnicity.
<b>Scale and scalar politics</b>	Responsive politics and governance systems; scale-appropriate policymaking and action; improved local focus and political attention to and ownership of climate risk management.	Lack of coordination between neighbouring counties and between levels of government; inward-looking adaptation politics; political interference; complicated politics at the international level (e.g., with neighbouring countries).
<b>Planning and public administration</b>	Establishment of county-level climate adaptation plans, laws, strategies and regulations; increased flexibility in adaptation planning and implementation.	Fragmentation of service delivery; siloed CARG processes; duplication of CARG initiatives; overlapping, inconsistent strategies across different counties; multiplied potential sources of TCARs.
<b>Policymaking and subsidiarity</b>	Increased policy responsiveness; empowerment of local communities to participate in (T)CARG-relevant policymaking; bespoke, targeted policies and flexible, localised policymaking; (potential for) creation of new (T)CARG arrangements.	Lack of or poor coordination and cooperation among devolved units and the national government, which hinder effective (T)CARG; incoherent, inconsistent policies and strategies across different counties – thus limiting the effectiveness of CARG at the county and national levels and inclination for cooperation in TCARG; tunnel vision in policymaking.

<b>Demarginalisation and inclusion</b>	Affirmative action options and resources; special recognition of, and provisions for, the marginalised and the vulnerable.	Exclusion of migrant (and transient) populations of citizens in a particular county from some services, processes and opportunities.
<b>Resource development sharing</b>	Devolving resources to the counties; redistributing resources collected nationally in an equitable manner; pooled resources and resource mobilisation.	Inequitable distribution of financial resources; unequal distribution of natural resources; competition over scarce resources; inequitable distribution of benefits from natural resources.
<b>Data, information and knowledge sharing</b>	Creation and increased demand for place- or scale-appropriate data; platforms for knowledge sharing.	The multiplicity of non-standardised data and information; essential data unavailable or withheld by different units; highly patterned data and knowledge management and integration and capacities.
<b>Public and NSA participation spaces</b>	New opportunities and spaces for greater local participation public/NSA participation; enhanced local ownership of climate risk management	Participation is mostly limited to each county; differentiated and limited capacities to support public participation.
<b>Political and climate change knowledge and accountability</b>	Increased knowledge or awareness of climate change; awareness of actions or policies taken to address the same.	Complicated processes and procedures; limited awareness of climate change processes; limited understanding of climate-relevant actions/plans across the border.
<b>Governance norms and principles</b>	Creation and publicisation of national values and principles of governance.	Differentiated interpretation and application of norms and principles; clashing norms and cultural views in different counties.

The prospects of TCARG under devolution in Kenya can be better appreciated by recalling its underlying motivations, which helps to draw conclusions on what is possible for, and the desirability of, TCARG. The data reviewed confirm that the renegotiation of the new social contract was underpinned by political economy considerations and the impact of previous social contracts that superintended the unequal distribution of power and resources over time, which are also likely from the implementation of the current social contracts. The Constitution, for instance, recognises that some people had been "*previously disadvantaged by unfair competition or discrimination*" (Article 227(2)(b)). In defining a "*marginalised group*", it recognises that some people were/are "...*disadvantaged by discrimination...because of laws or practices before, on, or after the effective date...*" (Article 260). The resultant inequitable, disempowering, and non-inclusive decision spaces

disadvantaged, discriminated against, and/or left many people, groups, communities and places/areas “*outside the integrated social and economic life of Kenya as a whole*” (Article 260, COK). This contributed to making them the most vulnerable to climate-related impacts and disaster risks in the country. But they are also the least empowered with the knowledge of, and capacities for, dealing with TCARs. The new social contract recognised these socially- and spatially differentiated outcomes and made provisions to remedy any disadvantages of “*past discrimination*” through specially designed “*legislative and other measures, including affirmative action programmes and policies*” (Article 27(6)) while preventing similar outcomes henceforth. It states:

*“The State shall not discriminate directly or indirectly against any person on any ground, including race, sex, pregnancy, marital status, health status, ethnic or social origin, colour, age, disability, religion, conscience, belief, culture, dress, language or birth” (Article 27(4)).*

Therefore, devolution was developed as an approach to address the sociopolitical and economic inequalities and injustices (including historical injustices) in the country (Bellali et al., 2018; Muwonge et al., 2022; Ngigi and Busolo, 2019; Ongwae, 2016). However, information collected here suggests that its implementation could perpetuate these and similar vices.

Most of the CARG-relevant action is primarily through intracounty initiatives mainly focused on improving service delivery, infrastructure and welfare within the counties themselves. This county-level, locally-based position is prevalent in all policy and planning documents and is expressly stated in most of the county visions and missions. But some of these initiatives, such as improved infrastructure, healthcare, agriculture, and tourism, often have positive and negative spillover effects on neighbouring counties and the country, making them transboundary initiatives too. For example, improved infrastructure in one county can facilitate the movement of goods and people across county borders, thereby benefiting neighbouring counties as well, and poor infrastructure in some agriculturally rich zones such as in Nyandarua County has impeded the distribution of food in places that need the food. Similarly, better healthcare and agricultural practices in one county can lead to better health outcomes and increased productivity among farmers, respectively, in neighbouring counties. Strong climate action in each county can contribute to the resilience of the

country, and weak county climate action can weaken Kenya's overall climate resilience (see *Chapter 2 for more details*).

Devolution in Kenya has created opportunities for more responsive, homegrown policymaking and decision-making which are critical in addressing climate change risks specific to particular localities, communities or groups. Thus, counties can exploit their unique opportunities to develop and implement climate response strategies tailored to their unique challenges. Consequently, most have developed or are developing their own climate change laws, funds, regulations, strategies and plans. In the November 2021 Devolution Conference, over 70% (33/47) of the counties were said to have developed such, and the remaining were at different stages of developing them.

Importantly, the legal-institutional social contracts underpinning devolution in Kenya allow for subnational diplomacy and cooperation where county governments can come together for collective decision-making. Their augmented autonomy expands their decision spaces for creating and/or participating in *new* governance arrangements including cooperation and collaboration amongst themselves or with other stakeholders to address transboundary challenges like climate change and disaster risks and exploit shared opportunities and resources. This is already happening and has taken three main forms: *bilateral*, *multilateral* and *transnational* arrangements.

The first and most basic of these are the ***bilateral*** arrangements between any county government and another county government, national government, non-governmental entity, intergovernmental international organisations (like the World Bank) and foreign nations for example through their agents such as embassies — a form of climate paradiplomacy. The ***multilateral*** arrangements include collaboration and cooperation among many county governments. In fact, such platforms/arrangements — like the regional economic blocs (REBs) - started to emerge organically and informally shortly after the first elections under devolution and are taking shape, including being formalised through legal provisions. As of August 2023, all counties except Nairobi belong to at least one REB. Finally, county governments are increasingly involved in ***transnational*** governance mechanisms, whether defining them as the “*regular interactions across national boundaries when at least one actor is a non-state agent or does not operate on behalf of a national government or an*

*intergovernmental organization*" (Risse-Kappen, 1995, p. 3 - emphasis original) or following the argument that "*transnational governance occurs when networks operating in the transnational sphere authoritatively steer constituents towards public goals*" (2009, p. 56 - emphasis original). These are not entirely different from the suggestions by Benzie and Persson (2019), but differ in the scale and level at which they are applied — *see Chapter 5 for more details*.

TCARG can be enhanced through such approaches involving county governments alone or in partnership with the national government, development partners and the private sector, including through public-private partnerships (PPP) as demonstrated elsewhere (see for example, Adger et al., 2018; Andonova, 2010; APEC, 2013; Chen et al., 2013; Desai and Sarmiento, 2014; Gannon et al., 2022; Pattberg, 2010). Many examples exist of different kinds of PPPs involving counties in the provision of public goods and services relevant to climate change such as in agriculture, infrastructural development, water resources and livelihoods enhancement. These include the '*Ndengu Revolution*' (*discussed in Chapter 2*), investments under the CCCFs/CAF, FLLoCA and the KUSP. Under devolution, county governments and county corporations are now recognised as 'contracting authorities' under the Public-Private Partnerships Act, 2021 (Republic of Kenya, 2021) and can utilise PPP opportunities to advance (T)CARG. Additionally, devolution creates opportunities for increased participation and engagement of the public and the private sector in climate change governance. County governments in Kenya are viewed as more accessible to citizens and have provided platforms for public engagement and participation in climate change decision-making, and the PPP Act 2021 allows the private sector to engage with county governments through PPPs in, for instance, "*the financing, construction, development, operation or maintenance of infrastructure or development projects*" (Republic of Kenya, 2021, p. 7).

Moreover, devolution creates opportunities to enhance the capacity of county governments to develop and implement climate change policies and programs. One of the key arguments for devolution is that local governments and authorities are often better placed to understand local contexts and to mobilise local resources to support climate change initiatives, and most of the KIIs and official statements agree. They can also provide more effective and efficient services in areas such as climate change monitoring, data collection,

and reporting. These arguments underpinned the Constitution's allocation of responsibilities and functions.

In addition, devolution has promoted innovation and experimentation in climate change governance in Kenya, and it could foster more of this. For example, the innovative County Climate Change Fund (CCCF) initiative (previously known as the County Adaptation Fund (CAF)) was piloted by the Adaptation Consortium (ADA) first in Isiolo County between 2012 and 2013, and in four more counties (Makueni, Kitui, Wajir, and Garissa) between 2013-2018 (Crick et al., 2019). This is being scaled out and replicated in all the other counties, including under the five-year (2022-2026) World Bank-supported 'Financing Locally Led Climate Action (FLLoCA)' Program. Evidently, experimentation has led to the development of the best practices and lessons learned that are being shared vertically and horizontally between and among different levels of government and regions.

Furthermore, devolution has created the need and means for enhanced cooperation and collaboration including in transboundary climate risk governance. For example, county governments are starting to work together through mezzo-level platforms such as the COG and the REBs to develop joint climate change policies and programs that address common challenges and take advantage of opportunities. One example of this is the regional climate change masterplan developed by the 10-member North Rift Economic Bloc (NOREB). Such can lead to more effective and efficient use of resources and greater coherence in climate change governance across different county governments. These results support Nyandiko's claim that Kenya's devolution is "an important tool for promoting DRR and resilience" (2020, p. 2).

#### **4.4.6 Political Economy Implications of Devolution on CARG Policy and Practice**

In the above section, I have discussed the implications of Kenya's political system change (to devolution) on the boundaries of governance relevant to CARG, highlighting the resultant shifts in governance processes and practices and the decision spaces in which they are performed. In this section, I focus on how this change in the political system in Kenya has influenced the four political economy processes of the 4E framework discussed under

section 4.2—enclosure, exclusion, entrenchment, and encroachment—and how this enables or impedes CARG across the boundaries of governance.

#### **4.4.6.1      Enclosure**

Despite its potential benefits for TCARG, devolution in Kenya presents several challenges that need to be addressed. First, it has led to *enclosure* in Sovacool and Linnér's terms by facilitating the fragmentation of climate change governance. Although Kenya's national policies suggest coordination and guidance of county governments in climate action, and although the county governments acknowledge this, there is a glaring lack of clear coordination and incoherence in climate change policies and programs both across the two levels of government and between county governments. This has led to inefficiencies, gaps and duplication in climate-relevant strategies, and created new opportunities for private actors, including NGOs and private sector actors. For instance, county governments have introduced trade-related tariffs that have affected the flow of food and agricultural produce between counties. In another example of incoherent policymaking and climate action originating from the implementation of devolution, Kitui County banned the production, trade and transportation of charcoal out of the county in 2018 while its neighbouring counties had not, which created challenges for its implementation. Such tensions undermine the effectiveness of climate change policies and related programmes. As one KII observed, for example,

*“Moving food from one county to another, you incur a lot of taxes, incur a lot of fees that are levied on the food... And it makes it very expensive to move forward...”*  
KII21-48

Furthermore, devolution facilitates enclosure by creating “new administrative structures” subnationally (e.g., the counties) and giving them an increased level of autonomy, including regarding development and adaptation policies and interventions. There is evidence of further parallel bureaucratisation of climate and adaptation governance by county governments across the country through county-level and/or regional climate change legislation and initiatives, for example through the county Regional Economic Blocs (REBS). The same has been observed within the national government through national instruments and initiatives (e.g., FLLoCA) that have implications for climate and adaptation governance subnationally. For instance, the advent of devolution has resulted in tensions over

jurisdiction and mandate between the county governments (and their formations) and the pre-existing Regional Development Authorities (RDAs), which sometimes led to contestations in the courts of law. One KI representing the RDA remarked as follows regarding these claims and the acknowledged poor relationship between these actors:

*“... some of them want to want to take our mandate. Yeah, and try to do that mandate themselves and try to do those activities themselves. So I think that's why it [the relationship] is very poor. So actually, I think if it was up to them, they would get rid of us. If it was entirely up to them, yeah. That's my opinion...” KII22-58.*

Besides, the differences in county government structure among the counties complicate cooperation for (T)CARG. For example, climate change dockets are found in different ministries in different counties. The documents reviewed and the respondents interviewed confirm that, for example, most counties do not have dedicated climate change dockets or units. Furthermore, adaptation falls on different ministries that prioritise different things based on their mandates. Cooperation in such environments has been challenging.

Moreover, ministries/departments in charge of climate change affairs are inadequately funded to lead collaboration within and between county governments. In addition, differences in political leaning impede cooperation between counties and the subsequent take-off of cooperative platforms such as many REBs in the country. The expanded spaces and roles of private actors through PPP in climate and adaptation (discussed in the section above) portend risks for further enclosure, particularly through market stretching and privatisation.

#### **4.4.6.2      Exclusion**

Closely related to the above, is the isolationism driven by the influence of devolution in planning and budgeting processes in the country, signifying *exclusion* in Sovacool and Linnér's terms. For instance, climate change actions are to be 'mainstreamed' in CIDPs. However, their development, implementation and evaluation are not harmonised—save for the CIDP guides suggesting the structure and content of the CIDPs. Public participation in these processes largely involves 'county residents' to the *exclusion* of non-residents (outsiders) who may be impacted adversely by them.

Exclusion in the context of devolution in Kenya is both intentional and unintentional. The Constitution seems to have strategically separated the functions of each level of government as a form of what Sovacool and Linnér describe “a strategy of containment, a way to prevent and manage other actors from interfering with one’s interests” (2016, p. 23). This is perhaps in the backdrop of previous arrangements where the centralised system led to the marginalisation of the majority through unfair processes and procedures overseen by the central government and the sociopolitical elites. Affirmative actions to help the marginalised ‘catch up’ with the rest of the country by hastening their development, reducing their vulnerability to climate and disaster risks and increasing their political participation and role in decision-making are other intentional exclusionary elements of devolution. The unintentional exclusionary aspects of devolution include the opportunities for some local elite and groups to strengthen or expand their interests to the detriment of others. The creation of boundaries also automatically affected access to natural and land-based resources that are crucial for adaptation. Furthermore, devolution perhaps did not intend to create subnational levels of citizenship, rights and obligations that could disenfranchise some citizens (e.g., as seen in counties’ focus on ‘their residents’ in service provision). Finally, unintended exclusionary aspects of devolution include the phenomenon where some counties become preferred over others for support by development partners including in climate risk governance, negative competition between devolved governance units (including over scarce natural resources), and impeded collaboration due to political leanings of different counties.

#### **4.4.6.3 Entrenchment**

Three, devolution risks *entrenching* inequities in climate change governance as county governments have different levels of capacity and resources to address climate change risks, leading to unequal access to and deployment of adaptation and mitigation measures. For instance, not all counties have developed climate change regulations, and provisions differ among those that have enacted them, e.g., the proportions of funds allocated under the CCCFs differ. In addition, as suggested by their highly varied gross county product (GCP) values, counties have different potentials for generating their revenue which could be used for climate change risk reduction (*see Appendix 10 for the distributions of GCP and gross value added per county*). Over time, these can result in greater vulnerability and exposure

to climate change risks especially for marginalised communities, groups and areas, which Sovacool and Linnér describe as *entrenchment*.

Furthermore, devolution in Kenya is creating new elites and forms of elitism locally in each county, each group with its interests to guard and complicated interactions between them (Cornell and D'Arcy, 2014). There is a widespread concern in the country that devolution of governance might have 'devolved corruption', which might hinder the welfare, developmental and resilience benefits intended by the original objects of devolution. For example, while addressing the seventh devolution conference, the former Prime Minister remarked:

*"We must also push for full automation of revenue collection systems in all counties to seal the revenue leakages and avenues for corruption. And we must commit to deal with the all-time national and now devolved problem of corruption" S21-7.*

It can also be argued that devolution may lead to an increased lack of accountability in climate change governance for different reasons. For example, county governments are not subject to the same level of scrutiny and oversight as the national government, and the level of scrutiny usually differs from county to county. In addition, the level and quality of public participation in decision-making differ from county to county, mainly depending on the public participation policies in place and the disposition of the county leadership to engage. Furthermore, public participation in Kenya is a costly endeavour, and some counties may not devote adequate resources to it. Furthermore, increased fragmented governance also increases opportunities for shirking from the climate risk challenge and the risks from climate action. These work together towards a lack of transparency and accountability in climate change decision-making. This can undermine public trust in climate change governance and reduce the effectiveness of climate change policies and programmes.

#### **4.4.6.4 Encroachment**

The transition challenges, incessant power struggles and lingering intergovernmental disputes challenge the very foundation of a functioning devolution. Despite the clarity provided by the COK 2010, it has been observed that the national government appears keen on retaining its powers held before devolution and using some, especially to finance, to "remote control" (i.e., manipulate) county governments. For example, despite the constitutional provision that the equitable share "*shall be transferred to the county without*

*undue delay and without deduction*" (Article 219), county governments frequently lament delayed funding from the exchequer which adversely affects their performance. As I write, county governments have gone for four months without their full disbursements and are threatening to shut down operations for lack of funding. The quote below from a press statement by the Chairperson of the COG on 24 April 2023 highlights some of these issues:

*"The Four month delay is unprecedented in the history of devolution...the Council of Governors hereby issues a 14 days' notice to shut down Counties if February, March and April arrears are not released within two weeks...We also notify the citizens of Kenya that due to the failure of the National Treasury to disburse the funds, County Governments will not be able to deliver services as expected...Counties are not subservient to national government" (S23-8).*

More than a decade later, many of the devolved functions are yet to be transferred to the county governments and have continued to be implemented by state agencies who have retained the related budgetary allocations (e.g., agriculture, water, health). There are regular quarrels over jurisdiction, and mandates in attempts to (re)define and (re)interpret jurisdiction, mandates and governance structures (Ambani and Kioko, 2022). Such disagreements are not just in the boardrooms, but also manifest themselves publicly, including in many events where the two levels of the government meet. As observed by one speaker,

*"...There is no level of government that is not quarrelling with the other. There is conflict and conflict everywhere. Everyone is quarrelling with everyone and all of them are quarrelling over jurisdiction, over mandates. The Senate versus the National Assembly see things differently..." (S23-4).*

These struggles hinder effective cooperation and collaborative implementation of projects, including urgent climate- and disaster-related ones. In some instances where there is a conflict between the two levels of government, projects stall or stop altogether. Six, the election of county leadership every five years was highlighted as an issue creating challenges of leadership transitions and discontinuities that hurt partnerships and collaboration. Some KIs lamented that they had to develop new MOUs and partnerships for development each time as many of the county governors rarely wanted to continue the legacies of their predecessors. From the 2022 general elections, 26 counties got new bosses—and therefore new County Executive Committees (CECs)—which have and exercise the executive authority of respective counties.

It is evident from the data and literature that most of the challenges that devolution in Kenya sought to address through its objects are climate-relevant (*refer to Table 13*), and thus devolution offers an opportunity for building resilience against climate and disaster. These include issues of marginalisation of certain communities, gender disparities, regional inequalities, public participation, accountability, and self-governance.

Gender disparities in top county leadership: Nationally, elected female governors have increased by 15%, from zero in the 2013 elections, to three (6%) in 2017 (Kitui, Kirinyaga, Bomet) and seven (15%) in 2022 (Embu, Homa Bay, Kwale, Kirinyaga, Machakos, Meru and Nakuru). The Meru governor was impeached by their male-dominated County Assembly (with only one elected female MCA) barely three months after being sworn in. However, she only resumed her office after the Senate committee investigating the impeachment concluded that none of the 62 allegations levelled against her was substantiated/proven. This was happening at a time when more than 40% of the county's population of about 1,500,000 was facing a risk of starvation due to a drought that was worsening (Mwiti, 2022). Only Kitui and Kirinyaga counties have had female governors serving for a full term (Bomet's governor passed on in 2020 and was replaced by a male governor).

Social contracts in Kenya have produced long-standing, highly patterned and inequitable consequences in the social, political and economic development areas relevant to climate adaptation. The simultaneous interactions between social contracts and political economy processes, and with globalisation, contribute to the extent and nature of TCARs and the capacity of Kenya's interventions to address them effectively. Indeed, most of the CARG functions are embedded within the responses to other needs and challenges in the remit of each county government and the national government. TCARG, therefore, ought to be contemplated along these elements and cooperation horizontally and vertically enhanced for better, just climate and adaptation outcomes as well mitigation of cross-scale negative spillovers. Collaboration and cooperation are already integrated into the relevant social contracts, but they need to be operationalised in practice more. The need for, and the act of addressing TCARs, could promote deeper cooperation and enhance the resilience of the life-sustaining systems at different levels.

Whereas they are often considered as local or subnational processes, devolved/county climate change projects are entangled in complicated global relationships. County governments operate within the global space and their effectiveness can be affected significantly by macroeconomic factors way beyond their and the national government's control. These considerations need to be balanced adequately with the local mandates of each actor while acknowledging the practical and theoretical inadequacies and limitations of locally-led approaches to tackling TCARs. In fact, critical evaluations of their operations and performance would reveal the pitfalls of naïve adoption of such approaches to development and adaptation outcomes for individual governments. These include the (potential) redistribution of risks across space, time and sectors. The varied political economy and (social) justice consequences within and/or outside each domain can also be identified and addressed. Specific actions and motivations (e.g., the clamour for 'CIS at scale') usually ignore the scalar interdependency. CIS downscaling done by county offices, focusing only on their counties with little or no reference to what might be happening outside that, may have implications.

#### **4.4.7 Strengths and Limitations of the Study**

The study has used social contracts theory to explain why and how devolution has impacted CARG and prospects for TCARG in Kenya, and political economy to explain the justification and impact of previous social contracts, especially on vulnerability to climate change and the capacities to cope. It has demonstrated how the social contracts interacted with political economy to shape (by shrinking or expanding) the decision spaces for (T)CRA, and how political economy outcomes of implemented social contracts shape the renegotiation of new ones in Kenya. The Chapter has also shown how the existence of multiple social contracts can cushion vulnerable people at different times, by turning to one when the other fails to protect them from the impacts of climate change. In this sense, it has highlighted that these contracts have limits which when crossed render them void and leave people exposed to uncertain protections and even harm (e.g., through dispossession and violence). The invalidation of some of the social contracts in such cases occurs due to the existence of other social contracts wherein vulnerable people are not parties and therefore not entitled, and the governors in those instances are not accountable to them—as they are not citizens.

## 4.5 CONCLUSION

Climate change has become one of the biggest threats to humanity and the environment. It is a global problem that requires global solutions, and transboundary climate risk governance has become an important issue in addressing the impacts of climate change. The interaction between devolution and governance of these transboundary, global issues provides insights not just into the limits of devolution as a concept but also opportunities for operationalising it in a way that makes the transboundary issues governable. This study sought to understand how devolution affected the (trans)boundariness of CARG in Kenya. Through social contracts and political economy lenses, it confirms devolution's profound impact on the boundariness of CARG in Kenya by, for example: i) altering the very borders within which the construction and the enforcement of social contracts occur; ii) redefining, qualifying, and conferring the rights-holders, their rights and entitlements on one hand and duty-bearers and their duties and responsibilities on the other; iii) altering the decision spaces for CARG and related processes; and iv) adjudicating on the access to, distribution and sharing of, resources and capacities essential to CARG.

Secondly, the study aimed to understand how this helps or hinders TCARG in Kenya. Using the same lenses, the Chapter makes two important contrasting conclusions. The first is that the kind of devolution being implemented in Kenya is stimulating local participation, decision-making, and prospects for accountability in climate-related actions. The second is that it portends a high risk of entrenching parochialism, localised elitism, and mass placation through illusions—e.g., of risk, resilience, and self-preservation—which could be detrimental to (T)CARG. This is augmented by, and could especially further, inequalities and marginalisation within and between different counties and among vulnerable groups.

Thirdly, the study determines that there are numerous key opportunities and challenges for (T)CARG that are associated with the implementation of devolution in Kenya. Some aspects considered as opportunities and advantages from a decentralisation locally led perspective can turn into challenges and disadvantages from a transboundary perspective. This cautions against overexuberance about uncritical localism in climate action, since many fundamentals driving the risks are not local *per se*. Indeed, some of these challenges - especially those related to the implied and practised parochialism - can be surmounted and

opportunities exploited better with intentional effort and focus on capitalising on localised social, spatial, economic and environmental uniqueness without disregard for influences from outside of the 'local'. This, for example, can be driven by increased recognition, consideration and vigilance on the extent to which occurrences and omissions outside each governance unit matter for their resilience and success in delivering their mandates. The prevailing political system allows for this, and suggestions have been advanced that might require a reinterpretation of the prevailing social contracts at play or the creation of new ones, just as it happened with the adoption of the 2010 Constitution and the 1969 and 1963 constitutions before it. New mezzo-level outfits consisting of the governance units thus established have started to emerge—such as the regional economic blocs (REBs).

Evident from the data is the fact that climate change is affecting the crafting, structure and enforcement of social contracts in Kenya with political economy consequences. Social contracts themselves are about the inclusion of some and the exclusion of others. This is evident at the national frontiers and across domestic borders, and in the performance of climate, socioeconomic and political governance functions. The contracts that are at play at each scale may differ, as different actors are bound by some boundaries and not by others, based on the type of relationship between the actors. This usually is affected when crossing borders or when borders are crossed and, therefore, rights and entitlements change or become void. Climate response, evidently, involves the protection of these borders at all scales, and the struggles exist when certain social contracts (e.g., the imagined) are rendered null and void by the act of crossing a boundary (e.g., a national boundary) as part of adaptation to climate-related dangers. A TCARG approach therefore requires constant collaboration, cooperation and communication both within and across frontier and domestic borders and the various social contracts at each scale, in consideration of TCARs.

There is potential to duplicate this study in many other countries that have different extents of devolution. But focusing on Kenya, it is necessary to further explore the various impacts of devolution on TCARG prospects independently. For instance, exploring how the county governments cooperate and the platforms through which this cooperation occurs could be a worthwhile exercise. Such could focus on, for example, the Council of County Governors (COG) or the regional economic blocs (REBs). The impact of devolution on the pre-existing platforms for integrated regional development entities such as the regional development

authorities could also provide valuable insights into the impact of political system change on cooperation platforms and approaches that could potentially further TCARG. Finally, there is scope to employ other theoretical and conceptual frameworks and approaches to evaluate the potential for TCARG in the context of devolution.

## 5 CHAPTER 5

### 5.0 RATIONALES FOR THE (EX)TERRITORIALITY OF CLIMATE AND ADAPTATION RISK GOVERNANCE

#### Abstract

The debate on transboundary climate and adaptation risks (TCARs) has raised questions about the territorial framing of adaptation governance and its underlying logics. This Chapter contributes to and extends this debate by exploring the context-based rationales for the territoriality and extraterritoriality (hereafter, (ex)territoriality) of climate and adaptation risk governance (CARG). It examines CARG through a spatial imaginaries lens in the context of Kenya, following a mixed-methods analysis of data from the same dataset as Chapter 4. It first visualises and discusses Kenya's CARG architecture, and then explains its rationale and the extent to which TCARs fit in.

The Chapter finds that CARG in Kenya is often deliberate and underpinned by evolving spatial imaginaries that define its governance territories. It is also crafted from and embedded within the wider socio-political institutional and governance rationales and processes that are fundamentally territorial. Consequently, Kenya's CARG architecture develops its nature, including its (ex)territoriality, from these foundations. Conversely, the extraterritorial nature of TCARs creates dilemmas for their governance. Public administration units, sectors and socio-political domains form salient spaces for the expression of (ex)territorial politics and transboundary CARG (re)negotiation, cooperation, and contestation — which are helped or complicated by the level of (in)congruence between different spatial imaginaries in each 'territory'. Thus, the territoriality of adaptation framing and interventions is hereditary from the prevailing diverse spatial imaginaries in different spaces and places wherein CARG elements including tangible and intangible assets like knowledge, technical and technological capacities, governance structures and resources are developed and utilised. These units can be mechanisms for rendering TCARs more governable, but the spatial imaginaries of CARG would need to be expanded to incorporate

cross-level and cross-scale dimensions. This way, the rationales of governance would allow and legitimise the utilisation of resources to govern the transboundary risks and impacts.

The Chapter infers that while *transboundary governance* of climate risks and adaptation is happening, *transboundary risks (and related aspects)* of climate impacts and response interventions *are rarely the subject*. It concludes that globalisation — hitherto advanced as the key basis for concern about TCARs and their governance — is a potent rationale applicable to Kenya for the reconsideration of the territorial approaches to CARG. However, other rationales exist that serve as mobilising or representational devices in navigating the reconfiguration of this governance, which means that even under limited globalisation, TCARs and their governance remain pertinent for Kenya.

**Keywords:** transboundary climate risk; adaptation; devolution; development; adaptive governance; political economy; mainstreaming; globalisation; subnational governance; climate isolationism; climate justice; decision space; vulnerability; scale; territoriality, extra-territoriality; spatial imaginaries.

## 5.1 INTRODUCTION

### 5.1.1 Background and Context

The COVID-19 pandemic and the war in Ukraine have demonstrated the seriousness of transboundary, systemic, and compound risks in a highly interconnected world and how challenging their management can be. Moreover, the management of the pandemic globally has shown the disruptive consequences of interventions and reiterated lessons for the management of both climate risks and risks from climate response measures (e.g., Gössling et al., 2021; Ringsmuth et al., 2022) —*also see Chapter 3 and Chapter 4*. The increasing concern for such transboundary risks, including transboundary climate change and adaptation risks (TCARs), is therefore justified (see, for example, Ansell et al., 2010; Bednar-Friedl et al., 2022; Benzie et al., 2019; Benzie and Persson, 2019; Carter et al., 2021; Nadin and Roberts, 2018; Opitz-Stapleton et al., 2021; Ringsmuth et al., 2022). As also seen in the previous Chapters, increasing climate change action can augment risks, especially transboundary adaptation risks (TARs).

In the previous Chapters, I have extensively discussed the focus of the growing literature on TCARG, including raising awareness, characterisation and governance. An important gap that remains is that while the literature focuses on these and establishes the transboundariness of TCARs, few studies have attempted to explain the reasons why adaptation framing and governance are territorial. One such study is by Benzie and Persson (2019) who use constructivist international relations theory to suggest:

*“...that the epistemic community that developed to interpret climate change adaptation for decision-makers had certain features (e.g. strong environmental sciences foundation, reliance on place-based case study research) that established and subsequently reinforced the territorial framing. This framing was then reinforced by an international norm that adaptation was primarily a national or local responsibility, which has paradoxically also informed calls for international responsibility for funding adaptation...” (2019, p. 386)*

They proceed to identify and discuss “some of the main options for increasing the consideration of borderless climate risk in adaptation governance: national and bilateral governance; transnational governance; and international and regional governance” and extend an invitation for “more in-depth evaluation of these options” (2019, p. 381). This Chapter is a response to this invitation. However, I do not intend to evaluate the options they have proposed here, especially because they are situated at the international level, following the analyses that often take subnational levels and boundaries for granted. Instead, I focus on the questions they have considered: “...why has a territorial framing and the national and sub-national scales dominated adaptation governance? How do borderless climate risks challenge this framing and what are possible governance responses?” (2019, p. 370). I intend to extend or provide alternative answers to these important questions regarding the territoriality and extraterritoriality —hereafter, (ex)territoriality—of adaptation governance.

I also address the gap that rationales for the different governance approaches have not been adequately explored using empirical evidence. For instance, most multi-level governance literature is uncritical of the ‘levels’, yet the number and/or character of the ‘levels’ may differ from country to country. Similarly, adaptive governance literature recognises polycentric and multi-layered institutions, as well as collaboration and cooperation but does not adequately explain, for example, what determines the number of layers or levels and

the extent or character of cooperation and collaboration. Climate governance has also been extensively treated as a separate governance regime (especially stemming from the UNFCCC processes) and theoretically given many descriptions — e.g., transnational, global, regional, local etc. Yet it is acknowledged that many of the factors that drive vulnerability do not sit neatly or exclusively in this domain. Despite this acknowledgement, there has hitherto been limited systematic discussion of how climate governance architectures mirror or diverge from public administration and wider governance landscapes within which they are established and implemented. This is also even though public administration and governance can influence vulnerability to climate change in fundamental ways — *as seen especially in Chapter 4*. Such literature also suggests globalisation is the central justification for such cooperation and concern about TCARs, citing ‘hyperconnectivity’ between countries and a ‘globalised’ or ‘globalising world’ (see also Goldin and Mariathasan, 2014; Keskitalo, 2009; Khan, 2016; Lidskog et al., 2011; O’Brien and Leichenko, 2000; Toly, 2008).

These perspectives are embedded in the historical geographies of state power and the theoretical underpinnings of International Relations and modern international political economy wherein state sovereignty is the fundamental hallmark and rationale for the underlying climate governance mechanisms and logics. This is a limited view considering the density of the regime complex underpinning global climate governance (Abbott, 2014; Henstra, 2017; Keohane and Victor, 2011) and the uncontested governance heterogeneity in the multilevel climate change governance (Abel et al., 2014; Cash et al., 2006; Jordan et al., 2015b; Kuyper et al., 2018). Additionally, many countries themselves have multiple levels of government and institutions with a diverse range of autonomy and TCAR circumstances within their borders (Armitage, 2008; Cash et al., 2006; Hamilton and Lubell, 2019). Furthermore, (climate) risk and adaptation governance are contextually (including politically, socially, economically and ecologically) contingent and have multi- and cross-scalar dimensions (Chelleri et al., 2015; UNFCCC, 2015a). Thus, centring TCAR and TCARG analyses and governance propositions on state sovereignty and globalisation results in limited empirical analyses of TCAR and TCARG.

It is, therefore, necessary to decentre the analyses from the state, in congruence with the established consensus on multilevel and polycentric climate governance. This is important especially because attention and support for adaptation are increasing globally as the

implementation of the Paris Agreement and other climate-relevant post-2015 global agendas gain momentum (Berrang-Ford et al., 2015; Lesnikowski et al., 2017), and much of that is supposedly 'local' (*see Section 3.1.1 for additional relevant justification*). Addressing TCARG will require improved multilevel and interlevel action across various borders - not just the states' — lest it would be, as Karl argues, "very unlikely" to address climate change (2003, p. 1722). Therefore, understanding TCARs and subnational dynamics of response is important for the theory and practice of CARG (Bastakoti et al., 2014; Bauer and Steurer, 2014b; Betsill, 2007; Heikkila et al., 2013). Furthermore, the multidimensionality of the 'global goal on adaptation' — *see Chapter 2 especially* — and the broader global climate change policy and research require understanding climate vulnerability and response "in the light of different national circumstances". These dimensions of adaptation and their influence on adaptation governance are not fully understood (Biesbroek et al., 2018), and 'national circumstances' are neither the only circumstances that matter nor are they homogenous in many cases.

### **5.1.2 Objectives and Research Questions**

The implementation of adaptation is dominantly territorial, and there is a need for a better understanding of 'why' this is so. This Chapter explores the context-based rationales for the (ex)territoriality of CARG and the extent to which TCARs align with these structures using Kenya as a case study. The following research questions are explored in the context of Kenya:

RQ5.1 How is CARG in Kenya (ex)territorial and at what scales does it happen?

RQ5.2 What explains the (ex)territoriality of CARG in Kenya?

RQ5.3 To what extent do TCARs align with Kenya's CARG architecture and rationales?

### **5.1.3 Contribution and Significance**

This Chapter addresses empirical and analytical gaps vis-à-vis TCARG and the pervasive territorialism in CARG with a focus on the national and subnational levels. It contributes to the existing literature on CARG, particularly in the context of lower-middle-income countries (LMICs) vulnerable to both (transboundary) climate risks and risks emanating from climate response measures. The Chapter contributes to the understanding of the (T)CARG challenge by offering insights into the rationalisation of CARG and an explanation of the underlying

reason(s) for territorialism in CARG. This is important because suggestions of governance approaches that ignore the reasons for territorialism are likely to fail. The Chapter also develops literature on climate risk governance in Kenya. Many studies describe *how* climate and disaster risk governance happens in Kenya (i.e., the architectures), but there is a limited exploration of why such governance occurs as it does (i.e., the rationales). The above questions explored in this Chapter address this gap. The findings also have potential significance for policy and practice.

After this introduction, Section 5.2 provides an overview of the theory and concepts underpinning the Chapter and Section 5.3 highlights the materials, methodology and methods. I present the results and discuss them under Section 5.4 and present conclusions and recommendations for further research in Section 5.5.

## 5.2 THEORY AND CONCEPTS

### 5.2.1 Multilevel, Polycentric, and Adaptive Governance

CARG studies are multidisciplinary, cutting across the social and natural sciences and increasingly in the humanities and the arts. The Chapter adopts a multidisciplinary stance to draw concepts and ideas from different strands of literature, following the consensus that climate change governance is multilevel and polycentric especially because of the nature of the world and the issues involved in the construction of climate change (Armitage, 2008; Biermann, 2014; Cash et al., 2006; Corfee-Morlot et al., 2011b; Hamilton and Lubell, 2019; Jordan et al., 2015b; Ostrom, 2014; Tosun, 2018)—see section 1.0.8 for a more detailed discussion of the relevant concepts. The broader risk, climate, adaptation, and disaster governance literature helps to explore the research question RQ5.1 on CARG in Kenya.

Adaptive governance has emerged as one of the key climate and disaster risk governance approaches that incorporate multilevel, polycentric thinking in the analysis of resilience-building processes (Brunner and Lynch, 2010; Djalante et al., 2011; Hurlbert, 2018; Munene et al., 2018). In theory, adaptive governance “involves decision-making processes that connect individuals, organizations and agencies at multiple levels and provide for collaborative, flexible, learning-based approaches, particularly for complex and uncertain systems such as ecosystems” (Heikkila and Gerlak, 2016, p. 229). This description agrees

with Gerlak's view of "adaptive governance or adaptive co-management" (2014, p. 68) and highlights its utility in adaptation and resilience domains as demonstrated by many other scholars (e.g., Bronen and Chapin, 2013; Brunner and Lynch, 2010; Cooper and Wheeler, 2015; Djalante et al., 2011; John Armstrong and Sheldon Kamieniecki, 2017; Munene et al., 2018). This strand of literature helps illustrate CARG in Kenya as it links social-ecological systems (SES) governance to climate resilience building (Brunner et al., 2005; Dietz et al., 2003; Djalante et al., 2011; Folke et al., 2005; Olsson et al., 2006). In addition to this, the study borrows from the wider governance and public administration literature to explain the rationales of CARG in Kenya – addressing research question RQ5.2. Finally, the third question relies especially on the literature on the nature and propagation of risks to define TCARs – before exploring the consideration in Kenya's CARG arrangements. Several related studies in this area have emerged in the past decade (e.g., Bednar-Friedl et al., 2022; Benzie et al., 2019, 2016; Benzie and Persson, 2019; Carter et al., 2021; Challinor et al., 2017; Hedlund et al., 2018; Hildén et al., 2016; Opitz-Stapleton et al., 2021).

Djalante *et al.* (2011, p. 4) illustrate the main characteristics of adaptive governance (namely, polycentric and multi-layered institutions; participation and collaboration; learning and innovation; and self-organisation/networks) and how they are interrelated. Drawing from polycentric and multi-level governance perspectives, Heinen et al. (2022) have more recently defined 'five dimensions of climate governance' based on a systematic literature review: (interdependent) governance issue, rules-in-use, decision-maker types, their interactions and interdependence. Other scholars have also developed useful ways of thinking about adaptation governance arrangements. For instance, Termeer et al. (2017) outline seven basic elements of governance arrangements for adaptation to climate change: framing of the problem; levels of action; timing of the policies; alignment across sectoral boundaries; selection of policy instruments; and organization of the science-policy interface. Ideas from political economy (e.g., following Lomax et al., 2021; Musambayi, 2013; Shilomboleni, 2022; Sovacool and Linnér, 2016; Tanner and Allouche, 2011b) and social contracts (e.g., following Adger et al., 2018, 2013; S. Blackburn, 2014, 2014; O'Brien et al., 2009) also underpin the thinking in this Chapter, especially concerning how and why CARG happens, rights and entitlements, and the creation of 'winners' and 'losers'.

## 5.2.2 Territoriality and Exterritoriality in Climate Governance

The above research works primarily explain the nature of climate governance with less focus on the underlying reasons or justifications. Attempts to explain the territorial framing of CARG and the dominant levels at which adaptation occurs can benefit from a deeper consideration of the underlying rationales for the very practice of CARG through the multilevel, polycentric, and adaptive governance approaches highlighted above.

These works and the wider climate and disaster risk governance literature and policies generally see *all* climate governance *through* the territory, although this may not be explicitly acknowledged often. This very social-spatial approach is useful considering the differential impacts of climate and disaster risks and the highly patterned geographies of their governance. The exploration of territorial ontologies of TCARG is critical, especially considering that “Managing climate and disaster risk is a deeply political act” (Blackburn and Pelling, 2018, p. 1), and that the “ontological dimension of climate/territorial politics represents the kind of world and reality that political practices - or climate solutions - want to affect or enact” (Cifuentes, 2021, p. 133). Climate politics and governance is a mishmash of territorial and exterritorial claims and practices that underpin the ‘regimes’ in climate change’s “regime complex” (Keohane and Victor, 2011). Climate change negotiations are themselves processes of territorial defence (of people, ecosystems, economies etc.) — (for examples, see Boelens et al., 2016; Cifuentes, 2021; Delaney, 2005b; Lidskog et al., 2011), an objective evident even in the negotiations and the outcome documents (e.g., UNFCCC, 2015a). Governance involves obligations, responsibilities, and commitments on one hand and entitlements and rights on the other (Adger et al., 2018; Blackburn and Pelling, 2018; Huitema et al., 2016; Termeer et al., 2017). Territoriality and exterritoriality conceptions highlight the jurisdictional boundaries of actors in performing these governance functions and experiencing their outcomes in the management of climate-related challenges.

*Territoriality* is the principle that states have sovereignty and exclusive authority over their territories – which are themselves “human social creations” (Delaney, 2005b, p. 10). Under the principle of territoriality, each state has the right to govern its own territory, make decisions about its resources, and enact laws and regulations within its borders (Derman, 2019; Kythreotis, 2012) — in fact, sovereignty is often conceptualised as “the bundling of

rule-making authority within bounded territories" (Hudson, 1998, p. 89). It means that, in CARG context, each country is primarily responsible for addressing the impacts of climate change within its own territory, including by developing and implementing adaptation strategies and policies to protect their citizens, ecosystems, infrastructure etc. from the adverse effects of climate change (UNFCCC, 2015a, 1992). As Benzie and Persson note, a country (or any other entity for that matter) may "choose whether or not to engage with borderless climate risks" (Benzie and Persson, 2019, p. 381). This approach hinges on the view that climate change impacts are often location-specific and require responses customised to local conditions, vulnerabilities, and capacities.

In contrast, exterritoriality is simply the extension of a state's legal and regulatory jurisdiction/authority beyond its borders/territory (e.g., see Bellinkx et al., 2022; Scott, 2015). Exterritoriality views states as having obligations to other states and to the international community, such as the responsibility to take steps to mitigate climate change and to help other states adapt to its effects. Exterritoriality in climate governance manifests in different ways, including through financial and technical assistance, technology development and transfer, capacity building, policy coordination and collaboration at various scales (Albrecht et al., 2017; Benzie and Persson, 2019; ODI, 2014). In addition, the concern about TCARs can be linked to the exterritoriality of climate governance, and exterritorial actions are required to address them. This idea also underpins the 'common but differentiated responsibilities' principle under the UNFCCC (Brunnée and Streck, 2013; French, 2000; Stone, 2004; UNFCCC, 1992). It can also mean the explicit exemption from the jurisdiction/authority of local laws/regulations or by not including in the planning or regulatory framework at all, a kind of nondecision-making highlighted in Chapter 2 (Section 2.3.2.1).

Although these concepts are usually applied to states, they can also apply to non-state entities and social collectives. For example, territoriality is rightly considered "*an important element of how human associations – cultures, societies, smaller collectives – and institutions organize themselves in space*" as well as *an "aspect of how individual humans as embodied beings organize themselves with respect to the social and material world"* (Delaney, 2005b, p. 10). Being about social organisation and association, both territoriality and exterritoriality, therefore, apply to subnational scales as much as it applies to national, regional, and

international scales, often depending on the legal and governance frameworks/structure of a particular country. At the subnational level, territoriality refers to the authority and responsibility of subnational entities (subnational governments, states, regions, municipalities etc.) to develop and implement climate adaptation measures within their respective jurisdictions (Ainuddin et al., 2013; Barrett, 2015; Hesse and Pattison, 2013; Jörgensen et al., 2015). Subnational governments often have the power to establish adaptation strategies, policies, and initiatives that are specific to their local conditions and priorities. Subnational territoriality recognises the intra-country variations of climate change impacts, and the potential distinctiveness of the (climate) risks and vulnerabilities faced by different regions and/or localities (Adger et al., 2011; Birkmann, 2007; S. Blackburn, 2014; Corfee-Morlot et al., 2011b; Wilbanks, 2015). Subnational governments can play a crucial role in understanding and addressing these specific challenges by tailoring adaptation plans to local circumstances, collaborating with relevant stakeholders, and implementing measures that are appropriate for their jurisdiction (Muwonge et al., 2022; Nyandiko, 2020). Similarly, subnational exterritoriality can also apply in cases where subnational entities (may) engage in adaptation actions that extend beyond their own jurisdictions to address shared or interconnected challenges. For example, subnational governments may collaborate with neighbouring regions or localities to develop joint adaptation strategies, particularly when facing common risks or sharing natural resources (Lee et al., 2022; May and Williams, 2012; Sam and Rogo, 2022; Stranadko, 2022). They may also engage in cross-border initiatives (within the same country or not) to protect ecosystems, manage water resources, address the impacts of climate-induced migration, or pursue other (sustainable) development objectives such as through development corridors (e.g., Gannon et al., 2022) or subnational regional economic blocs (e.g., Wanga, 2020). Subnational entities can contribute to international climate adaptation efforts by, for example, sharing knowledge, best practices, and expertise with international actors including through paradiplomacy (Cornago, 2018; Paquin, 2020; Setzer, 2015; Tewari, 2017). They may also participate in networks and platforms that facilitate subnational climate cooperation and contribute to broader adaptation agendas, even transnationally (e.g., Andonova et al., 2017, 2009; Bäckstrand, 2008; Cao and Ward, 2017b; Perkins and Nachmany, 2019).

Like the dilemma between borderless risks and a socio-politically bordered world in which they must be governed, the concepts of territoriality and exterritoriality are often in tension.

This (in)congruence is perhaps a key reason for their suitability in navigating TCARG and explaining why CARG remains territorial and the national and subnational scales dominant in adaptation. They also present significant challenges that need to be explored and resolved at different scales if TCARs are to be governed effectively. These include political and sovereignty concerns, fairness and burden-sharing, enforcement, and accountability, and managing diverse competing interests and priorities.

### 5.2.3 Conceptual Framework

Informed by the above theories and concepts, I conceptualise CARG as a factor of the interactions of and between people, places, and systems over time (*see also Chapters 3 and 4 for more on these variables*). Thus,

$$\mathbf{CARG} = \frac{\text{People. Places. Systems}}{\text{Time}}$$

These interactions are facilitated by the (especially performative) spatial imaginaries consistent with the theories and concepts discussed above and the wider governance literature. Spatial imaginaries here refer to the “*deeply held, collective understandings of socio-spatial relations that are performed by, give sense to, make possible and change collective socio-spatial practices*” (Davoudi et al., 2018, p. 101). Spatial imaginaries reflect the “*understandings of the spatialised social world*” (i.e., the territory(ies) and “*help shape material practices and geographies through their propagation*” (Chateau et al., 2021, p. 3). These interactions, therefore, have impacts, which (de)construct risks further, with implications for risk attenuation, propagation and/or amplification within and/or outside the boundaries of where the CARG occurs (*illustrated in Figure 15*). One assumption is that these elements are bounded in some way but interact (always or from time to time) in different ways, including through flows of goods and services, people and labour, information, finances, and other types of capital, for example. These interactions then, have or result in the dimensions of adaptation governance prevalent in literature. I developed five hybrid adaptation governance dimensions (i.e., the ‘CARG pentagon’) borrowing especially from Termeer et al.’s (2017) seven elements, Heinen et al.’s (2022) ‘five dimensions’ which they argue “provide insights for applying a multi-level or polycentric governance perspective to empirical research” (p.56) and the core characteristics of adaptive governance as theorised

by Djalante *et al.* (2011) and applied by Munene *et al.* (2018). These dimensions of the CARG pentagon are *governors*, *framing*, *governing*, *rules-of-the-game*, and *interdependence* (refer to Appendix 11(a) for an illustration of the selection of these dimensions).

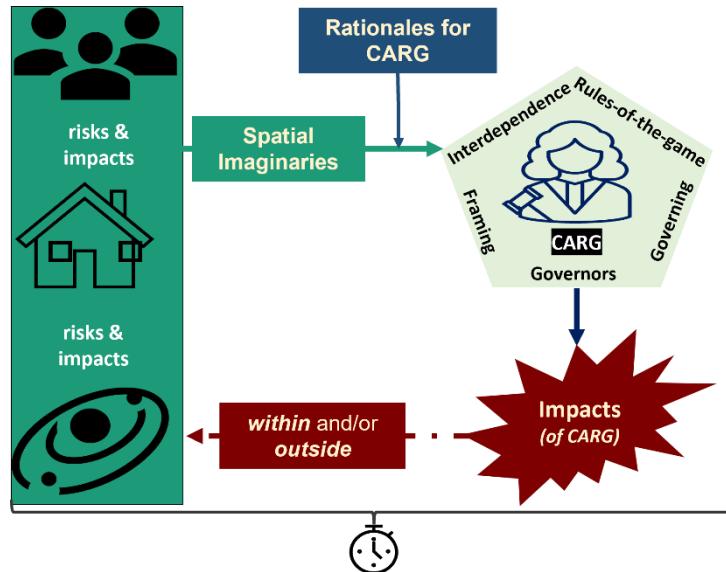


Figure 15. Conceptual framework: Climate and adaptation risk governance as a factor of interactions of and between people, places, and systems over time.

I adopt the same reasoning behind the choice and utility of these variables in this Chapter as that described in Chapter 3 (refer to Section 3.2.2). People is perhaps the only variable able to govern (risks) consciously. This variable enables us to answer the 'who' questions, including who the governors, the governed, the winners and the losers are. Places are the platforms/locations for governance and risk construction. They allow exploration of the 'where' questions, including for instance where the elements at risk are and the scale where CARG happens – scale here "*has to do with the levels at which phenomena occur in the dimensions of space and time*" (Young, 2002, p. 26). I suppose that places are material to the nature and extent of CARG. Systems (environmental and climatic, economic, social, and political) help to appreciate the actual construction, extent, and direction of the flow of risks. The resultant composite analytical and conceptual framework aims to facilitate a deeper understanding and explanation of (T)CARG than these theories applied singularly.

## 5.3 MATERIALS, METHODOLOGY AND METHODS

### 5.3.1 Context and Setting of the Study.

The study situates CARG within Kenya's socio-political and sustainable development contexts. Kenya is an LMIC that is highly vulnerable to climate-related risks and disasters yet committed to many climate-relevant regional and international frameworks and agenda including the UNFCCC and its agreements. Kenya is often regarded as a trailblazer in climate policymaking in Africa (Rioux, 2019). The country is also implementing ambitious governance and public sector reforms that are relevant to (T)CARG — *see Chapter 4*. Kenya is considered one of the more progressive countries in climate change governance in the world. It is counted among the first in Africa "...to enact robust climate law and policies that guide national and local action..." (Naeku, 2020, p. 170). However, despite this, Kenya "continues to grapple with challenges presented by climate change, which have increased the country's vulnerability to biodiversity loss, ecosystem degradation and immense impacts on livelihoods and infrastructure in both rural and urban areas" (Naeku, 2020, p. 170). Kenya's vulnerability to climate change and TCARs is driven by location, climatic diversity, economic development status, and geopolitical and political factors. But the country's climate response has also been noted to create winners and losers (Lomax et al., 2021), just like the governance arrangements implemented in the country over time. For example, the centralised governance in the country created many ills and augmented vulnerability through marginalisation, corruption, wastage, dispossession, underdevelopment, and inequalities (Ambani and Kioko, 2022; Hesse and Pattison, 2013). The governance and public sector transformations being implemented in Kenya since 2010 are meant to address these problems and have affected how CARG happens or could happen in the country.

### 5.3.2 Study Design, Data Sources and Sampling Strategy

This study employed a mixed method, case study research design. This Chapter draws from the same dataset as Chapter 4, which were collected through literature review and analysis of relevant official planning, policy, and legislative documents and 77 key informant interviews (KIs) with 72 purposively selected respondents representing at least 60 institutions in the Kenyan climate governance landscape (including government officials, adaptation project implementers and funders, researchers and consultants and

CSO/NGO/private sector representatives). Each in-depth interview was roughly 90 minutes. Statements/speeches by officials/speakers not interviewed as KIIs were also incorporated in the corpus for this study. Three high-level statements made by Kenya at the UNFCCC COPs also inform this study alongside 130 purposively selected policy and legislative documents.

Purposive and snowballing techniques were used to find the documents and to recruit the key informants (KIs). Some KIs were identified through LinkedIn search where individuals whose profiles suggested they held climate change docketts were approached for interviews. Others were identified from events attended. Collection of policy documents was mainly through official websites (including referral to given documents by interviewees) and some were shared through personal communication as part of the information/data shared in the interview process.

Fieldwork and site visits were done in three waves: October 2019 to January 2020, November 2021 to January 2022, and November 2022 to January 2023, although some interviews were conducted remotely outside of the fieldwork visits. Observation (as a participant in select events and site visits) was also employed as data collection in the form of speeches and statements by officials not formally interviewed at the *Kenya 7<sup>th</sup> Annual Devolution Conference* (23<sup>rd</sup> and 26<sup>th</sup> November 2021). This conference was particularly relevant to this study as its theme was "*Multi-level governance for climate action*" and the sub-theme was "*Sub-National mobilization in unlocking the full potential of climate action during and after pandemics*".

Other sources of secondary data, including the 2019 census, grey literature (governmental and non-governmental reports), and EM DAT (the International Disasters Database), consulted in this study are cited.

This study mainly focuses on planned adaptation governance. However, it acknowledges that spontaneous adaptation and risk governance are important at the household and individual levels and sometimes at the communal level as both 'governors' and 'the governed'. The Chapter gives some case examples of these too.

### 5.3.3 Analysis

Data were analysed qualitatively and employing descriptive statistics. Audio and audio-visual data were transcribed and, together with the rest of the text data, coded first following a coding framework developed from the literature and based on the research questions. Emerging themes were included inductively in subsequent iterations of coding using NVIVO. Content analysis (Drisko, 2016; Elo and Kyngäs, 2008; Hsieh and Shannon, 2005; Neuendorf, 2017) and thematic analysis (Braun et al., 2019; Braun and Clarke, 2006; Nowell et al., 2017; Terry et al., 2017) were simultaneously utilised to analyse the data following a combination of both deductive and inductive approaches for a more complete understanding of CARG (Neuendorf, 2018). I also incorporated map development in the process and made interpretations of pre-existing maps.

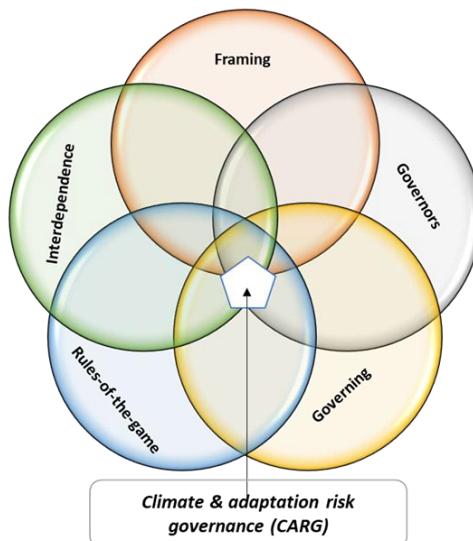


Figure 16. Multidimensional climate and adaptation risk governance pentagon.

The predetermined conceptual framework guides data analysis towards answering the research questions. Question RQ5.1 was examined by exploring the data through the CARG pentagon (Figure 16). The institutional architecture for CARG in Kenya (Figure 18) was first developed based on these data, and its underlying framework was generated (Figure 17). Question RQ5.2 was answered by interrogating the data to derive the explicit and implied justifications underpinning the CARG architecture using the same dimensions (see Appendix 11(b) for this). Afterwards, the rationales were grouped in clusters representing the overarching themes that emerged (Figure 21). Finally, question RQ5.3 was answered by interrogating the data to identify any TCARs addressed within the architecture and in the

dimensions of the CARG pentagon. Conclusions are then drawn and discussed regarding the territoriality and rationales of CARG in Kenya and how TCARs fit in.

## 5.4 RESULTS AND DISCUSSION

This Chapter aimed to improve our understanding of 'why' implementation of adaptation is dominantly territorial. Using Kenya as a case study, it aimed to investigate the context-based rationales for the (ex)territoriality of CARG (answering RQ5.1 and RQ5.2) and the extent to which TCARs aligned with these structures (answering RQ5.3). Following the analysis process outlined in Section 5.3.3 above, the results and findings are discussed below.

### 5.4.1 CARG in Kenya

After synthesising interview data and formal documents on political and policy structures to determine if CARG in Kenya is framed territorially and the scales at which it happens, I have drawn up a framework, within which CARG in Kenya occurs (see *Figure 17*). This framework determines the structure of CARG and specifies and controls its core dimensions and elements (including the scales of governance, the actors, responsibilities, entitlements and obligations, accountability relationships, the rules-of-the-game, timing etc.). The framework is fundamentally territorial, including jurisdictional, spatial, social, temporal dimensions, etc.

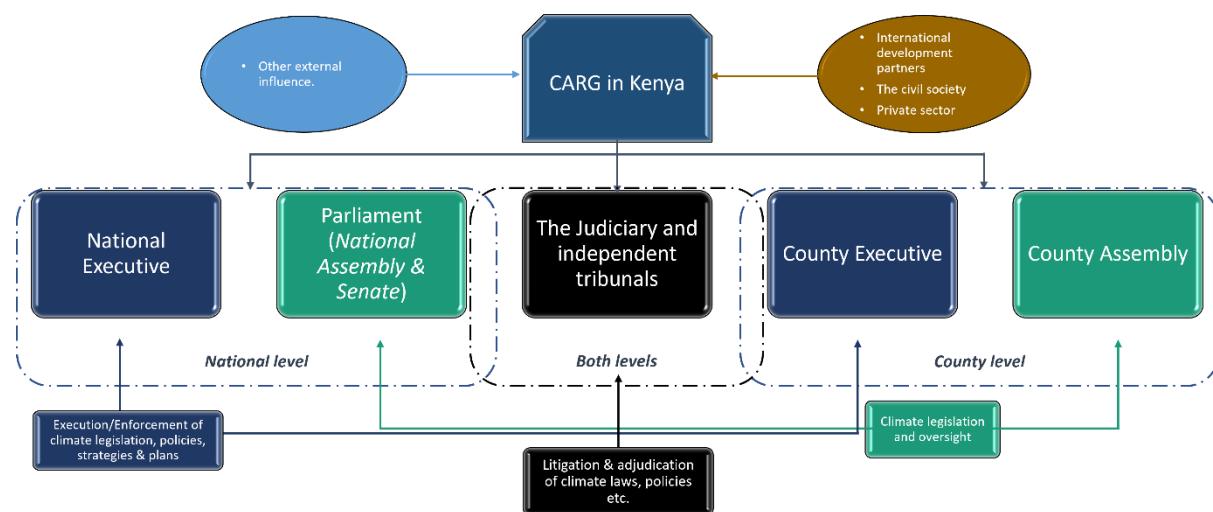


Figure 17. Conceptualisation of CARG framework in Kenya.

The framework for CARG in Kenya is multilevel and polycentric and exhibits all the core characteristics of adaptive governance suggested by Djalante et al. (2011). The statutory responsibility for CARG is on the government, implemented at two levels: national and county (subnational). Each level has a legislative arm (**green**) that is responsible for climate

legislation, representation and oversight, and an executive arm (**dark blue**) that executes and enforces the climate legislation, policies, strategies and plans. The judiciary (and independent tribunals) (**black**) is charged with litigation and adjudication of these laws and policies at both levels. The participation of the public is embedded in the democratic governance ideals espoused by Kenya's public service and administration, including in the design and implementation of climate response measures. This can happen through formal and informal platforms and mechanisms created by the governments or by non-state actors including the private sector and civil society (**brown**). CARG in Kenya is also done through public-private partnerships (PPPs) and is influenced by Kenya's international development partners and other external actors and factors (**blue**), reflecting its exterritoriality. Learning and innovation occur in the process and can inform the kind of climate and adaptation interventions implemented for instance by individuals, households, communities, organisations and social groups in different places.

The structures through which CARG occur in Kenya reflect the wider socio-political governance architecture represented in/by public administration. It mirrors the structure and character of the public sector administration and governance. The scales at which CARG happens in Kenya correspond to the scales of sociopolitical governance structures and involve the two levels of the government, the civil society, the market (private sector) and individuals to various extents. This confirms previous findings and arguments in the literature that adaptation mechanisms are polycentric and multilevel, often involving a varied mix of actors from these sectors (e.g., Adger et al., 2013; Bellali et al., 2018; Blackburn and Pelling, 2018; Gannon et al., 2021; Munene, 2016).

The documents reviewed and the KIIs indicate that the ultimate strategy for climate action (mitigation and adaptation) and disaster risk reduction in the country is "*mainstreaming*" them in governmental plans and activities. This leaves open the interpretation and application to the implementers, although some specific actions, measures, and mechanisms are prescribed by, for instance, the Climate Change Act 2016 (Republic of Kenya, 2016) and the National Climate Change Action Plan (NCCAP) (Government of Kenya, 2018b). The NCCAP's formulation is assigned to the national government through the Cabinet Secretary in charge of environment and climate change affairs with the participation of the county governments (and their agents and agglomerations) and the

public. There was doubt among the interviewees as to what “mainstreaming” means in practice. Some even suggested that mainstreaming climate change, disaster risk and gender is rarely among the top goals while implementing interventions, with one rhetorically quipping, *“Who remembers them?”* (KII21-42). This suggests a gap between what is articulated and what is practised in CARG - that is, between the rules-of-the-game (representing what should happen and how) and the rules-in-use (reflecting what happens in practice) (Heinen et al., 2022).

Finally, it appears from the interviews that the governance of *risks from climate interventions* is the responsibility of those implementing them as they are not explicit in the reviewed documents. However, monitoring and enforcing compliance is the responsibility of the National Environment Management Authority (NEMA). NEMA’s performance relative to its mandate was questioned by all the respondents who cited inadequate capacity and resources, corruption, and political interference as some of the challenges to delivering its *“huge mandate”*. Although not generally identified as a ‘climate change actor’ by the interviewees, the Judiciary is also an important actor in Kenya’s CARG landscape. For instance, the Environment and Land Court (ELC) and the National Environment Tribunal (NET) are important for adjudicating environmental and land disputes in the country – see 4.1.2 for further discussion of the institutional framework for CARG. Land and environmental health usually affect and are affected by both climate change risks and climate response measures. They are also critical resources for both adaptation and mitigation. Land is an emotive issue in the country and is usually an integral part of the discussion of ‘historical injustices’ in Kenya.

After this overview is the discussion of Kenya’s CARG following the CARG pentagon developed earlier, which concludes that CARG emerges from/at the interactions and overlaps of these dimensions (*Figure 16*). These dimensions and the interactions and intersections thereof are shaped by the character of the wider public administration/governance and the prevailing political organisation (*as highlighted in Figure 17*).

#### 5.4.1.1 Framing and Reframing Adaptation

The policy documents and the interviewees suggest that adaptation became a policy issue in Kenya around 2010 when climate change was broadly linked to Kenya's development and the prosperity of its people. Before this, 'climate change' was hardly recognised as a serious threat or problem for Kenya (Government of Kenya, 2010). Many of the issues currently recognised as 'climate change issues' existed before this and were mostly framed as 'developmental' and/or 'environmental' and several attendant policies had been developed in response to the already established relationship between development and the environment. Most of these issues were reframed as climate change (and adaptation) issues as the climate change policymaking in Kenya kicked off. Kenya's Chief Justice summarises this:

*“...for a long time, we took our environment, and the natural resources that God has granted us for granted. Never thinking of them as limited resources we could use up, and so never developing innovations against making use of them without concerns about the future. Today, however, the fact that human activities are causing climate change is no longer deniable. And it is now widely accepted that through our actions, we can harm ourselves. We can also harm each other, and we can arm the future generations...” (S21-6).*

This illustrates the limits of the then prevailing spatial imaginaries around the environment, and their evolution in recognition of climate change and the need to protect the future generations from the *harm*. From inception onwards, the need for climate action has been fundamentally driven by these "*realities of the negative impacts of climate change*" on one hand and "*obligations placed upon it by the UNFCCC*" and its related Agreements (e.g., Paris Agreement) and Protocols (Kyoto Protocol). The 'international obligation' frame remains relevant for the national government but less so for the county governments who do not have a direct obligation under the UNFCCC. The NCCRS-2010 explicitly states climate action in/by Kenya is "*not just to meet its international obligations, but more importantly to address climate change problems that have already been recognised to affect it and its people*" (Government of Kenya, 2010, p. 88). For example, climate response measures are justified by the need "*to secure the country's development against the risks and impacts of climate change*" and to "*support Kenya's achievement of development goals*" (Government of Kenya, 2013, p. V). Adaptation is thus explicitly framed as a catalyst and insurance for Kenya's development "*in the face of climate change and the uncertainty it presents*" (Government of

Kenya, 2013, p. VI) and as a human rights issue. Additionally, adaptation is thus framed politically and formally as a responsibility of the national and county governments and a right of the citizens - especially considering the risks to the fundamental rights guaranteed by the Constitution of Kenya.

Adaptation is explicitly identified in the policy documents as the country's priority response. The policies reviewed and the individuals interviewed justify this approach using two main arguments. The first argument is that the impacts of climate change are already being *felt in* the country and are having adverse implications on Kenya's people, economy, and ecosystems. Consequently, interventions are instituted in response to the threat, as illustrated by the quote below:

*"Every year Kenya's economy loses over 2% GDP due to climate change. Kenya has therefore put in place the necessary measures to ensure low carbon climate resilient development at all levels" (S18-3).*

The second argument is that Kenya has contributed an insignificant amount to the problem – 0.05% of total global emissions in 2010 – and therefore has little responsibility and obligation to mitigate. Nevertheless, given the country's pursuit of economic development and its commitment to a clean development pathway, the line between what is considered 'development' and what is considered 'adaptation' is blurred, and the distinction is essentially undesirable. Kenya's position is that the *"...conundrum of choosing between action on climate change and action on development is a false one; the two are interlinked and will become increasingly so over the coming decades"* (Government of Kenya, 2013, p. 25). The quotes below affirm this further:

*"For Kenya, like other developing countries, mitigation and adaptation are two sides of the same coin. It is not a question of "either" "or"" (S18-3).*

*"Kenya, a country with far less resources than the average developed country, has foregone polluting industrialisation and growth opportunities and intentionally invested in clean, green energy. Kenya has tremendous hydrocarbon and coal deposits which would go a long way in fuelling the engines of development. Nevertheless, due to resolute commitment, our electricity grid is 93% green" (S22-1).*

There is agreement among the interviewees and the policy documents that adaptation is an issue of 'survival' of different people, ecosystems, climatic zones, and the economy. The temporospatial and social variations of direct risk and vulnerability are recognised. For

example, the arid and semi-arid lands (ASALs) – comprising over 80% of the country's land mass - are considered more vulnerable to droughts while the coastal areas are concerned more with sea level rise and the impacts of climate change on the fish stock and fisheries. Significant variations and deviations in the rainfall seasonality impact adversely on the high-potential agricultural areas.

These frames have implications for CARG actors and responsibilities (i.e., the governors and governing), the instruments guiding CARG and the relational interdependence in CARG obligations and its coordination in the country. For example, if viewed from the 'international obligations' frame, the national government becomes the main actor, following international instruments such as the Paris Agreement, and has relational interdependence with other states and the UNFCCC. Actors also frame and reframe climate change and adaptation to suit their interests, justify their (in)actions or align with their mandates. While justifying the security agencies' involvement in climate change actions, the Cabinet Secretary in charge of security in Kenya noted:

*"...What we're experiencing in Laikipia, what we're experiencing in Baringo, what is going on in most of North Rift today, the movements, the theft of livestock, the pasture and water resource conflicts in that region are all related to climate change. The challenges we face on our borders towards the north and the northern Eastern with our colleagues across the border, are all related to climate change..." (S21-11).*

As an additional example, the Cabinet Secretary for the National Treasury also framed climate change in economic and financial terms to fit and justify their interest in the matter:

*"...the National Treasury recognizes the importance of financial institutions having better understanding of the climate change risks they face. A better understanding of risks will not only enable financial institutions to better manage those risks but will also help in identifying new investment opportunities for economic growth and employment. To this end, several efforts have been made to mainstream climate change into the financial sector..." (S21-5).*

#### **5.4.1.2      Institutional Framework (Governors and Governing)**

Kenya's regulatory framework for climate change response, including the mechanisms and measures for mitigation and adaptation, is anchored on the Climate Change Act, 2016 (2016). The Act creates the core institutional framework for policy direction, coordination of climate change measures and oversight as illustrated in Figure 18. However, excluding

the NCCC and CCD, none of these institutions was established for the sole purpose of climate change governance. The framework reflects and follows the two levels of government and public administration quite clearly, according to the devolved governance system Kenya ushered in by the Constitution of Kenya 2010 as part of political and public sector reforms.

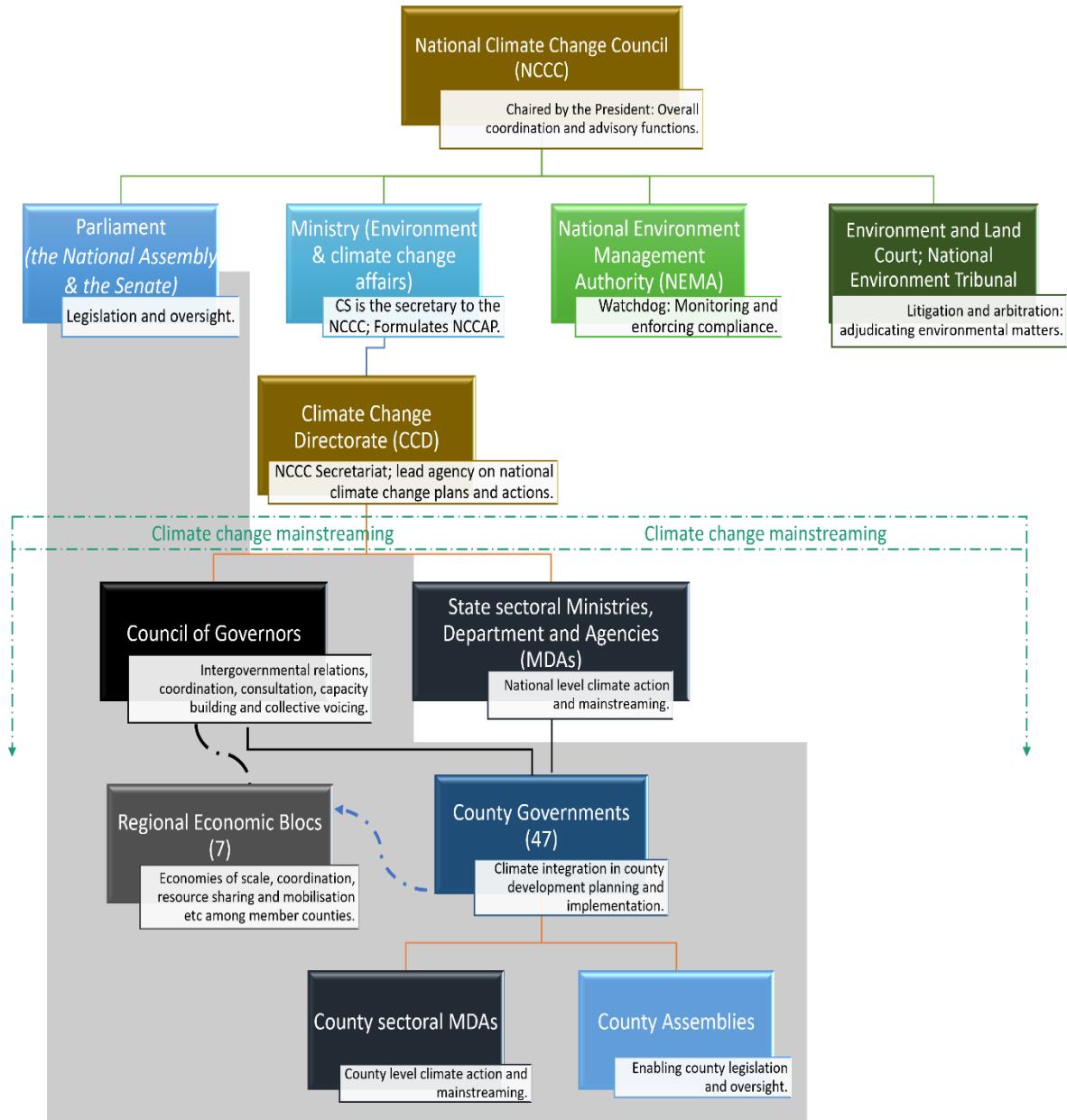


Figure 18. Kenya's institutional framework for climate governance.

The solid lines indicate formal, legal relationships while the broken lines indicate relationships that are not (yet) recognised legally. Entities within the shaded area (including the Senate) formally represent the interests of the county governments while those outside of it represent the interests of the national government. (Compiled by Author from official documents and interview data).

The relations between the agents of each level of government are complex and sometimes contentious. For example, following disputes between the national and county governments

over the former's continued hold onto what the latter consider expressly devolved functions, the Council of County Governors (COG) has sued the six national government's regional development authorities (RDAs) and the Attorney General (K'onyango, 2022; Makau, 2021). Although the petition was dismissed in July 2021 as "*premature for failure to exhaust the procedure set out under the Constitution and inter-Governmental Relations Act 2012, as regards dispute between National and County Governments*" (Makau, 2021, p. 13), the contentious issues are yet to be resolved. Many of such standoffs currently emanate from jurisdictional claims and disputes (e.g., regarding the state of the devolved functions and their attendant resources) between the two levels of government.

However, there are territorial disputes over borders, such as the Kenya-Somalia maritime boundary dispute, the Kenya-South Sudan interstate dispute around the Ilemi Triangle, and intercounty and interethnic borders in at least 22 counties—*illustrated in Figure 19*.

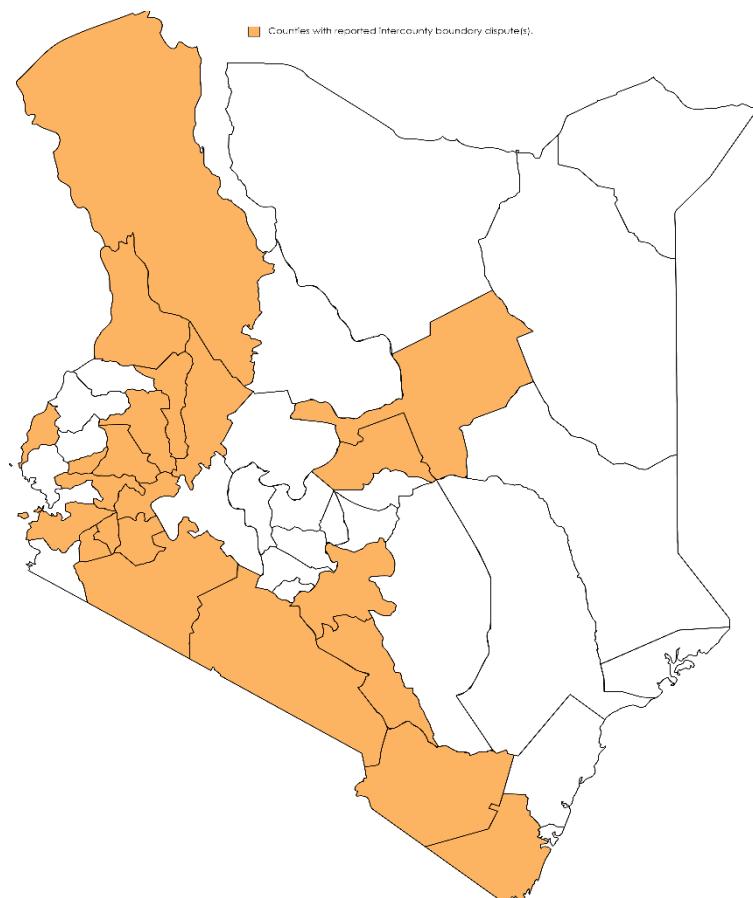


Figure 19. Prevalence of subnational territorial (intercounty boundary) disputes.

Compiled from interview data, policy documents and media reports.

*"In the Horn of Africa for example, there is normally a conflict area called the Ilemi Triangle, that you know, brings together almost all pastoral communities all the way*

*from areas of Pokot, goes up to South Sudan, goes up to Karamoja in Uganda, you know, this is one zone where you know if in the event of drought for example, there is normally so much protracted conflicts that arise" KII21-45.*

Most of the disputes mentioned are driven by the impact on access to land and natural resources, revenue collection areas and location of economically significant areas assets following devolution. It is observed that citizens suffer the most during such standoffs. Tensions – including because of these intergovernmental and institutional standoffs - also exist between these institutions and the citizens they are meant to serve regarding the quality of services and service delivery, accountability, and public participation among others.

The actors in the (grey) shaded area of Figure 4 are mandated to directly serve the interests of the counties. The aforementioned case is one example of the COG working for the county governments, and it is involved in the settlement of intercounty boundary disputes. Additionally, as of May 2023, the Senate has been considering the "County Boundaries Bill" to provide intercounty boundaries dispute resolution. Not shown in Figure 18 (but shown in Figure 17) are the civil society and (international) development partners who are ubiquitous actors in Kenya's CARG.

Although not always considered as such, the Judiciary in Kenya has been a key actor in climate governance. The ELC and the NET, for instance, are key specialised fora for adjudicating environmental matters in the country and have played an instrumental role in climate governance in the country. The ELC, a superior court of the same status as the High Courts of Kenya, is mandated to hear and determine disputes relating to the environment and the use, occupation of, and title to land, including disputes *"..relating to environmental planning and protection, climate issues, land use planning, title, tenure, boundaries"* under the ELC Act, 2011 (2011b, p. 8). It exercises jurisdiction throughout Kenya, and as of 10 May 2023, it had 37 courts countrywide with a total of 53 Judges and had heard 34,944 cases as per a search of the National Council for Law Reporting (Kenya Law) database. In addition, the NET adjudicated over perhaps one of the most publicised 'climate litigation' cases in Africa and the world, the Lamu Coal case (Save Lamu & 5 others v National Environmental Management Authority (NEMA) & another [2019]) (Balala et al., 2019). This case resulted from the government's proposal to construct a 1,050 MW coal-fired power plant in the

Kwasasi area within Lamu County as part of the Kenya Vision 2030 power generation program intended to increase the generation of total effective capacity to about 5,000 MW. In its judgment on 26 June 2019, NET cancelled the Environmental Impact Assessment (EIA) Licence issued by NEMA in 2016 for the construction of the coal plant on several grounds, including failure to undertake effective public participation. Reflecting on this case at the Devolution Conference in 2021, it was observed as follows:

*"It is also made clear under article 42 of our Constitution, that we have to take sufficient action to prevent dangerous climate change. This is an obligation that our courts and tribunals have enforced in several instances, including in the Save Lamu case before the National Environmental Tribunal on building a coal fired power plant in Lamu" (S21-6).*

This framework has changed over time, sometimes reflecting the evolving spatial imaginaries and territorial reconfiguration as lessons are learnt and best practices adopted. For instance, county governments have come together to form and operationalise the regional economic blocs (REBs) to advance their "common agenda", leverage on the economies of scale and tackle transboundary challenges such as climate change and transboundary resource management. They are primarily premised on territorial proximity, rationalised by other commonalities including shared cultural histories. Each of the 47 counties, except Nairobi, is in at least one of the seven REBs. The Agreements establishing these blocs (e.g., the Lake Region Economic Bloc Agreement) are essentially transboundary agreements codifying the convergence of the spatial imaginaries across the various territories (i.e., counties) in each REB. The REBs are evolving and are at different levels of functionality and have so far taken different forms. Other place-based actors emerge and participate from time to time, based, for instance, on the climate change initiatives being implemented in the specific counties or according to the individual county's climate change regulatory framework. Some counties have more advanced regulatory landscapes than others. For example, some like Makueni County provide for the County Climate Change Funds (CCCFs), their related county-level CCCF Management Boards and the Ward Climate Change Planning Committees (WCCPCs) (Government of Makueni County, 2015).

The nature of the institutions in this framework and the reasoning behind some of their structures suggest contemplated powerplay and strategic positioning. For instance, by designating the President as the NCCC's chairperson, the drafters of Kenya's Climate Change

Act perhaps desired to communicate the seriousness with which climate change should be taken in the country (the President only chairs a few other critical entities, including the Cabinet and the country's National Security Council). The reasoning was that because the President exercises executive authority, climate change issues and processes would be hastened and resourced better and would have the highest political support and goodwill. As one respondent argued,

*“...NCCC coordination sits at the presidency, so it is given priority and importance and because it is a cross-cutting. If it sits on the environment docket, its scope would be limited...” (KII21-46).*

However, some noted that this had a downside in that, considering the busyness of the President, they would dedicate little attention and service to the climate change functions under the NCCC. Others argue that those who '*sneaked this provision in the last minute*' wanted to deliberately sabotage climate change action in the country considering the potential far-reaching consequences of the Climate Change Act 2016. In fact, as of February 2023, the NCCC was yet to be properly constituted almost seven years since the Climate Change Act was enacted, although the new President (elected in the August 2022 elections) has repeatedly reiterated the pledge to constitute the Council accordingly. This has hindered the progress on climate governance per the Act 2016, as the following excerpt shows:

**KII21-39:** For the Council to work, you cannot state that the President is in charge. I mean when will the President call a council meeting? It's, yeah, it's not possible. He has bigger things.

**Interviewer:** Bigger than climate change?

**KII21-39:** No, no, the Council. You know, it's like micromanaging a ministry. The Council cannot be led by the President, no. There is no way. So apparently when it was written, [in] what was written they did not say that the President should be the one in charge of the Council. These are things which were changed last minute.... So, I realised that it is by design because it has never met. And there some things which cannot be done until the Council meets and passes them.

Besides the core agencies highlighted in Figure 18, the Act assigns specific duties and obligations to several other agencies, some of which are traditionally not involved in climate change or environmental matters, including the National Treasury and the Kenya Institute of Curriculum Development (KICD). Security dockets have also started to be involved in climate change discussions as it is increasingly becoming a 'security issue' in the country.

Kenya's Cabinet Secretary for the Ministry of Interior and Coordination of National Government, which handles internal security noted, referring to climate change:

*“...this matter is even calling upon us to redesign our national security strategy. Because truth be told, as my colleagues who are from that sector or in this audience know, some of the things we are having to deal with some of the things we are facing, are things we were not prepared to deal with 10 years ago. So, even when our National Security Strategy was designed, there are a number of things that no one anticipated that we are having to deal with now...” (S21-11).*

Some key institutions that have been active in climate change and disaster risk reduction not explicitly mentioned in the Act but are recognised in the second NCCAP (2018-2022) and by the KII's include the National Drought Management Authority (NDMA), the National Disaster Operation Centre (NDOC), and the National Disaster Risk Management Authority (NDRMA). While the illustrated institutional framework looks somewhat neat, how it works on the ground is convoluted and sometimes marred with mistrust and mysteries.

Informal and/or traditional institutions and systems interact in complex ways with the formal ones in the practice of CARG in the country. The elders in especially the pastoral communities play an important role in the management of pastures and waterpoints during the dry seasons.

*“The guys are coming to areas where there's pasture because they have some management practices, that keep their pastures for long. For example, Isiolo they have what they call the Dheda system. Dheda system is a grazing system where the wazees [elders]... they know wells that support pastures, they know shallow wells that at times of plenty, they don't graze there. Na wazee wanachunga kabisa [And the elders protect these properly]. And those wells actually are made inaccessible to pastoralists. But when there's times of drought, that is when they open up these areas for people to graze and make the livestock access water. Same in Kitui, although not based on the Dedha system” (KII19-1).*

*“...what I saw in Pokot is both they mix traditional climate information and the conventional in that they consult the elders and then they have the contacts of the Met guy in West Pokot. So, the Met guy will tell them, 'you guys the rains are coming'. Or, 'the rains are going to be less. So what do we do?' So, and then then talk to the elders and say, 'Okay, we have seen this with them because they watch the star and the moon... So that one tells them that if they are going to be less rain, less rain, what do they do? They send somebody to Pokot, to Uganda to go and brief those guys: you know what, don't come. Because if you come, you're going to put more*

pressure..." (KII19-11).

The collaboration between the formal and the informal is perhaps a manifestation of interterritorial collaboration in CARG.

#### 5.4.1.3 Legal and Policy Framework (Rules-Of-The-Game Vs Rules-In-Use)

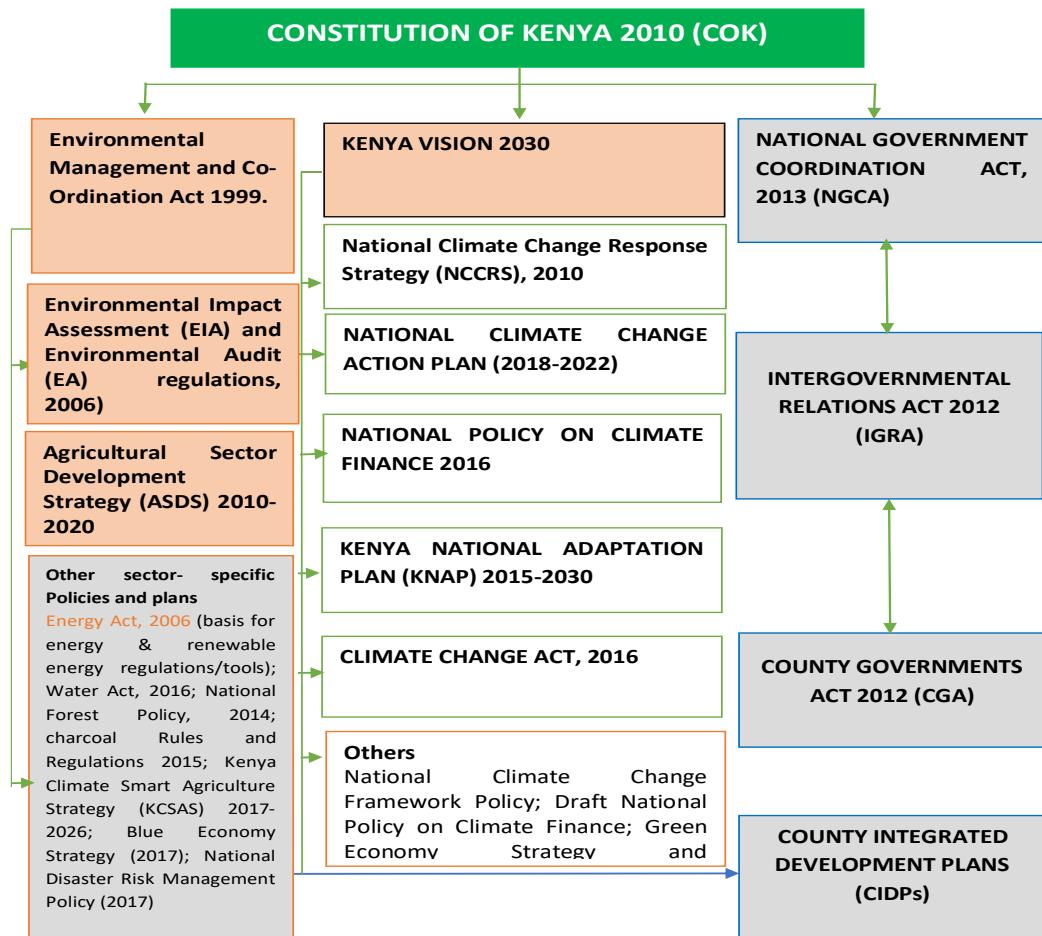


Figure 20. Key climate response policy instruments in Kenya.

Compiled from the official documents.

Kenya is often regarded as a trailblazer in climate policymaking (Naeku, 2020; Rioux, 2019). Key climate response instruments are illustrated in Figure 20. As climate change policymaking took off properly after 2010, most of these policies and legislations already are informed by the 2010 Constitution and therefore conform to its *unchallengeable* provisions. Any that was created before that (e.g., in orange-filled textboxes) must be reviewed to ensure alignment with the Constitution. Some have already been reviewed while others are under review.

The Constitution itself is a statement of Kenya's multiple spatial imaginaries and territoriality. It provides for the territorial and functional boundaries of all the 48 governments in Kenya. It also reimagines the fundamental rights and freedoms of the citizens and imposes obligations on the governments to meet, secure, protect and promote them. Besides providing for the climate-relevant principles of governance and guidelines for public service, the Constitution governs numerous social justice elements and implications of climate change (*refer to Chapter 4 for a detailed discussion of these*).

Following the Constitution, the Climate Change Act 2016 outlines the 'guiding values and principles' that bind the two levels of government and everyone operating under its remit regarding climate action in the country. These values and principles borrow heavily from the Constitution 2010, including the "*national values and principles of governance*" (Article 10), the "*values and principles of public service*" (Article 232) of the Constitution, provisions on the environment (Article 42) and obligations in respect of the environment (Article 69). Other explicit guiding values and principles for climate change governance include sustainable development; equity and social inclusion; integrity and transparency; and "*participation and consultation with stakeholders in accordance with the Schedule*" (that shares functions between governments).

#### **5.4.1.4 CARG Interdependence (and Transboundariness)**

The governance framework that CARG sits within in Kenya is fundamentally interdependent as partly suggested in the polycentric institutional and policy frameworks in Figures 17, 18 and 20. The 2010 Constitution entrenches public participation in all governance affairs, including policymaking and decision-making, and every institution and process must adhere to this. The Climate Change Act follows this and dedicates the entire "Part V" to "*public participation and access to information*". In fact, at the time of writing, the High Court had suspended the appointees to the Council following a petition that is partly based on a purported lack of public participation in the appointment process (Wangui, 2023). The Act's remit is wide and goes beyond the boundaries of the public or governmental entities to include climate change duties assigned to private entities. It gives the Council mandate and authority to "impose climate change obligations on private entities" as well as monitor and evaluate their compliance (Article 16). These private entities include civil society and non-governmental organisations formed as public benefit organisations under the Public

Benefits Organizations Act, 2013 (see, Article 16(1)). This responsibility of monitoring compliance is done on behalf of the Council by the National Environmental Management Authority (NEMA). NEMA also has the responsibility to “*regulate, enforce and monitor compliance on levels of greenhouse gas emissions*” (Article 17(1)(c)).

## 5.4.2 Kenya CARG Rationales

“*...governments are bound to address climate change based on how it impacts their people, and how it impacts their economy*” - KII21-21

From the data analysed, the CARG architecture in Kenya is rarely random and its levels can be predicted fairly accurately by looking at the public governance and political system structure (*extensively discussed in Chapter 4*). For example, its institutional framework mirrors and is embedded within the wider socio-political governance architecture manifested in/by the social and public administration and informed by a similarly contemplated legal and policy framework. Changes in this architecture can alter the CARG architecture as observed from the advent of devolution in Kenya after 2013. Six key interrelated clusters of rationales for the CARG architecture and logic emerge from the data analysed: *identities; public sector and regime structure/organisation; planning and budgeting processes, including election cycles; jurisdiction and decision spaces; resources and capacities; and policy and legal frameworks* (Figure 21).

Firstly, CARG is linked to things that matter to people, their direct interests in securing livelihoods, protecting their lives, and promoting their aspirations. These may be intimately personal or communal. CARG’s role seems to be to protect these and/or contribute to their betterment. Secondly, the risks addressed by adaptation threaten *territorial* integrity and pride of people and their organisations. Thus, CARG is an example of territorial defence for individuals, communities, the country, institutions, ecosystems, generations etc. Thirdly, adaptation interventions are linked to the performance of institutional mandates, scope, and jurisdiction, which are often formally or informally defined and form the basis for institutional resourcing and development and provide legitimacy of actors in, and the justification for, CARG. Fourthly, people (and institutions) have varied beliefs and perceptions of risk and criteria for evaluating what is tolerable, just, doable etc. Ecosystems (including built environments) also respond differently to climatic perturbations – some (like the highlands and sections of the Rift Valley) may have more carrying capacity than

others (like the ASALs). CARG thus is underpinned by the need to respond to these 'individualised' perceptions and concerns. Finally, CARG is fundamentally bordered because it is just easier this way (for example in terms of management). Also, adaptation is done within the boundaries of the existing socio-political organisations. Crossing these boundaries raises questions of democracy, trust, legitimacy, and accountability, and involves administrative costs which must be rationalised within each socio-political



Figure 21. Fundamental rationales underpinning the CARG architecture in Kenya.

organisation and scale, especially if drawn from public coffers. Also, KIIs suggested that it is often easier to consult internally within these systems than externally and highlighted the differences in organisational structure between these organisations — e.g., different county government structures — that further complicate transboundary action.

These rationales are also broadly supported by the literature as being pertinent to CARG. They are fundamentally territorial in their framing and operationalisation. These rationales are also interdependent and influence each other in different ways. For example, the spatial and livelihood identities affect the resources and capacities for adaptation and the priority sectors in different settings. Coastal and lake regions are endowed with fisheries, for instance, and prioritise the ‘blue economy’, while ASAL counties are endowed with rangelands and prioritise livestock development. Areas with high potential arable lands prioritise farming while urban areas and cities gravitate towards service and manufacturing industries.

Most of these rationales are founded on and converge at “the Constitution” of 2010, which is the country’s prevailing ultimate social contract that epitomises the country’s socio-spatial imaginaries. The Constitution of 2010 organises and “manages governance and state power” in the country, and this is evident in CARG discourses. Every document and every KI mentions “the constitution” as the central source of authority, scope, mandate and reason for the governance approach and architecture at each level. For example, the first NCCAP (2013-2017) acknowledges that it is the COK 2010 that *“provides ground for the formulation of adaptation and mitigation legislation, policies and strategies”* (Government of Kenya, 2013, p. 10), the second NCCAP (2018-2022) admits that the *“foundation of the institutional and legal framework for climate change action is the Constitution of Kenya (2010)”* (Government of Kenya, 2018b, p. 37) and that its implementation *“is coordinated by the two levels of government, in line with the Constitution of Kenya (2010)”* (Government of Kenya, 2018b, p. 6) while the NAP 2015-2030 declares that it *“is anchored in the Constitution of Kenya”*. Also, every consideration for potential alternatives to advance (transboundary) CARG must be contemplated within the confines of the Constitution. Alternatives outside of, or contrary to, such provisions would need to be preceded by an amendment of the Constitution to accommodate them. Sometimes, distinctions and comparisons are made of governance “before” and “after” 2010, when the “new” Constitution was promulgated.

It is evident from these examples that CARG in Kenya is founded on the constitutional provisions which then determine its (CARG) implementation. The main approach for climate response in Kenya is “mainstreaming” climate action in governmental plans – e.g., the Vision 2030 and its medium-term plans (MTPs), sectoral plans, thematic plans, spatial plans,

County Integrated Development Plans (CIDPs) (per Article 220(2) of COK 2010. Thus, it is apparent that CARG in Kenya is contemplated within the purview of the country's public sector organisation and administration. In this regard, each actor's jurisdiction and decision space are delimited, and their legitimacy served by, the constitution and the constitutionally contingent policies and legal frameworks. The implementation of CARG therefore must happen within cycles of planning (and budgeting) by governments and political regimes installed and legitimated through elections. For instance, the third MTP (2018-2022) of the Kenya Vision 2030 was conceptualised by the reigning Jubilee government as "the Big Four", and thus prioritised food security, affordable housing, manufacturing, and affordable healthcare for all. Moreover, the NCCAPs have been adapted to these cycles, perhaps to enable them to consider and incorporate the agendas of each administration.

The Public Finance Management (PFM) Act 2012 — which provides for the effective management of public finances — states that "*no public funds shall be appropriated outside a county's planning framework*". Intergovernmental relations between the national and county governments on budget and economic matters are also provided for in the PFM Act 2012, part V (Articles 187-191) and led by the Intergovernmental Budget and Economic Council where the Council of Governors (COG) is represented. Budgets and budgeting processes for urban areas and cities are provided separately (PFM Act 2012 Article 175). UACs have borrowing powers – can borrow from three places – from CG, through its CG or by bank overdraft. UACs can receive grants or donations from development partners, thus widening their scope for mobilisation of financial resources for CARG, for instance. Without a conducive legal and institutional framework for cross-territorial cooperation and coordination in climate change and disaster risk management, actors tend to 'do their own thing' and lack legitimacy in another actor's jurisdiction. The COK 2010 allocates functions to each level of government and provides for the sharing of resources (e.g., revenue) in the implementation of such functions which must "*be in accordance with the Constitution and this [PFM] Act*" (PFM Act 2012, Article 189).

The study thus concludes that CARG in Kenya is rarely governed independently but as part of other socioeconomic, environmental and development interventions. The mantra of "climate mainstreaming" is evoked in all policies across all the scales of governance, although it is often unclear how this is done in practice. CARG in Kenya is implemented

within and according to the public administration structures and governance processes according to the prevailing laws of the land (i.e., social contracts). Consequently, reforms in the social contracts such as those heralded by the Constitution of Kenya 2010 affected the decision spaces for public policy by defining the policy content and processes across scales and time, with consequences for the entire development, climate adaptation and disaster risk management cycle. Resource mobilisation and allocation; capacity development; knowledge generation, dissemination, and deployment; and accountability mechanisms for climate and adaptation governance occur within the confines of thus-defined public administration processes. As discussed in Chapter 4, the functions assigned to each sector and level of governance also have implications for climate emissions and adaptation outcomes. As Kenya's Chief Justice remarked,

*"A look at the assigned functions from the national and county governments under our constitution reveals that the county governments have a heavy responsibility of climate action due to the link between the functions assigned to the counties and the impacts of the climate change" S21-6.*

The social contracts defined by these rationales form the bedrock of climate and adaptation policy content and processes in the country. Their greater focus on the subnational level is informed by the country's new constitution promulgated about a decade ago. Through these social contracts and subcontracts, CARG structures, functions, scope, and mandates are defined and the interventions legitimated at various levels and scales.

### **5.4.3 TCARs' fit in Kenya's CARG Rationales**

There is consensus among respondents that all the climate-related risks the country faces have transboundary dimensions. While it is also acknowledged by some policymakers, the reviewed official government documents are generally silent on this, except for the superficially acknowledged interconnectedness in terms of shared natural resources both at the national and subnational levels. A rare 'guiding principle' of "fairness" is incorporated in the NCCAP 2018-2022 with extraterritorial considerations of "*ensuring that climate actions do not create competitive disadvantage for the Kenyan private sector, relative to its trading partners*" (Government of Kenya, 2018b, p. 7)

TCARs are in Kenya influenced by interactions between local, national, and international levels, and can have implications at any and multiple levels (*as seen in Chapter 3*). However,

climate and adaptation risks and impacts are managed in ways that do not usually focus on their transboundary dimensions. One of the key reasons identified for this is the mandate and scope of the governors over the governed. The governors — whether county or national governments and their agents, or non-state stakeholders — have their functions, mandates and scope spelt out. These are usually accompanied by budgets and resources for their implementation. The mandates do not necessarily ascribe an obligation for transboundary considerations, which makes them ad hoc and voluntary where they exist.

The KIIs and the plans through which adaptation is (to be) governed suggest gaps in proper recognition and consideration of TCARs, cross-level and cross-scale mismatches (e.g., between authority/jurisdictions and transboundary phenomena), and monocentric actions in a multilevel setting. These agree with what Cash and others call, respectively, “the scale challenges of “ignorance,” “mismatch,” and “plurality”” (Cash et al., 2006, p. 4). In the planning documents such as the CIDPs and NCCAPs, any limited recognition and consideration of these transboundary challenges and dynamics are largely superficial and vague. Temporal considerations such as sustainable development and securing ‘future generations’ are discursively and normatively advanced as key motivations for climate action. Additionally, cross-sectoral action is alluded to in policies, although such collaboration is often missing or meagre in practice. Trade, shared resources, as well as social and cultural ties, emerge as key rationales for collaboration across political boundaries — e.g., through the REBs — yet development planning, implementation of interventions relevant to climate and disaster risk governance as well as impact evaluation and accountability mechanisms are largely monocentric (i.e., confined to each level and individual sectors). This is justified by the assigned mandate and functions and the resources allocated to their implementation. However, these levels and sectors are exposed to and affected by (in)action of actors in other levels and sectors, which are often considered as being beyond the scope of the mandate conferred to each (i.e., they are exterritorial and outside of the spatial imaginaries at each level).

Thus, the territoriality of adaptation and resilience is underpinned by diverse spatial imaginaries (factors and elements) that make reciprocity (in governing and governance) between distinct entities (e.g., peoples, places, systems) difficult. These imaginaries justify action or inaction in each domain or by each entity. Because of the differential risk

perception, vulnerability and problematisation of climate change across time and space, each territory then has different solution prescriptions. This can be strongly linked to the political economy conditions and structure — e.g., livelihoods...farmers, pastoralists, rural, urban, coastal — in different places, systems and among different people at different times. The spatial imaginaries thus create criteria and need for inclusion or exclusion, enclosure, or encroachment (see *Chapter 4*) in a kind of ‘territorial defence’.

The social and cultural histories and identities that define citizenship, belonging, or social capital elements including trust also tend to be shared within small groups (e.g., ethnic groups, communities, households, institutions etc.) or clearly defined boundaries (e.g., county, country etc.) beyond which the rights and entitlements, duties and obligations cease. This is observed especially in cases of migration and/or displacement beyond one’s domicile territory where citizenship and belonging are guaranteed. This is also closely related to the sociopolitical systems that define legal, political, and sectoral jurisdiction, mandates, and responsibilities and confer rights and entitlements. The structure and organisation of the public administration affect planning, budgeting, and governance rhythms with implications for both the private and public sectors, which are territorialised as well. The planning spaces are often territorial (by design or default for practical purposes), and isolated from other spaces (for the reasons including those identified above), and this isolation increases as you go up the spatial scales due to, for instance, the formalities involved. Hence it might be easier for lower levels (e.g., individual, households, communal or subnational) to collaborate more deeply in CARG than at the international or regional levels. This is perhaps because the sociospatial imaginaries at these levels are more alike than at the higher levels. These considerations appear to be among the factors that hinder transboundary governance and governance of transboundary risks. However, it seems that the territorial approaches and units are also the more plausible pathways for cooperation and collaboration, as it is easier to compare spatial imaginaries than build fresh common ones — attempts that have proven difficult internationally. Two quotes seem to better capture the reasons for the dominance of the subnational scale in Kenya’s CARG:

*“Effective and equitable climate actions, demand that mitigation and adaptation policy interventions in response to climate change be pursued on multiple scales of governance, the global, the national, and the subnational levels. In fact, while the setting of mitigation standards is often made at the international and national levels,*

*adaptation and mitigation activities are often implemented, and have impact at local levels. Thus, it is at this county level of government that is best placed to implement actions intended to mitigate and adapt to climate change" (S21-6).*

*"No matter how you look at it...There is no national space in Kenya. This space in Kenya is within the counties. So, the national government can never do any national development in the national space...So, you want to do a dam as the national government, where will you do it? There's no national space. You'll have to do it somewhere..." (KII23-77).*

## 5.5 CONCLUSION

The overall goal of this Chapter was to assess and explain the rationales for the (ex)territoriality of CARG, and the extent to which TCARs align with this. Focusing on Kenya, it first visualised and evaluated CARG architecture in Kenya and determined the (ex)territorial framing and the scales at which CARG happens. It finds that CARG in Kenya occurs in a discernible multilevel architecture that is fundamentally territorial but also influenced by exterritorial dynamics. The findings illustrate a fragmented multilevel, polycentric CARG architecture fundamentally informed by and implemented through multiple spatial imaginaries (some may link these to social contracts) involving the governments, the market, the civil society, and citizens in different places. Six clusters of rationales for these spatial imaginaries in CARG have been discussed, and the Chapter concludes that these complicate the cross-border governance of TCARs. But it also concludes that these territorialities provide bases and mechanisms for transboundary cooperation and collaboration (signifying the potential for increased exterritoriality) in CARG.

Based on the data reviewed, the territorial architecture (and framing) of CARG is similar to the territorial structure of the social and public administration. Essentially, only a few nodes or actors (e.g., NCCC and CCD) are established for the sole purpose of CARG. This leads to the conclusion that CARG in Kenya mirrors its sociopolitical governance system and structure and is done as part of public service delivery rather than as an independent system. Indeed, some CARG happens without being specifically framed as CARG, and many actors in the CARG architecture are not traditionally actors in climate governance (e.g., security agencies). There are also distributional consequences across bounded scales, ecosystems, social groups communities and socioeconomic classes. In a sense, these considerations

together with transboundary climate risks and impacts are beginning to mobilise cooperation and collaborative action in the country, as seen in the emergence of REBs in the country. This perhaps signifies the evolution and convergence of certain spatial imaginaries across the territorial spaces, thus implying the exterritoriality of CARG. From the foregoing, the territoriality of adaptation framing and interventions is hereditary from the prevailing spatial imaginaries, wherein CARG elements such as knowledge, technical and technological capacities, governance structures and resources (e.g., financial, physical, and natural, human, and social) are developed and utilised. Thus, any TCARG approaches ought to be designed and implemented as territorial but marrying with the spatial imaginaries. In this regard, the more divergent the spatial imaginaries in any given territory are, the more difficult cooperation and collaboration are, and the more contestations can be expected to be.

This study points to several areas of academic exploration to advance the theory and practice of CARG. While it has looked at the rationale for the territoriality of adaptation, there is a need to further explore the evolution of spatial imaginaries and territoriality in response to TCARs. Noting that most of the adaptation interventions occur *within* rather than *at* the national level, exploring the nature and dynamics of subnational cooperation and collaboration (e.g., the REBs and the COG) in TCARG would be useful. Another priority area of work could involve the exploration of the tools essential for the management of TCARs. The role and adequacy of, for instance, environmental and social safeguards, transparency and disclosures, and finance in this need to be explored as a matter of priority in the pursuit of just adaptation and resilience.

# 6 CHAPTER 6

## 6.0 CONCLUDING REMARKS

### 6.0.1 Overview

There is an unprecedented focus on adaptation globally, partly driven by the UNFCCC through the Paris Agreement and by the accelerating climate change driven by growing greenhouse gas emissions. Most countries have nationally determined contributions that contain some adaptation actions. As the implementation of the Paris Agreement and the NDCs continues, States continue to be the loci of formal and planned climate governance, although they are not the only stakeholders implementing climate response measures. Climate response measures that are implemented by or in one entity should not cause problems for or in another entity. This is the normative way of climate justice and just adaptation. Additionally, for this to happen, response measures need to at least match the scale of climate and adaptation risks. But this is often not the case, as the characteristics of the implementers rarely neatly match the characteristics of the problem. The transboundariness of climate and adaptation risks and the boundariness of the responding society create an important mismatch that has piqued the interest of the climate and adaptation governance community over the last few years. As a recent line of inquiry, there are many gaps that need to be filled. This thesis contributes towards filling some of these gaps.

In this thesis, I sought to, i) assess the consideration of TCAR(G) in the international climate change governance; ii) investigate and characterise TCARs and their predisposing factors at national and subnational levels; iii) explore the implications of governance and political systems in TCAR(G); and iv) explain the dominance of territorial perspectives in adaptation governance and how TCARG can be advanced through them. I pursued the first aim through a detailed analysis of the Paris Agreement and its supplementary texts and addressed the rest through the case study of Kenya, drawing from primary and secondary data. Any overlaps aside, each objective has been addressed by each corresponding paper, that is, objective one by paper one, objective two by paper two and so on. The contributions of each of the empirical chapters (papers) and areas for further research are discussed in each chapter.

## 6.0.2 Limitations and suggestions for further research

While I have made contributions as highlighted above, I acknowledge the limitations of this thesis in general, which also provide opportunities for further research and refinement. I draw attention to some of these.

First is the scope of this thesis. I acknowledge that the Paris Agreement is not the only instrument for climate governance under UNFCCC, Chapter 2 is limited in this regard. Also, UNFCCC is certainly not the only international avenue for climate change governance. Indeed, given the various TCAR categories and pathways discussed, many of the issues may even be beyond the remit of the UNFCCC. Thus, other international avenues that could be explored further can be identified using the pathways approach employed in the thesis. For example, under the trade pathway, institutions like the World Trade Organisation (WTO) could be a more suitable platform to explore. Also, it is possible to explore how the TCARs are or can be governed within individual pathways, e.g., trade, migration and displacement, and natural resources.

The second limitation is the methodological choice of using a case study approach. Although it allows for a deeper empirical exploration of Kenya, the findings may be less generalisable in other countries that are different in terms of governance, location, etc. Even in countries with devolution as the system of governance, the character and implementation of devolution in those countries and their histories may be different. Therefore, there is an opportunity to study other countries individually or comparatively to provide more empirical evidence on TCAR(G). Furthermore, the complexity of TCARs and TCARG will always pose a methodological challenge for comprehensive analyses. More time- and resource-intensive multi-hazard risk assessment approaches might be applied to draw further insights into TCR and/or TAR interactions in given contexts and/or pathways. Lastly, I have participated in many relevant climate and adaptation governance processes and interventions in Kenya over the years, including as an ordinary citizen and in a professional capacity. While I have carefully considered my positionality, it is possible that some of the conclusions I arrive at may be influenced by this experience. The extent of such influence, however, should be minimal as I have considerably employed reflexivity in my judgments, triangulating them as much as possible from the data and from comments I have received from readers and the audience I have presented these findings to.

The final limitation I consider regards data. The empirical analyses in this thesis rely on a range of data sources, including policy documents, interviews, and surveys. These sources may have inherent biases and limitations, potentially affecting the precision and, as emphasised above, generalisability of (some of) the findings. Future research could incorporate a wider array of data sources and validation methods to enhance the robustness of the empirical analyses. Moreover, the field of climate and adaptation governance is dynamic, with policy frameworks continuously evolving to address emerging challenges. The country used as a case study also has an evolving policy landscape, meaning that the findings of this thesis are specific to the documents analysed (e.g., CIDPs 2018-2022). The Paris Agreement may also undergo additions through subsequent COPs which may alter some conclusions made herein. Thus, the findings of this thesis may need to be understood with this in mind and might need to be revisited in light of new developments over time.

### 6.0.3 Contributions, significance, and implications

Generally, from the comprehensive and multifaceted exploration of TCARs and their governance in this thesis, I advance theoretical frameworks, offer empirical insights, introduce novel concepts, employ multiple methodologies, and provide actionable insights for research, policy, development, and humanitarian communities concerned with resilience-building. Collectively, these contributions enhance our understanding of TCARs and how to effectively govern them across the scales in the face of ever-changing climate risk and response landscapes. Below, I briefly expound on these contributions and highlight some of their implications and significance.

**Conceptual contributions:** The thesis contributes conceptually by advancing understanding of key concepts and frameworks related to TCARs and TCARG. For example, I further contribute to refining the understanding of TCARs by distinguishing between transboundary climate risks (TCRs) and transboundary adaptation risks (TARs). By this distinction, I demonstrate especially under Chapter 3 the significance of TARs which, in the context of Kenya, appear to contribute to TCARs more than TCRs. Additionally, I provide a conceptual distinction between *transboundary governance of risks* and *governance of transboundary risks*. In this regard, the four empirical chapters suggest that while transboundary governance is happening systematically at all levels, governance of transboundary risks is less prevalent, often ad-hoc and temporary. Furthermore, across the

four chapters, I have refocused the TCAR(G) discourses on the 'boundary' dimensions, considering the centrality of 'the boundary' in any transboundary phenomena. I particularly lay this foundation in Chapter 2 by identifying and discussing the four dimensions of climate risk governance boundaries: legal-political, sectoral/functional, temporal, and ecological/ecosystems. This conceptual basis enhances our understanding of the typologies and pathways of TCARs and the governance of TCARs across various dimensions. I have also applied and built on Carter *et al.*'s (2021) conceptual framework for cross-border climate impacts in Chapter 3, merging and creating new impact pathways/categories for a more nuanced understanding of TCAR(G). These conceptual distinctions and reviews add clarity to the discourse on the different dimensions and implications of these risks and their governance, thus allowing for more precise analyses and targeted practical and policy interventions. I have also, for the first time, applied certain concepts anew as tools in the analyses of TCAR(G), including social contracts, political economy, decision spaces, devolution, spatial imaginaries, (ex)territoriality and adaptive governance.

**Theoretical contributions:** All the chapters have theoretical contributions. By scrutinising the Paris Agreement's treatment of transboundary climate and adaptation risks (TCARs) under Chapter 2, the thesis contributes to our understanding of how global climate governance frameworks (can) address interconnected climate hazards, impacts and risks. By shedding light on its recognition and prioritisation of TCARs, I particularly enrich the scholarly discourse surrounding the Paris Agreement as an important international climate policy instrument and its implications for TCAR(G). By characterising and discussing TCARs at national and subnational levels, I advance the theorisation and conceptualisation of TCARs and TCARG as multilevel, multiscale issues, contrary to the prevailing internationalised views preoccupied with the international scale. I have also contributed to the advancement of adaptation impacts and governance theories. For example, in Chapter 4, I have applied and built on various theories and frameworks, including the multiple social contracts framework by Blackburn and Pelling (2018) and Sovacool & Linnér's (2016) political economy of adaptation typology of processes, as well as Termeer *et al.*'s (2017) and Heinen *et al.*'s (2022) theorisation of adaptation governance arrangements and dimensions respectively and adaptive governance as theorised by Djalante *et al.* (2011) especially under Chapter 5. Additionally, through the examination of the impact of devolution on climate governance, I contribute to a nuanced understanding of how governance structures can

shape the management of TCARs. I particularly relate the theory on devolution and 'locally-led' approaches to TCARG. Finally, the investigation into the rationales for territorial and exterritorial climate risk governance not only extends the explanations regarding the territorial framing of adaptation governance through a novel perspective of socio-spatial imaginaries but also shows how these imaginaries underpin and challenge TCAR management, and that TCARG can be advanced through them. The chapters also underscore the fact that climate governance does not occur in a vacuum, but often is integrated into other sociopolitical governance structures and visions.

**Empirical contributions:** The empirical contributions of this thesis offer insights into specific contexts and cases. For instance, the exploration of Kenya's TCAR challenge provides empirical evidence of the intricate web of (bio)physical, economic, (geo)political, social, psychological, and temporal TCARs within a specific national context. This empirical depth offers practical insights into the complex realities of managing TCARs, enabling policymakers and practitioners to tailor their strategies to the unique challenges posed by climate change within their regions. I thus contribute empirical insights to enable a deeper understanding of the challenges and opportunities faced by a developing nation dealing with TCARs, thereby offering lessons for similar contexts. The interplay between global, national, and subnational governance levels in managing transboundary climate and adaptation risks merits exploration. I have delved into the coordination mechanisms and highlighted some of the power dynamics tensions that arise across these levels and their impact on the effectiveness of TCARG. The investigation into the impact of devolution on climate governance in Kenya provides empirical insights that help to fill a gap in the literature by examining how changes in governance structures influence the management of TCARs. These empirical insights also inform discussions about the relationship between devolution (as well as other forms of decentralisation) and locally-led climate actions in the light of TCAR(G).

**Methodologically**, this thesis has employed some specific approaches to the understanding of TCAR(G). I employ a mixed-methods approach combining qualitative and quantitative data and analyses. I have utilised data from academic and, sparingly, non-academic literature, policy documents, key informant interviews, direct observation, socio-economic surveys, and maps as sources of data. In Chapter 2 for instance, instead of

reviewing the Paris Agreement text independently as many analysts have done previously, I have included its supplementary texts including, for the first time according to my knowledge, the declarations by its parties. This supports data triangulation and richness. In the analysis, I have combined content, thematic and spatial analyses, and descriptive statistics to tap into the benefits of these techniques. This methodological versatility enhances the robustness of the research findings and enriches the understanding of TCARs and their governance.

The contributions of this thesis also extend to practical application in diverse **policy and policy research agendas**. For example, by uncovering the gaps in the Paris Agreement's treatment of TCARs, I have highlighted the need for policy revisions and enhancements to ensure that transboundary concerns are adequately addressed in global climate governance. This recommendation can guide policy discussions and negotiations to strengthen the Agreement's effectiveness, and can also spark innovative approaches in its implementation, including through the ways suggested in Chapter 2. Throughout the thesis, I have demonstrated and argued that TCARs are not a preserve of the international stakeholders only, and can be governed even by subnational, local stakeholders. Through Chapter 4, I especially demonstrate that national and subnational actors and governance structures are affected by TCARs and can participate in TCARG. By moving the focus from the 'international' scale and theorising other boundary dimensions, I have provided insights that can aid new ways of thinking about TCARs, potentially opening room for more, wider, deeper, and even non-traditional collaborations. Some of the non-traditional climate stakeholders called in by some of these findings include agencies responsible for security, foreign affairs, finance, trade, labour, information, education, social protection, business enterprises, and infrastructure. Given the dynamic nature of TCARs (and especially the fluidity of TARs), this thesis implies that adaptation interventions including policymaking need to be broader and less static and become more inter/multidisciplinary and adaptive. This requires especially augmented vigilance on the part of all traditional and non-traditional stakeholders, extensive awareness of the adaptation landscape, and deep collaboration and learning. Furthermore, subnational governments can use the insights in these chapters to craft subnational and international collaborations in governing TCARs. The Kenyan case study analysis offers policymakers and practitioners insights for a deeper understanding of the challenges specific to vulnerable regions. The identification of

contextual predisposing factors and the characterisation of TCARs within Kenya's governance landscape can inform policy interventions tailored to specific national and subnational contexts in the country and elsewhere. I have also offered insights into the specific challenges and opportunities presented by the territorial perspectives and perceptions at the lower levels such as seen in the Kenyan context, especially in Chapters 4 and 5. I draw attention to the need for entrenching TCARG in climate policymaking given the finding that TCARs are missing even in transboundary governance mechanisms.

Another implication from this thesis is that accelerating climate change will increase TCRs and the need for adaptation. Similarly, TARs will increase in importance as adaptation interventions increase. Managing these TCARs will certainly involve rethinking environmental and social safeguards and other risk management tools and approaches.

The thesis recommends inclusive approaches for assessing both climate change risks and impacts and risks and impacts of adaptation and mitigation measures. This contributes to the development of comprehensive risk assessment methodologies that consider the interplay of multiple factors on the risk side *and* the response measures side. In terms of research agendas, this thesis opens avenues for further exploration of TCAR(G) dynamics in different regions, considering the impacts of political systems and locally-led interventions, and the sociospatial imaginaries that shape risk perception, prioritisation and governance structures. It encourages researchers to adopt mixed-methods approaches to gain a comprehensive understanding of TCARs and their management.

## 7 APPENDICES

### 7.0.1 Appendix 1: Chapter 2 Source Documents

1. The **Paris Agreement** - [https://unfccc.int/sites/default/files/english\\_paris\\_agreement.pdf](https://unfccc.int/sites/default/files/english_paris_agreement.pdf); 27 pages (including cover and blank pages)
2. **UNFCCC treaty document** - <https://unfccc.int/resource/docs/convkp/conveng.pdf>; 25 pages
3. **Declarations** made by 20 signatories and Parties to the Agreement (including the EU as a bloc) - <https://treaties.un.org/doc/Publication/MTDSG/Volume%20II/Chapter%20XXVII/XXVII-7-d.en.pdf>; 12 December 2015; 7 pages
4. **Decision 1/CP.21** - FCCC/CP/2015/10/Add.1, <https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf>; 29 January 2016; 20 pages
5. CMA.1 in Katowice, Poland;
  - a. Addendum 1, FCCC/PA/CMA/2018/3/Add.1, [https://unfccc.int/sites/default/files/resource/cma2018\\_03a01E.pdf](https://unfccc.int/sites/default/files/resource/cma2018_03a01E.pdf); - 19 March 2019; 37 pages
  - b. Addendum 2, FCCC/PA/CMA/2018/3/Add.2, [https://unfccc.int/sites/default/files/resource/CMA2018\\_03a02E.pdf](https://unfccc.int/sites/default/files/resource/CMA2018_03a02E.pdf); - 19 March 2019; 65 pages
6. CMA.2 in Madrid, Spain;
  - a. Addendum 1, FCCC/PA/CMA/2019/6/Add.1, [https://unfccc.int/sites/default/files/resource/cma2019\\_06a01E.pdf](https://unfccc.int/sites/default/files/resource/cma2019_06a01E.pdf); 16 March 2020; 27 pages
7. CMA.3 in Glasgow, United Kingdom)
  - a. Addendum 1, FCCC/PA/CMA/2021/10/Add.1, [https://unfccc.int/sites/default/files/resource/cma2021\\_10\\_add1\\_adv.pdf](https://unfccc.int/sites/default/files/resource/cma2021_10_add1_adv.pdf); 8 March 2022; 46 pages
  - b. Addendum 2, FCCC/PA/CMA/2021/10/Add.2, [https://unfccc.int/sites/default/files/resource/cma2021\\_10a2\\_adv\\_0.pdf](https://unfccc.int/sites/default/files/resource/cma2021_10a2_adv_0.pdf); 8 March 2022; 55 pages
  - c. Addendum 3, FCCC/PA/CMA/2021/10/Add.3, [https://unfccc.int/sites/default/files/resource/cma2021\\_10\\_add3\\_adv.pdf](https://unfccc.int/sites/default/files/resource/cma2021_10_add3_adv.pdf) - 8 March 2022; 61 pages

## 7.0.2 Appendix 2: Paris Agreement Party Declarations

### 7. d) Paris Agreement

*Paris, 12 December 2015*

<b>ENTRY INTO FORCE:</b>	4 November 2016, in accordance with article 21(1). The Agreement enters into force on the thirtieth day after the date on which at least 55 Parties to the Convention accounting in total for at least an estimated 55 per cent of the total global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession.
<b>REGISTRATION:</b>	4 November 2016, No. 54113.
<b>STATUS:</b>	Signatories: 195. Parties: 195.
<b>TEXT:</b>	United Nations, <i>Treaty Series</i> , vol. 3156 C.N.63.2016.TREATIES-XXVII.7.d of 16 February 2016 (Opening for signature) and C.N.92.2016.TREATIES-XXVII.7.d of 17 March 2016 (Issuance of Certified True Copies).

**Note:** The Paris Agreement was adopted on 12 December 2015 at the twenty-first session of the Conference of the Parties to the United Nations Framework Convention on Climate Change held in Paris from 30 November to 13 December 2015. In accordance with its article 20, the Agreement shall be open for signature at the United Nations Headquarters in New York from 22 April 2016 until 21 April 2017 by States and regional economic integration organizations that are Parties to the United Nations Framework Convention on Climate Change.

<i>Participant</i>	<i>Signature</i>	<i>Ratification, Acceptance(A), Approval(AA), Accession(a)</i>	<i>Participant</i>	<i>Signature</i>	<i>Ratification, Acceptance(A), Approval(AA), Accession(a)</i>
Afghanistan.....	22 Apr 2016	15 Feb 2017	Bolivia (Plurinational State of).....	22 Apr 2016	5 Oct 2016
Albania.....	22 Apr 2016	21 Sep 2016	Bosnia and Herzegovina.....	22 Apr 2016	16 Mar 2017
Algeria.....	22 Apr 2016	20 Oct 2016			
Andorra.....	22 Apr 2016	24 Mar 2017			
Angola.....	22 Apr 2016	16 Nov 2020			
Antigua and Barbuda....	22 Apr 2016	21 Sep 2016			
Argentina.....	22 Apr 2016	21 Sep 2016			
Armenia.....	20 Sep 2016	23 Mar 2017			
Australia.....	22 Apr 2016	9 Nov 2016			
Austria.....	22 Apr 2016	5 Oct 2016			
Azerbaijan.....	22 Apr 2016	9 Jan 2017			
Bahamas.....	22 Apr 2016	22 Aug 2016			
Bahrain.....	22 Apr 2016	23 Dec 2016			
Bangladesh.....	22 Apr 2016	21 Sep 2016			
Barbados.....	22 Apr 2016	22 Apr 2016			
Belarus.....	22 Apr 2016	21 Sep 2016 A			
Belgium .....	22 Apr 2016	6 Apr 2017			
Belize.....	22 Apr 2016	22 Apr 2016			
Benin.....	22 Apr 2016	31 Oct 2016			
Bhutan.....	22 Apr 2016	19 Sep 2017			

Botswana .....	22 Apr	2016	11 Nov	2016
Brazil .....	22 Apr	2016	21 Sep	2016
Brunei Darussalam .....	22 Apr	2016	21 Sep	2016
Bulgaria .....	22 Apr	2016	29 Nov	2016
Burkina Faso.....	22 Apr	2016	11 Nov	2016
Burundi .....	22 Apr	2016	17 Jan	2018
Cabo Verde .....	22 Apr	2016	21 Sep	2017
Cambodia.....	22 Apr	2016	6 Feb	2017
Cameroon.....	22 Apr	2016	29 Jul	2016
Canada .....	22 Apr	2016	5 Oct	2016
Central African Republic .....	22 Apr	2016	11 Oct	2016
Chad.....	22 Apr	2016	12 Jan	2017
Chile.....	20 Sep	2016	10 Feb	2017
China.....	22 Apr	2016	3 Sep	2016
Colombia .....	22 Apr	2016	12 Jul	2018
Comoros.....	22 Apr	2016	23 Nov	2016
Congo.....	22 Apr	2016	21 Apr	2017
Cook Islands .....	24 Jun	2016	1 Sep	2016
Costa Rica.....	22 Apr	2016	13 Oct	2016
Côte d'Ivoire .....	22 Apr	2016	25 Oct	2016
Croatia .....	22 Apr	2016	24 May	2017
Cuba.....	22 Apr	2016	28 Dec	2016
Cyprus.....	22 Apr	2016	4 Jan	2017

<i><b>Participant</b></i>	<i><b>Signature</b></i>	<i><b>Ratification,</b></i>		<i><b>Ratification,</b></i>	
		<i><b>Acceptance(A),</b></i>	<i><b>Annexure(AA)</b></i>	<i><b>Acceptance(A),</b></i>	<i><b>Annexure(AA)</b></i>
Czech Republic.....	22 Apr 2016	5 Oct 2017		Italy.....	22 Apr 2016 11 Nov 2016
Democratic People's Republic of Korea... .....	22 Apr 2016	1 Aug 2016		Jamaica .....	22 Apr 2016 10 Apr 2017
Democratic Republic of the Congo.....	22 Apr 2016	13 Dec 2017		Japan .....	22 Apr 2016 8 Nov 2016 A
Denmark <sup>1</sup> .....	22 Apr 2016	1 Nov 2016 AA		Jordan.....	22 Apr 2016 4 Nov 2016
Djibouti.....	22 Apr 2016	11 Nov 2016		Kazakhstan .....	22 Apr 2016 6 Dec 2016
Dominica .....	22 Apr 2016	21 Sep 2016		Kenya .....	22 Apr 2016 28 Dec 2016
Dominican Republic.....	22 Apr 2016	21 Sep 2017		Kiribati .....	22 Apr 2016 21 Sep 2016
Ecuador.....	26 Jul 2016	20 Sep 2017		Kuwait .....	22 Apr 2016 23 Apr 2018
Egypt.....	22 Apr 2016	29 Jun 2017		Kyrgyzstan .....	21 Sep 2016 18 Feb 2020
El Salvador .....	22 Apr 2016	27 Mar 2017		Lao People's Democratic Republic .....	22 Apr 2016 7 Sep 2016
Equatorial Guinea.....	22 Apr 2016	30 Oct 2018		Latvia .....	22 Apr 2016 16 Mar 2017
Eritrea .....	22 Apr 2016	7 Feb 2023		Lebanon .....	22 Apr 2016 5 Feb 2020
Estonia .....	22 Apr 2016	4 Nov 2016		Lesotho .....	22 Apr 2016 20 Jan 2017
Eswatini .....	22 Apr 2016	21 Sep 2016		Liberia.....	22 Apr 2016 27 Aug 2018
Ethiopia.....	22 Apr 2016	9 Mar 2017		Libya.....	22 Apr 2016
European Union.....	22 Apr 2016	5 Oct 2016		Liechtenstein.....	22 Apr 2016 20 Sep 2017
Fiji .....	22 Apr 2016	22 Apr 2016		Lithuania.....	22 Apr 2016 2 Feb 2017
Finland.....	22 Apr 2016	14 Nov 2016		Luxembourg.....	22 Apr 2016 4 Nov 2016
France .....	22 Apr 2016	5 Oct 2016		Madagascar.....	22 Apr 2016 21 Sep 2016
Gabon.....	22 Apr 2016	2 Nov 2016		Malawi .....	20 Sep 2016 29 Jun 2017
Gambia.....	26 Apr 2016	7 Nov 2016		Malaysia.....	22 Apr 2016 16 Nov 2016
Georgia .....	22 Apr 2016	8 May 2017 AA		Maldives .....	22 Apr 2016 22 Apr 2016
Germany .....	22 Apr 2016	5 Oct 2016		Mali.....	22 Apr 2016 23 Sep 2016
Ghana.....	22 Apr 2016	21 Sep 2016		Malta .....	22 Apr 2016 5 Oct 2016
Greece .....	22 Apr 2016	14 Oct 2016		Marshall Islands.....	22 Apr 2016 22 Apr 2016
Grenada.....	22 Apr 2016	22 Apr 2016		Mauritania.....	22 Apr 2016 27 Feb 2017
Guatemala.....	22 Apr 2016	25 Jan 2017		Mauritius.....	22 Apr 2016 22 Apr 2016
Guinea.....	22 Apr 2016	21 Sep 2016		Mexico .....	22 Apr 2016 21 Sep 2016
Guinea-Bissau.....	22 Apr 2016	22 Oct 2018		Micronesia (Federated States of) .....	22 Apr 2016 15 Sep 2016
Guyana.....	22 Apr 2016	20 May 2016		Monaco .....	22 Apr 2016 24 Oct 2016
Haiti .....	22 Apr 2016	31 Jul 2017		Mongolia.....	22 Apr 2016 21 Sep 2016
Holy See .....		4 Sep 2022 a		Montenegro.....	22 Apr 2016 20 Dec 2017
Honduras.....	22 Apr 2016	21 Sep 2016		Morocco .....	22 Apr 2016 21 Sep 2016
Hungary .....	22 Apr 2016	5 Oct 2016		Mozambique .....	22 Apr 2016 4 Jun 2018
Iceland .....	22 Apr 2016	21 Sep 2016 A		Myanmar .....	22 Apr 2016 19 Sep 2017
India.....	22 Apr 2016	2 Oct 2016		Namibia .....	22 Apr 2016 21 Sep 2016
Indonesia.....	22 Apr 2016	31 Oct 2016		Nauru .....	22 Apr 2016 22 Apr 2016
Iran (Islamic Republic					
Iraq.....	8 Dec 2016	1 Nov 2021		Netherlands (Kingdom	
Israel .....	22 Apr 2016	22 Nov 2016		New Zealand <sup>3</sup> .....	22 Apr 2016 4 Oct 2016

<i><b>Participant</b></i>	<i><b>Signature</b></i>	<i><b>Ratification, Acceptance(A), Approval(AA)</b></i>			<i><b>Participant</b></i>	<i><b>Signature</b></i>	<i><b>Ratification, Acceptance(A), Approval(AA)</b></i>		
		<i><b>Annexure 1</b></i>	<i><b>Annexure 2</b></i>	<i><b>Annexure 3</b></i>			<i><b>Annexure 1</b></i>	<i><b>Annexure 2</b></i>	<i><b>Annexure 3</b></i>
Nicaragua.....		23 Oct 2016	2017 a		Sri Lanka.....	22 Apr 2016	21 Sep 2016	21 Sep 2016	2016
Niger.....	22 Apr 2016	21 Sep 2016			St. Kitts and Nevis.....	22 Apr 2016	22 Apr 2016	22 Apr 2016	2016
Nigeria.....	22 Sep 2016	16 May 2017			St. Lucia.....	22 Apr 2016	22 Apr 2016	22 Apr 2016	2016
Niue.....	28 Oct 2016	28 Oct 2016			St. Vincent and the				
Norway.....	22 Apr 2016	20 Jun 2016			State of Palestine .....	22 Apr 2016	22 Apr 2016	22 Apr 2016	2016
Oman.....	22 Apr 2016	22 May 2019			Sudan .....	22 Apr 2016	2 Aug 2017		
Pakistan.....	22 Apr 2016	10 Nov 2016			Suriname.....	22 Apr 2016	13 Feb 2019		
Palau.....	22 Apr 2016	22 Apr 2016			Sweden.....	22 Apr 2016	13 Oct 2016		
Panama.....	22 Apr 2016	21 Sep 2016			Switzerland.....	22 Apr 2016	6 Oct 2017		
Papua New Guinea .....	22 Apr 2016	21 Sep 2016			Syrian Arab Republic ...		13 Nov 2017 a		
Paraguay.....	22 Apr 2016	14 Oct 2016			Tajikistan .....	22 Apr 2016	22 Mar 2017		
Peru.....	22 Apr 2016	25 Jul 2016			Thailand .....	22 Apr 2016	21 Sep 2016		
Philippines.....	22 Apr 2016	23 Mar 2017			Timor-Leste .....	22 Apr 2016	16 Aug 2017		
Poland.....	22 Apr 2016	7 Oct 2016			Togo.....	19 Sep 2016	28 Jun 2017		
Portugal.....	22 Apr 2016	5 Oct 2016			Tonga.....	22 Apr 2016	21 Sep 2016		
Qatar .....	22 Apr 2016	23 Jun 2017			Trinidad and Tobago ....	22 Apr 2016	22 Feb 2018		
Seychelles.....	25 Apr 2016	29 Apr 2016			Tunisia .....	22 Apr 2016	10 Feb 2017		
Sierra Leone.....	22 Sep 2016	1 Nov 2016			Türkiye.....	22 Apr 2016	11 Oct 2021		
Singapore.....	22 Apr 2016	21 Sep 2016			Turkmenistan .....	23 Sep 2016	20 Oct 2016		
Slovakia.....	22 Apr 2016	5 Oct 2016			Tuvalu.....	22 Apr 2016	22 Apr 2016		
Slovenia.....	22 Apr 2016	16 Dec 2016			Uganda.....	22 Apr 2016	21 Sep 2016		
Solomon Islands .....	22 Apr 2016	21 Sep 2016			Ukraine .....	22 Apr 2016	19 Sep 2016		
Somalia.....	22 Apr 2016	22 Apr 2016			United Arab Emirates ...	22 Apr 2016	21 Sep 2016	2016 A	
South Africa.....	22 Apr 2016	1 Nov 2016			United Kingdom of				
South Sudan.....	22 Apr 2016	23 Feb 2021			Great Britain and United Republic of				
Spain.....	22 Apr 2016	12 Jan 2017			United States of America <sup>6</sup> .....	22 Apr 2016	20 Jan 2021 A		
					Uruguay .....	22 Apr 2016	19 Oct 2016		
					Uzbekistan .....	19 Apr 2017	9 Nov 2018		
					Vanuatu.....	22 Apr 2016	21 Sep 2016		
					Venezuela (Bolivarian Republic of) .....	22 Apr 2016	21 Jul 2017		
					Viet Nam.....	22 Apr 2016	3 Nov 2016 AA		
					Yemen.....	23 Sep 2016			
					Zambia.....	20 Sep 2016	9 Dec 2016		
					Zimbabwe .....	22 Apr 2016	7 Aug 2017		

### ***Declarations***

*(Unless otherwise indicated, the declarations were made upon ratification, acceptance, approval or accession.)*

## **BELGIUM**

“This signature engages also the Walloon Region, the Flemish Region and the Brussels-Capital Region.”

## **BULGARIA**

“The Republic of Bulgaria recognizes that in accordance with Article 9, paragraph 1, of the Paris Agreement developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention. In this context the Republic of Bulgaria notes that as a Party to the United Nations Framework Convention on Climate Change Bulgaria is not included in Annex II.”

## **CHINA**

In accordance with the Basic Law of the Hong Kong Special Administrative Region of the People’s Republic of China and the Basic Law of the Macao Special Administrative Region of the People’s Republic of China, the Government of the People’s Republic of China decides that the Agreement applies to the Hong Kong Special Administrative Region and the Macao Special Administrative Region of the People’s Republic of China.

## **COOK ISLANDS**

The Government of the Cook Islands declares its understanding that acceptance of the Paris Agreement and its application shall in no way constitute a renunciation of any rights under international law concerning State responsibility for the adverse effects of climate change and that no provision in the Paris Agreement can be interpreted as derogating from principles of general international law or any claims or rights concerning compensation due to the impacts of climate change.

The Government of the Cook Islands further declares that, in light of the best available scientific information and assessment on climate change and its impacts, it considers the emissions reduction obligations in the aforesaid Paris Agreement to be inadequate to prevent a global temperature stabilisation level at or above 1.5 degrees Celsius relative to pre-industrial levels and as a consequence, such emissions will have severe implications for our national interests.

## **EUROPEAN UNION**

“Declaration by the Union made in accordance with Article 20(3) of the Paris Agreement

The following States are at present Members of the European Union: the Kingdom of Belgium, the Republic of Bulgaria, the Czech Republic, the Kingdom of Denmark, the Federal Republic of Germany, the Republic of Estonia, Ireland, the Hellenic Republic, the Kingdom of Spain, the French Republic, the Republic of Croatia, the Italian Republic, the Republic of Cyprus, the Republic of Latvia, the Republic of Lithuania, the Grand Duchy of Luxembourg, Hungary, the Republic of Malta, the Kingdom of the Netherlands, the Republic of Austria, the Republic of Poland, the Portuguese Republic, Romania, the Republic of Slovenia, the Slovak Republic, the Republic of Finland, the Kingdom of Sweden, the United Kingdom of Great Britain and Northern Ireland.

The European Union declares that, in accordance with the Treaty on the Functioning of the European Union, and in particular Article 191 and Article 192(1) thereof, it is competent to enter into international agreements, and to implement the obligations resulting therefrom, which contribute to the pursuit of the following objectives:

- preserving, protecting and improving the quality of the environment;

- protecting human health;

- prudent and rational utilisation of natural resources;

- promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change.

...

The European Union will continue to provide information, on a regular basis on any substantial modifications in the extent of its competence, in accordance with Article 20(3) of the Agreement.”

## **HOLY SEE**

“By acceding to the Paris Agreement under the United Nations Framework Convention on Climate Change in the name and on behalf of Vatican City State, the Holy See intends to contribute to the efforts of all States to work together in solidarity, in accordance with their common but differentiated responsibilities and respective capabilities, in an effective response to the challenges posed by climate change to humankind and to our common home.

In light of the territorial nature of the obligations set forth in the Paris Agreement, the Holy See declares, for the avoidance of doubt, that in acceding to the Agreement only in the name and on behalf of Vatican City State it commits itself to apply its provisions exclusively within the Territory of the Vatican City State, as circumscribed by the Leonine Walls.

The Holy See, in conformity with its particular mission, reiterates, on behalf of Vatican City State, its position regarding the term ‘gender’ used in the Preamble (PP11) and articles 7.5 and 11.2 of the Paris Agreement. The Holy See underlines that any reference to ‘gender’ and related terms in any document that has been or that will be adopted by the Conference of State Parties or by its subsidiary bodies is to be understood as grounded on the biological sexual identity that is male and female.

The Holy See upholds and promotes a holistic and integrated approach that is firmly centered on the human dignity and integral development of every person.”

## **INDIA**

“The Government of India declares its understanding that, as per its national laws; keeping in view its development agenda, particularly the eradication of poverty and provision of basic needs for all its citizens, coupled with its commitment to following the low carbon path to progress, and on the assumption of unencumbered availability of cleaner sources of energy and technologies and financial resources from around the world; and based on a fair and ambitious assessment of global commitment to combating climate change, it is ratifying the Paris Agreement.”

## **MARSHALL ISLANDS**

“...the Government of the Republic of the Marshall Islands declares its understanding that ratification of the Paris Agreement shall in no way constitute a renunciation of any rights under any other laws, including international law, and the communication depositing the Republic’s instrument of ratification shall include a declaration to this effect for international record;

FURTHERMORE, the Government of the Republic of the Marshall Islands declares that, in light of best scientific information and assessment on climate change and its impacts, it considers the emission reduction obligations in Article 3 of the Kyoto Protocol, the Doha Amendment and the aforesaid Paris Agreement to be inadequate to prevent global temperature increase of 1.5

degrees Celsius above pre-Industrial levels and as a consequence, will have severe implications for our national interests..."

#### **MEXICO**

... in accordance with their national legal framework, and in consideration of the best and most up-to-date scientific information available and incorporated by the Intergovernmental Panel on Climate Change, the United Mexican States understands greenhouse gas emissions to mean the release into the atmosphere of greenhouse gases and/or their precursors and aerosols into the atmosphere, including, where applicable, greenhouse compounds, within a specific area and during a specific period of time.

#### **MICRONESIA (FEDERATED STATES OF)**

"The Government of the Federated States of Micronesia declares its understanding that its ratification of the Paris Agreement does not constitute a renunciation of any rights of the Government of the Federated States of Micronesia under international law concerning State responsibility for the adverse effects of climate change, and that no provision in the Paris Agreement can be interpreted as derogating from principles of general international law or any claims or rights concerning compensation and liability due to the adverse effects of climate change; and

The Government of the Federated States of Micronesia further declares that, in light of the best available scientific information and assessments on climate change and its impacts, it considers the emission reduction obligations in the Paris Agreement to be inadequate to prevent a global temperature increase above 1.5 degrees Celsius relative to pre-industrial levels, and as a consequence, such emissions will have severe implications for the national interests of the Government of the Federated States of Micronesia."

#### **NAURU**

"... the Government of Nauru declares its understanding that the ratification of the Agreement shall in no way constitute a renunciation of any rights under international law concerning State responsibility [for] the adverse effects of climate change.

FURTHER, the Government of Nauru declares that no provisions in the Agreement can be interpreted as derogating from the principles of general international law.

AND FURTHER, the Government of Nauru declares its understanding that Article 8 and decision 1/CP.21, paragraph 51 in no way limits the ability of Parties to UNFCCC or the Agreement to raise, discuss, or address any present or future concerns regarding the issues of liability and compensation.

The Republic of Nauru put forth its concern intended to recognize and acknowledge its national interest..."

#### **NETHERLANDS (KINGDOM OF THE)**

"The Kingdom of the Netherlands, for the European part of the Netherlands, declares in accordance with Article 14, paragraph 2, of the United Nations Framework Convention on Climate Change in conjunction with Article 24 of the Paris Agreement, that it accepts both means of dispute settlement referred to in that paragraph as compulsory in relation to any Party accepting one or both means of dispute settlement."

#### **NIUE**

"The Government of Niue declares its understanding that acceptance of the Paris Agreement and its application shall in no way constitute a renunciation of any rights under international law concerning State responsibility for the adverse effects of climate change and that no provision in the Paris Agreement can be interpreted as derogating from principles of general international law or

any claims or rights concerning compensation due to the impacts of climate change.

The Government of Niue further declares that, in light of the best available scientific information and assessment on climate change and its impacts, it considers the emissions reduction obligations in the aforesaid Paris Agreement to be inadequate to prevent a global temperature stabilisation level at or above 1.5 degrees Celsius relative to pre-industrial levels and as a consequence, such emissions will have severe implications for our national interests."

#### **PHILIPPINES**

"THAT it is the understanding of the Government of the Republic of the Philippines that its accession to and the implementation of the Paris Agreement shall in no way constitute a renunciation of rights under any local and international laws or treaties, including those concerning State responsibility for loss and damage associated with the adverse effects of climate change;

THAT, the accession to and implementation of the Paris Agreement by the Republic of the Philippines is for the purpose of supporting the country's national development objectives and priorities such as sustainable industrial development, the eradication of poverty and provision of basic needs, and securing social and climate justice and energy security for all its citizens."

#### **POLAND**

"The Government of the Republic of Poland recognizes that under Article 9 paragraph 1 of the Paris Agreement developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention. In this context the Government of the Republic of Poland notes that Poland is a Party to the United Nations Framework Convention on Climate Change not included in Annex II."

#### **RUSSIAN FEDERATION**

1. The Russian Federation recognizes that, in accordance with paragraph 1 of Article 9 of the Agreement, developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation of climate change and adaptation to it in continuation of their existing obligations under the United Nations Framework Convention on Climate Change of 9 May 1992 (hereinafter referred to as "the Convention"). In this context, the Russian Federation notes that as a Party to the Convention the Russian Federation is not included in Annex II to the Convention.

2. The Russian Federation proceeds from the importance of conservation and enhancement of absorbing capacity of forests and other ecosystems, as well as from the necessity of the maximum possible account of this capacity including in the implementation of the Agreement's mechanisms.

3. The Russian Federation considers unacceptable the use of the Agreement and its mechanisms as tools to create barriers to sustainable social and economic development of the Parties to the Convention.

#### **SOLOMON ISLANDS**

"... the Government of Solomon Islands declares its understanding that acceptance of the aforesaid Paris Agreement shall in no way constitute a renunciation of any rights under international law concerning State responsibility for the adverse effects of climate change;

FURTHER, that the Government of Solomon Islands declares that no provision in this Paris Agreement can be interpreted as derogating from principles of general international law or any claims or rights concerning compensation due to impacts of climate change;

AND that the Government of Solomon Islands declares that the low ambition of the Paris Agreement and its adequacy to stabilize global temperature to safe level of below 1.5 degree Celsius, such emissions will have severe impacts and undermining our sustainable development efforts..."

#### **SPAIN**

In the case where this Agreement is ratified by the United Kingdom and its application extended to the territory of Gibraltar, Spain wishes to make the following declaration:

1. Gibraltar is a non-autonomous territory whose international relations come under the responsibility of the United Kingdom and which is subject to a decolonisation process in accordance with the relevant decisions and resolutions of the General Assembly of the United Nations.

2. The authorities of Gibraltar have a local character and exercise exclusively internal competences which have their origin and their foundation in the distribution and attribution of competences performed by the United Kingdom in compliance with its internal legislation, in its capacity as sovereign State on which the mentioned non-autonomous territory depends.

3. As a result, the eventual participation of authorities of Gibraltar in the application of this Agreement will be understood as carried out exclusively as part of the internal competences of Gibraltar and cannot be considered to modify in any way what was established in the two previous paragraphs.

4. The application of this Agreement to Gibraltar cannot be interpreted as an recognition of any rights or situations regarding areas not covered by article 10 of the Treaty of Utrecht of 13 July 1713, concluded between the Crowns of Spain and of the United Kingdom.

#### **TÜRKİYE**

The Republic of Turkey, on the basis of "equity, common but differentiated responsibilities and respective capabilities" as clearly and accurately recognized under the United Nations Framework Convention on Climate Change of 9 May 1992 and the Paris Agreement, and by recalling decisions 26/CP.7, 1/CP.16, 2/CP.17, 1/CP.18 and 21/CP.20 adopted by the Conference of the Parties to the Convention, declares that Turkey will implement the

Paris Agreement as a developing country and in the scope of her nationally determined contribution statements, provided that the Agreement and its mechanisms do not prejudice her right to economic and social development.

#### **TUVALU**

"The Government of Tuvalu hereby notifies that it will apply the Paris Agreement provisionally as provided for in paragraph 4 of Decision 1/CP.21.

[...]

The Government of Tuvalu further declares its understanding that acceptance of the aforesaid Paris Agreement and its provisional application shall in no way constitute a renunciation of any rights under international law concerning State responsibility for the adverse effects of climate change and that no provision in the Paris Agreement can be interpreted as derogating from principles of general international law or any claims or rights concerning compensation due to the impacts of climate change.

The Government of Tuvalu further declares that, in light of the best available scientific information and assessment on climate change and its impacts, it considers the emissions reduction obligations in the aforesaid Paris Agreement to be inadequate to prevent a global temperature stabilisation level at or above 1.5 degrees Celsius relative to pre-industrial levels and as a consequence, such emissions will have severe implications for our national interests."

#### **VANUATU**

"WHEREAS the Government of the Republic of Vanuatu declares its understanding that ratification of the Paris Agreement shall in no way constitute a renunciation of any rights under any other laws, including international law, and the communication depositing the Republic's instrument of ratification shall include a declaration to this effect for international record;

FURTHERMORE, that the Government of the Republic of Vanuatu declares that, in light of best scientific information and assessment on climate change and its impacts, it considers the emission reduction obligations in Article 3 of the Kyoto Protocol, the Doha Amendment and the aforesaid Paris Agreement to be inadequate to prevent global temperature increase of 1.5 degrees Celsius above pre-Industrial levels and as a consequence, will have severe implications for our national interests..."

#### **Notes:**

<sup>1</sup> With territorial exclusion in respect of Greenland. See C.N.819.2016.TREATIES-XXVII.7.d of 1 November 2016.

<sup>2</sup> For the European Part of the Netherlands.

<sup>3</sup> On 13 November 2017, New Zealand notified the Secretary-General of the extent of the application of the Agreement to Tokelau (See CN.705.2017.TREATIES-XXVII.7.d of 13 November 2017). Upon ratification on 4 October 2017, New Zealand notified the Secretary-General of a territorial exclusion in respect of Tokelau (See C.N.723.2016.TREATIES-XXVII.7.d of 4 October 2016).

<sup>4</sup> On 23 Septembre 2022, the Government of the United Kingdom of Great Britain and Northern Ireland notified the

Secretary-General that its ratification of the Agreement would extend to the territory of Gilbratar as follows :

"... the Government of the United Kingdom of Great Britain and Northern Ireland hereby extends the application of the United Kingdom's ratification of the Agreement to the territory of Gibraltar, for the international relations of which the United Kingdom is responsible.

The Government of the United Kingdom of Great Britain and Northern Ireland considers the extension of the Agreement to the territory of Gilbratar to take effect on the date of deposit of this notification".

On 29 April 2022, the Government of the United Kingdom of Great Britain and Northern Ireland notified the Secretary-General that its ratification of the Agreement would extend to the territory of the Bailiwick of Jersey as follows :

“... the Government of the United Kingdom of Great Britain and Northern Ireland hereby extends the application of the United Kingdom’s ratification of the Agreement to the territory of the Bailiwick of Jersey, for the international relations of which the United Kingdom is responsible.

The Government of the United Kingdom of Great Britain and Northern Ireland considers the extension of the Agreement to the territory of the Bailiwick of Jersey to take effect on the date of deposit of this notification”.

<sup>5</sup> On 22 March 2023, the Government of the United Kingdom of Great Britain and Northern Ireland notified the Secretary-General that its ratification of the Agreement would extend to the Crown Dependency of the Isle of Man as follows :

“... the Government of the United Kingdom of Great Britain and Northern Ireland hereby extends the application of the United Kingdom’s ratification of the [Paris Agreement] to the Crown Dependency of the Isle of Man, a territory for the international relations of which the United Kingdom of Great Britain and Northern Ireland is responsible.

The Government of the United Kingdom of Great Britain and Northern Ireland considers the extension of the [Paris Agreement] to the Crown Dependency of the Isle of Man to take effect on the date of deposit of this notification.”

<sup>6</sup> On 3 September 2016, the Government of the United States of America deposited its instrument of acceptance of the Agreement. See C.N.612.2016.TREATIES-XXVII.7.d of 3 September 2016. On 4 November 2019, the Government of the United States of America notified the Secretary-General of its decision to withdraw from the Agreement which took effect on 4 November 2020 in accordance with article 28 (1) and (2) of the Agreement. See C.N.575.2019.TREATIES-XXVII.7.d of 4 November 2019. On 20 January 2021, the Government of the United States of America deposited its instrument of acceptance of the Agreement. See C.N.10.2021.TREATIES-XXVII.7.d of 20 January 2021.

### 7.0.3 Appendix 3: Organisations/Institutions Represented by the Interviewees.

#	Organisation
1.	Abt Associates
2.	ACAL Consulting
3.	Action Aid
4.	Africa Youth Initiative on Climate Change (AYICC)
5.	African Centre for Technology Studies (ACTS)
6.	African Group of Negotiators Expert Support (AGNES)
7.	Agency for Technical Cooperation and Development (ACTED)
8.	Alliance for a Green Revolution in Africa (AGRA)
9.	Anglican Development Services - Eastern (ADSE)
10.	BirdLife International
11.	Centre for Climate, Energy and Environmental Law (CCEEL), Eastern Finland (UEF) Law School
12.	Centre for Training and Integrated Research in ASAL Development (CETRAD)
13.	Christian Aid
14.	Clean Cooking Association of Kenya (CCAK)
15.	Climate Change Litigation Initiative (C2LI)
16.	Climate for Change (C4C)
17.	County Government of Meru
18.	County Government of Nandi
19.	County Government of Kitui
20.	County Government of Nyeri
21.	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
22.	Energy Reference Group (ERG)
23.	Environment Capacities and Sustainability Institute
24.	Ewaso Nyiro South River Basin Development Authority (ENSDA)
25.	Food for the Hungry
26.	Foreign, Commonwealth and Development Office (FCDO)
27.	Friedrich Ebert Stiftung (FES)
28.	Frontier Counties Development Council (FCDC)
29.	Global Climate Adaptation Partnership (GCAP)

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- 30. Government of Kenya
- 31. Green Africa Foundation
- 32. Greenpeace Africa
- 33. Heinrich Boll Foundation (HBS)
- 34. Independent Consultant
- 35. Institute for Climate Change and Adaptation (ICCA, UON)
- 36. International Development Research Centre (IDRC)
- 37. International Institute for Environment and Development (IIED)
- 38. International Livestock Research Institute (ILRI)
- 39. International Support Network for African Development (ISNAD-Africa)
- 40. Kenya Climate Change Working Group (KCCWG)
- 41. Kenya Environmental Action Network (KEAN)
- 42. Kenya Red Cross Society (KRCS)
- 43. Kerio Valley Development Authority (KVDA)
- 44. Midrift Human Rights Network
- 45. National Climate Change Council (NCCC)
- 46. North Rift Economic Bloc (NOREB)
- 47. Oxfam International
- 48. PlanAdapt
- 49. Powershift Africa
- 50. SNV Netherlands Development Organisation
- 51. Society for International Development (SID)
- 52. Stockholm Environment Institute (SEI)
- 53. Tana and Athi Rivers Development Authority (TARDA)
- 54. The World Bank
- 55. Transform Empowerment for Action Initiative (TEAM)
- 56. UN Environment Programme (UNEP)
- 57. UN High Level Climate Champions
- 58. United Nations Office for Disaster Risk Reduction (UNDRR)
- 59. United States Agency for International Development (USAID)
- 60. World Food Programme (WFP)

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## 7.0.4 Appendix 4: List of Official Documents Analysed

Document Name
Baringo County Integrated Development plan 2018-2022
 Baringo_Climate_Risk_Profile_Final
Bomet County Integrated Development plan 2018-2022
 Bomet_Climate_Risk_Profile_Final
Bungoma County Integrated Development plan 2018-2022
 Bungoma_Climate_Risk_Profile_Final
Busia County Integrated Development plan 2018-2022
 Busia-Climate-Risk-Profile-Final-2017
 COG_Press Statement following a Full Council of Governors Meeting_S23-8
 Elgeyo Marakwet County Integrated Development plan 2018-2022
 Elgeyo_Climate_Risk_Profile_Final
 Embu County Integrated Development plan 2018-2022
 Embu_Climate Risk Profile
 Garissa County Integrated Development plan 2018-2022
 Garissa_CCCF_Act-2018
 Garissa-Climate_Risk_Profile_Final-2017
 Gross County Product (GCP) report 2019
 GT-CIDP_Guidelines_Revised_2017
 GT-County Spatial Planning Guidelines 2018
 GT-County Spatial Planning in Pastoral Areas_toolkit_1-2019
 GT-County-Annual-Progress-Report-(C-Apr)-Guidelines-2022
 GT-County-public-participation_Guidelines-2016
 GT-Exemplar format of a county spatial plan-2019
 GT-Guidelines-for-Preparation-of-CIDPs-Revised-May-2020
 GT-Kenya National Monitoring and Evaluation Policy 2022
 GT-Kenya-Evaluation-Guidelines-2020
 GT-Performance Contracting Guidelines For The FY 2021-2022 (18th Cycle)- 2021
 GT-Performance-Management-Framework-for-County-Governments-2012
 GT-Project Monitoring, Evaluation and Reporting Manual - 2021
 GT-Urban land use planning monitoring oversight guidelines
 Homa Bay_Climate Risk Profile
 HomaBay County Integrated Development plan 2018-2022
 Isiolo County Integrated Development plan 2018-2022
 Isiolo_Climate_Risk_Profile_Final
 Kajiado County Integrated Development Plan 2018-2022
 Kajiado_Climate_Risk_Profile_Final
 Kakamega County Integrated Development plan 2018-2022
 Kakamega_Climate_Risk_Profile_Final
 Kenya_ATAR-2018-2022-Final-v1
 Kenya_CGA_2012
 Kenya_Climate-Change-Act-2016
 Kenya_Constitution-2010
 Kenya_First-NDC-Updated-2020
 Kenya_High-level Segment Statement COP 24_S18-3
 Kenya_High-level Segment Statement COP 26 - 2021
 Kenya_High-level Segment Statement COP 27_S22-1
Kenya_IGRA-2012

Kenya_MTP-1_2008-2012
Kenya_MTP-2_2013-2017
Kenya_MTP-3_2018-2022
Kenya_NAP_2015-2030
Kenya_National Climate Finance Policy-2016
Kenya_National-Spatial-Plan_2015-2045
Kenya_Natural Resources (Benefit Sharing) Bill 2022
Kenya_NCCAP_2013-2017
Kenya_NCCAP_2018-2022
Kenya_NCCRS-2010
Kenya_NDMA_Act No. 4 of 2016
Kenya_NGC_Act_2013
Kenya_NGDF_Act_2015
Kenya_NUDP_2016
Kenya_Population-and-Housing-Census-Volume-II_2019
Kenya_Public Private Partnerships Act No, 14 of 2021
Kenya_Second_NatComm-2015
Kenya_Urban Areas and Cities Act No. 13 of 2011
Kenya_Vision_2030-2007
Kericho County Integrated Development plan 2018-2022
Kericho_Climate_Risk_Profile_Final
Kiambu County Integrated Development plan 2018-2022
Kiambu_Climate Risk Profile
Kilifi County Integrated Development plan 2018-2022
Kilifi_Climate Risk Profile
Kiringyaga_Climate Risk Profile
Kirinyaga County Integrated Development plan 2018-2022
Kisii County Integrated Development Plan 2018 - 2022
Kisii_Climate Risk Profile
Kisumu County Integrated Development plan 2018-2022
Kisumu_Climate_Risk_Profile_Final
Kitui County Integrated Development plan 2018-2022
Kitui_Climate_Risk_Profile_Final
Kwale County Integrated Development Plan 2018-2022
Kwale_Climate Risk Profile
Laikipia County Integrated Development plan 2018-2022
Laikipia_Climate_Risk_Profile_Final
Lamu County Integrated Development Plan 2018 - 2022
Lamu_Climate_Risk_Profile_Final
Machakos County Integrated Development plan 2018-2022
Machakos_Climate_Risk_Profile_Final
Makueni County Integrated Development plan 2018-2022
Makueni_Climate Risk Profile
Mandera County Integrated Development plan 2018-2022
Mandera_Climate_Risk_Profile_Final
Marsabit County Integrated Development plan 2018-2022
Marsabit_Climate_Risk_Profile_Final
Meru County Integrated Development plan 2018-2022
Meru_Climate Risk Profile
Migori County Integrated Development plan 2018-2022

	Migori_Climate_Risk_Profile_Final
	Mombasa County Integrated Development plan 2018-2022
	Muranga County Integrated Development plan 2018-2022
	Murang'a_Climate_Risk_Profile_Final
	Nairobi County Integrated Development plan 2018-2022
	Nakuru County Integrated Development plan 2018-2022
	Nakuru_Climate Risk Profile
	Nandi County Integrated Development Plan 2018-2022
	Nandi_Climate_Risk_Profile_Final
	Narok County Integrated Development plan 2018-2022
	Narok_Climate_Risk_Profile_Final
	Nyamira County Integrated Development plan 2018-2022
	Nyamira_Climate_Risk_Profile_Final
	Nyandarua County Integrated Development plan 2018-2022
	Nyandarua-Climate_Risk_Profile_Final-2017-
	Nyeri County Integrated Development plan 2018-2022
	Nyeri-Climate_Risk_Profile_Final-2017-
	Samburu County Integrated Development plan 2018-2022
	Samburu_Climate_Risk_Profile_Final
	Siaya County Integrated Development plan 2018-2022
	Siaya-Climate_Risk_Profile_Final-2017-
	Speech_Uhuru-Kenyatta_President-of-Kenya.docx
	Taita-Taveta County Integrated Development plan 2018-2022
	Taita-Taveta-Climate_Risk_Profile_Final-2017
	Tana River County Integrated Development plan 2018-2022
	Tana-River-Climate_Risk_Profile_Final-2017-
	Tharaka Nithi County Integrated Development plan 2018-2022
	Tharaka-Nithi_Climate_Risk_Profile_Final
	Trans-Nzoia County Integrated Development plan 2018-2022
	Trans-Nzoia_Climate_Risk_Profile_Final
	Turkana County Integrated Development plan 2018-2022
	Turkana_Climate_Risk_Profile_Final
	Uasin Gishu County Integrated Development plan 2018-2022
	Uasin-Gishu_Climate_Risk_Profile_Final
	Vihiga_Climate_Risk_Profile_Final
	Vihiga_County Integrated Development Plan 2018-2022
	Wajir County Integrated Development Plan 2018-2022
	Wajir_CCCF_Act_2016
	Wajir_Climate_Risk_Profile_Final
	West pokot County Integrated Development plan 2018-2022
	West-Pokot-Climate_Risk_Profile_Final-2017

## 7.0.5 Appendix 5: TCAR Coding Framework Matrix

What are Kenya's key transboundary climate and adaptation risks (TCARs)?				What are the key factors that influence Kenya's TCAR challenge?		
CRs and ARs	Are they framed as Transboundary?	Are they Transboundary?	TCAR pathways	Key predisposing factors	Are they framed as Transboundary?	Are they Transboundary?
Key climate risks (hazard types) identified at the national and subnational levels. <ul style="list-style-type: none"> <li>• <i>Climate risks</i></li> <li>• <i>Transboundary climate risks (TCRs)</i></li> </ul>	Yes/No	Yes/No			Yes/No	Yes/No
Key adaptation risks identified at the national and subnational levels. <ul style="list-style-type: none"> <li>• <i>Adaptation risks</i></li> <li>• <i>Transboundary adaptation risks (TARs)</i></li> </ul>	Yes/No	Yes/No			Yes/No	Yes/No

## 7.0.6 Appendix 6: TCARG Codebook

Name	Description
ADAPTATION	
Adaptation Entities	All objects and things (i.e. objects, things, people and groups of people, animals, activities, processes etc) identified at the national and subnational levels with regards to adaptation - as at-risk, impacted, stakeholders, responsibility assignee or part of adaptation governance.
Non-human, non-institutional entities	Entities fundamentally constituted of or defined by non-human elements- including ecological systems.
Social or human entities	Entities fundamentally constituted of or defined by humans elements - including institutions and groups of people.

Name	Description
Adaptation Frame(ing)	How adaptation is understood or thought of at the national and subnational levels in Kenya.
DRR	Reference to disaster risk reduction/management (DRR/M) in the context of climate change adaptation or vice versa.
Sustainable development	Reference to sustainable development in the context of climate change adaptation or vice versa.
Adaptation Goals	Goals of adaptation as conceptualised in the national and subnational level documents.
Adaptation goal conditionalities	Elements that the adaptation goal is contingent upon.
Adaptation objects	The objects or things that the adaptation goal seeks to influence or affect.
Adaptation sites	Sites or locations where adaptation is imagined or envisaged.
Aim	The results sought by the adaptation goal.
Challenges	Challenges and obstacles that affect adaptation efforts in Kenya.
Goal owner	The owner of the adaptation goal.
Justification	The rationale for adaptation or reasons advanced for the goal as it is crafted.
Strategic objectives	"Strategic objectives" for adaptation in Kenya.
Temporal dimensions of adaptation goal	When adaptation is to be implemented and the goal of adaptation achieved.
Adaptation Impact	Conceptualisation or acknowledgement of the impact of adaptation in the climate-relevant documents at each level.
Adaptation impact propagation	Transfer, spread and/or (re)distribution of adaptation impact from their sources - adaptation spillovers/diffusion.
Impacts on adaptation	Elements identified as potential factors that would/could affect adaptation.
Negative adaptation impact	Acknowledgement of undesired impacts from adaptation intervention(s)
Positive impact	Acknowledgement of desired impacts from adaptation intervention(s)
Adaptation measures	Adaptation measures/actions identified in the data at each level.
Entity-specific measures	Adaptation actions that are specific to an identified entity or entities.
General or non-specific measures	Adaptation measures and actions that are general in the sense that they are considered cross-cutting or they are not specifically associated with any risk, impact or entity.
Impact-specific measures	Adaptation actions that are specific to identified climate impacts.

Name	Description
Risk-specific measures	Adaptation actions that are specific to an identified climate risk.
Adaptation Resources (Assets)	Resources and assets identified for enabling climate adaptation at each level.
National adaptation assets (resources)	Resources and assets identified for enabling climate adaptation at the national level.
Subnational adaptation assets (resources)	Resources and assets identified for enabling climate adaptation at the subnational level.
Adaptation Strategies & Approaches	Strategies/Approaches or tactics through which adaptation measures would be implemented as suggested by the planning documents at each level.
Entity-specific approaches	Adaptation approaches/strategies that are specific to an identified entity or entities.
General or non-specific approaches	Adaptation strategies/approaches that are general in the sense that they are considered cross-cutting or they are not specifically associated with any risk, impact or entity.
Impact-specific approaches	Adaptation approaches/strategies that are specific to identified climate impacts.
Risk-specific approaches	Adaptation approaches/strategies that are specific to an identified climate risk.
ADAPTATION RISKS	
Adaptation risks	All the adaptation risks and impacts regardless of their transboundariness.
TARs	
CLIMATE CHANGE	The risks, impacts, and framing of climate change in Kenya.
CLIMATE CHANGE FRAME(ING)	How climate change is described.
CLIMATE RISKS	Key climate risks (and hazards) identified at the national and subnational levels.
Climate hazards-risks	Hazards and risks explicitly identified as subject for concern and/or action climate policy and planning documents at each level.
CLIMATE IMPACTS	The identified effects or influences of climate change on various elements, entities, processes etc at each level. The consequences of realized risks on natural and human systems, where risks result from the interactions of climate-related hazards ..., exposure, and vulnerability. Impacts generally refer to effects on lives, livelihoods, health and wellbeing, ecosystems and species, economic, social and cultural assets, services (including ecosystem services) and infrastructure." IPCC

Name	Description
Climate risks and impacts	All the identified climate change risks and impacts regardless of their transboundariness.
Identified climate impacts	Climate impacts identified (as subject for concern and/or action) in the official documents at each level.
Impact entity interlinkages	Relationships and interactions between and among entities affected by climate risks - due to their status (and actions ascribed to such statuses) as elements at risk, risk sources, risk owners, and/or risk responders. Note that there may be secondary risk sources, including those 'sources' that are merely transmitting climate risk.
Impact frame(ing)	How climate change impacts are understood in the Kenya context (at each level).
Impact interconnectedness	The interactions between various climate change impacts.
Impact owners	Entities ultimately accountable for ensuring appropriate management of climate change impacts.
Impact propagation	Transfer, spread and/or (re)distribution of climate change impacts from their sources.
Impact responders	Those entities that are identified in the official documents to take action to address climate change impacts.
Impact sources	Sources, causes and origins of climate impacts as per the official documents. Primary sources are the initial origins of climate-related impact (i.e. entities receiving the impact from the climate trigger), while secondary impact sources may include 'impact transmitters', i.e. those 'sources' that are merely transmitting climate impact due to their being in the transmission system or part of the affected system component.
Impacted elements (including sectors)	Entities and things (i.e. objects, things, people and groups of people, animals, activities, processes etc) that are or may be affected by climate change according to the official climate change planning and policy documents.
Transboundary Risks	
Elements at risk (including sectors)	Entities and things (i.e. objects, things, people and groups of people, animals, activities, processes etc) that may be adversely affected by climate-related hazards and risks as identified in the relevant climate change documents.
Risk entity interlinkages	Relationships and interactions between and among entities affected by climate risks - due to their status (and actions ascribed to such statuses) as elements at risk, risk sources, risk owners, and/or risk responders. Note that there may be secondary risk sources, including those 'sources' that are merely transmitting climate risk.
Risk exposure & vulnerability	The extent to which each level is vulnerable and exposed to climate risks and impacts.

Name	Description	
National CCV_Index		Climate change vulnerability index as identified in the policy and planning documents at the national level.
Subnational CCV_Index		Climate change vulnerability index as identified in the policy and planning documents at the subnational levels.
Risk frame(ing)		How climate risks are understood/conceptualised at the national and subnational levels in Kenya.
Risk interconnectedness		Any reference of the interactions between various climate risks and hazards.
Risk owners		Entities ultimately accountable for ensuring appropriate management of climate risks in Kenya.
Risk propagation		Considerations of the transfer, spread and/or (re)distribution of climate risks from their sources.
Risk responders		Those entities that are identified in the official documents to take action in response to climate risks.
Risk sources		Sources, causes and origins of climate risks/hazards according to the official climate change planning and policy documents. Primary sources are the initial origins of climate-related risk (i.e. entities receiving the climate trigger), while secondary risk sources may include risk transmitters, i.e. those 'sources' that are merely transmitting climate risk due to their being in the transmission system or part of the affected system component.
GOVERNANCE GOVERNING	&	How climate risk and adaptation are steered in Kenya.
International instruments		International instruments that are referenced by Kenya in its planning at different levels.
Key climate adaptation institutions		Stakeholders explicitly identified in the climate change governance documents at each level with or without specific responsibility assigned to them.
Mandated		Stakeholders explicitly identified in the relevant documents with specific responsibility/mandate assigned to them.
Non-mandated		Stakeholders explicitly identified but without specific responsibility/mandate assigned to them in the official documents at each level.
Provisions for collaboration or cooperation	for or	Provisions within the climate change documents for collaboration and/or cooperation in adaptation.
General or unspecified cooperation or collaboration	or	Provisions for collaboration and/or cooperation in adaptation where the stakeholders are not explicitly specified.
Mandated	& Mandated	Provisions for collaboration and/or cooperation in adaptation between mandated stakeholders.

Name	Description	
Mandated & Non-mandated	&	Provisions in the official documents for collaboration and/or cooperation in adaptation between mandated and non-mandated stakeholders.
Non-mandated & Non-mandated	&	Provisions within the official climate change documents for collaboration and/or cooperation in adaptation between non-mandated stakeholders.
Key climate-relevant instruments		The key climate change policies in Kenya.
National policies and processes		The key national climate change policies and processes in Kenya.
Subnational policies and processes		The key subnational climate change policies and processes in Kenya.
Knowledge generators		Entities with the responsibility of generating information and knowledge to support adaptation.
Monitoring and Evaluation		
Public participation		References and provisions for public participation
Public protectors		Entities with the responsibility of reducing vulnerability and exposure to climate hazards, risks and impacts.
Rules of the game		Rules, guidelines, guiding principles and norms stipulated at each level as relevant for adaptation in the country.
Cooperation collaboration	or	Stipulations of working together.
Inclusion, involvement and participation	and	Provision for involvement of different actors in the adaptation process.
INTERLINKAGES		Various linkages, obligations, responsibilities etc to the 'outside' world, i.e. beyond the borders.
Global interlinkages		Various ways Kenya describes her linkages, obligations, responsibilities etc to the rest of the world.
Policy interlinkages		Declared interconnections between policies at various levels and in different sectors.
Regional interlinkages		Various identified interlinkages, obligations, responsibilities etc at the regional level.
JURISDICTIONAL VISION & MISSION		Vision and mission of each jurisdiction which suggest their understanding of their mandate and scope which are relevant for climate change interventions.
National level		National vision and mission
National mission		The stipulated mission of the country.
National vision		The stipulated vision of the country.

Name	Description
Subnational (counties) levels	The stipulated mission and vision of each county.
County Mission	The stipulated mission of each county.
County Vision	Stipulated vision of each county.
NEIGHBOURING JURISDICTIONS	Countries and/or other counties that this entity shares borders with.
Counties	
Countries	
POLITICAL ECONOMY CONSEQUENCES	
Enclosure	
Encroachment	
Entrenchment	
Exclusion-Inclusion	
POPULATION DYNAMICS	Data and references to population dynamics
PREDISPOSING FACTORS	Factors that render Kenya vulnerable to climate and adaptation risks.
(Geo)political	
Biophysical	
Economic	
Psychological	
Social	
Temporal	
TCAR PATHWAYS	Transboundary climate and adaptation risk impact categories or pathways.
(Geo)political	
Biophysical	
Economic	
Psychological	
Social	
Temporal	
TRANSBOUNDARY DIMENSIONS	Stated dimensions of transboundary nature e.g. cross-border initiatives, policies, challenges, resources etc
Barriers and challenges	
Cooperation	Reference to transboundary cooperation
Justification	Reasons advanced justifying transboundary governance.
Opportunities and benefits	Opportunities for and benefits from transboundary considerations

Name	Description
Subnational transboundary initiatives and arrangements	Initiatives, platforms or other arrangements mentioned for subnational cooperation or transboundary action.

URBANISATION, AREAS AND CITIES	URBAN
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Codes\\Codebook

Codes\\Codebook\\Codes

Name	Description
ADAPTATION FRAME(ING)	How adaptation is understood or thought of at the national and subnational levels in Kenya.
ADAPTATION GOALS	Goals of adaptation as conceptualised in the national and subnational level documents.
ADAPTATION IMPACT	Conceptualisation or acknowledgement of the impact of adaptation in the climate-relevant documents at each level.
Adaptation impact propagation	Transfer, spread and/or (re)distribution of adaptation impact from their sources - adaptation spillovers/diffusion.
Impacts on adaptation	Elements identified as potential factors that would/could affect adaptation.
Negative adaptation impact	Acknowledgement of undesired impacts from adaptation intervention(s)
Positive impact	Acknowledgement of desired impacts from adaptation intervention(s)
ADAPTATION INTERVENTIONS & STRATEGIES	
ADAPTATION RESOURCES (ASSETS)	Resources and assets identified for enabling climate adaptation at each level.
National adaptation assets (resources)	Resources and assets identified for enabling climate adaptation at the subnational level. Definitions based on the sustainable livelihoods framework at: <a href="https://www.soas.ac.uk/cedep-demos/000_P528_RF_K3736-Demo/unit1/page_22.htm">https://www.soas.ac.uk/cedep-demos/000_P528_RF_K3736-Demo/unit1/page_22.htm</a>
Financial capital	Savings, in whichever form, access to financial services, and regular inflows of money.
Human capital	Skills, knowledge, the ability to work and good health. (Good health is not simply a means to earning a livelihood - it is an end in itself.
Natural capital	The natural resource stocks that people can draw on for their livelihoods, including land, forests, water, air and so on.
Physical capital	The basic infrastructure that people need to make a living, as well as the tools and equipment that they use. For example, transport and communication systems, shelter, water and sanitation systems, and energy.
Social capital	The social resources that people draw on to make a living, e.g. relationships with either more powerful people (vertical connections) or with others like themselves (horizontal connections), or membership of groups or organisations. Generally relationships of trust, reciprocity & exchange that the poor can draw on in times of need, and that lower

Name	Description
	the costs of working productively together. Social capital has an intrinsic value; good social relationships are not simply a means, they are an end in themselves.
Subnational adaptation assets (resources)	Resources and assets identified for enabling climate adaptation at the subnational level. Definitions based on the sustainable livelihoods framework at: <a href="https://www.soas.ac.uk/cedep-demos/000_P528_RF_K3736-Demo/unit1/page_22.htm">https://www.soas.ac.uk/cedep-demos/000_P528_RF_K3736-Demo/unit1/page_22.htm</a>
Financial capital	Savings, in whichever form, access to financial services, and regular inflows of money.
Human capital	Skills, knowledge, the ability to work and good health. (Good health is not simply a means to earning a livelihood - it is an end in itself.
Natural capital	The natural resource stocks that people can draw on for their livelihoods, including land, forests, water, air and so on.
Physical capital	The basic infrastructure that people need to make a living, as well as the tools and equipment that they use. For example, transport and communication systems, shelter, water and sanitation systems, and energy.
Social capital	The social resources that people draw on to make a living, e.g. relationships with either more powerful people (vertical connections) or with others like themselves (horizontal connections), or membership of groups or organisations. Generally relationships of trust, reciprocity & exchange that the poor can draw on in times of need, and that lower the costs of working productively together. Social capital has an intrinsic value; good social relationships are not simply a means, they are an end in themselves.
CLIMATE CHANGE FRAME(ING)	How climate change is described.
CLIMATE IMPACTS	The identified effects or influences of climate change on various elements, entities, processes etc at each level. The consequences of realized risks on natural and human systems, where risks result from the interactions of climate-related hazards ..., exposure, and vulnerability. Impacts generally refer to effects on lives, livelihoods, health and wellbeing, ecosystems and species, economic, social and cultural assets, services (including ecosystem services) and infrastructure." IPCC
COLONIAL REFERENCES	References made to/of colonial times, activity and impact.
Economic activity	
FUNCTIONS	Distribution of functions between the national government and the county governments.
GLOBAL INTERLINKAGES	Various linkages, obligations, responsibilities etc to the 'outside' world, i.e. beyond the borders.
Global interlinkages	Various ways Kenya describes her linkages, obligations, responsibilities etc to the rest of the world.
Regional interlinkages	Various identified interlinkages, obligations, responsibilities etc at the regional level.
GOVERNANCE	How adaptation is (to be) steered in Kenya.
Challenges	

Name	Description
Key climate adaptation institutions	Stakeholders explicitly identified in the climate change governance documents at each level with or without specific responsibility assigned to them.
International institutions	
National institutions	
Subnational institutions	
Key climate instruments	The key climate change policies in Kenya.
International instruments	
National policies and processes	The key national climate change policies and processes in Kenya.
Subnational policies and processes	The key subnational climate change policies and processes in Kenya.
Rationale	
Rules of the game - elements or characteristics	Rules, guidelines, guiding principles and norms stipulated at each level as relevant for adaptation in the country.
Cooperation, collaboration, or consultation	Evidence or provisions within the climate change documents for collaboration and/or cooperation in adaptation.
Equity, social inclusion	
Inclusion, exclusion, involvement and participation	Provision for involvement of different actors in the adaptation process.
Public participation	
Responsiveness	
Transboundary governance	References of interdependence with, reliance on, or guidance from another scale in climate action.
IMPACT OF DEVOLUTION	What did devolution do?
JURISDICTIONAL VISION & MISSION	Vision and mission of each jurisdiction which suggest their understanding of their mandate and scope which are relevant for climate change interventions.
National level	National vision and mission
National mission	The stipulated mission of the country.
National vision	The stipulated vision of the country.
Subnational levels (counties)	The stipulated mission and vision of each county.
County Mission	The stipulated mission of each county.

Name	Description
County Vision	Stipulated vision of each county.
MEMBERSHIP	
International Networks	Membership in a network represented in more than one country.
Regional Economic Blocs	
Monitoring and Evaluation	
NEIGHBOURING JURISDICTIONS	Countries and/or other counties that this entity shares borders with.
Counties	
Countries	
POLITICAL ECONOMY CONSEQUENCES	
Competition	Over resources, etc
Enclosure	
Encroachment	
Entrenchment	
Exclusion-Inclusion	
RESPONSIBILITY ASSIGNEES	Entities charged with the various adaptation responsibilities/tasks at each level.
Adaptation communicators	Entities with the responsibility of communicating adaptation efforts and outcomes.
Adaptation implementers	Entities charged with the responsibility of implementing adaptation interventions.
Adaptation monitors & evaluators	Entities charged with the responsibility of monitoring and evaluating adaptation.
Adaptation planners	Entities charged with the responsibility of adaptation planning at each level.
Adaptive capacity builders	Entities with the responsibility of building adaptive capacity against climate change hazards, risks and impacts in the country.
Advocates	Entities with the responsibility of creating and/or promoting public awareness on climate change and related interventions.
Climate risk assessors	Entities identified as responsible for climate risk assessment in the official documents.
Knowledge generators	Entities with the responsibility of generating information and knowledge to support adaptation.
Public protectors	Entities with the responsibility of reducing vulnerability and exposure to climate hazards, risks and impacts.
TRANSBOUNDARY DIMENSIONS	Stated dimensions of transboundary nature e.g. cross-border initiatives, policies, challenges, resources etc
Barriers and challenges	
Justification	Reasons advanced justifying transboundary governance.
Opportunities	

## 7.0.7 Appendix 7: Keyword frequency showing the articulation of devolution and select climate-relevant aspects in the 2010 Constitution of Kenya

Topic	Keyword/Phrase	Frequency	Disaggregation notes
DEVOLUTION	Devol*	26	Devolution 11; devolved 15.
	County	333	Government(s) 112, governor(s) 50, assembly(ies) 73, executive(s) 18, legislation 10, level(s) 8, boundaries 3,
	Counties	42	All “counties”
	National government	61	
	International	15	Law 7; obligations 3; human rights instruments 1; peace and support operations 1; trade 1; waters and water resources 1; and national shipping
EQUITY & INCLUSIVITY	Marginal*	18	Marginalised 17, marginal 1 (“marginal participation” in the definition of “marginalised community”.
	Equal*	49	Equality 23 (11 referring to the Commission), equal 15, equally 2, equalisation 9 (referring to the Equalisation Fund).
	Equit*	27	equity 5, equitable 19, equitably 3.
	Gender	17	Same gender 6; National Commission on Gender and Development 3; gender equality 3;
	Human rights	34	
	Environment*	32	Environment 27, environmental 5 (rights 2, impact assessment 1, audit 1, conservation 1)
	Water*	18	Water 13, waters 4 (territorial 2, marine 1, international 1), groundwater 1.
	Future generations	4	Twice regarding the environment, once regarding finances and once with respect to the Constitution itself.
	Sustainab*	7	All “sustainable”

## 7.0.8 Appendix 8: Distribution of Functions Between the National Government and the County Governments in Kenya

### FOURTH SCHEDULE (Article 185 (2), 186 (1) and 187 (2))

### DISTRIBUTION OF FUNCTIONS BETWEEN THE NATIONAL GOVERNMENT AND THE COUNTY GOVERNMENTS

#### Part 1—National Government

1. Foreign affairs, foreign policy and international trade.
2. The use of international waters and water resources.
3. Immigration and citizenship.
4. The relationship between religion and state.
5. Language policy and the promotion of official and local languages.
6. National defence and the use of the national defence services.

7. Police services, including—

- (a) the setting of standards of recruitment, training of police and use of police services;
- (b) criminal law; and
- (c) correctional services.

8. Courts.

9. National economic policy and planning.

10. Monetary policy, currency, banking (including central banking), the incorporation and regulation of banking, insurance and financial corporations.

11. National statistics and data on population, the economy and society generally.

12. Intellectual property rights.

13. Labour standards.

14. Consumer protection, including standards for social security and professional pension plans.

15. Education policy, standards, curricula, examinations and the granting of university charters.

16. Universities, tertiary educational institutions and other institutions of research and higher learning and primary schools, special education, secondary schools and special education institutions.

17. Promotion of sports and sports education.

18. Transport and communications, including, in particular—

- (a) road traffic;
- (b) the construction and operation of national trunk roads;
- (c) standards for the construction and maintenance of other roads by counties;
- (d) railways;
- (e) pipelines;
- (f) marine navigation;
- (g) civil aviation;
- (h) space travel;
- (i) postal services;
- (j) telecommunications; and
- (k) radio and television broadcasting.

19. National public works.

20. Housing policy.

21. General principles of land planning and the co-ordination of planning by the counties.

22. Protection of the environment and natural resources with a view to establishing a durable and sustainable system of development, including, in particular—

- (a) fishing, hunting and gathering;
- (b) protection of animals and wildlife;
- (c) water protection, securing sufficient residual water, hydraulic engineering and the safety of dams; and
- (d) energy policy.

23. National referral health facilities.

24. Disaster management.

25. Ancient and historical monuments of national importance.

26. National elections.

28. Health policy.

29. Agricultural policy.

30. Veterinary policy.

31. Energy policy including electricity and gas reticulation and energy regulation.

32. Capacity building and technical assistance to the counties.

33. Public investment.

34. National betting, casinos and other forms of gambling.

35. Tourism policy and development.

## **Part 2—County Governments**

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The functions and powers of the county are—

1. Agriculture, including—

- (a) crop and animal husbandry;
- (b) livestock sale yards;
- (c) county abattoirs;

(d) plant and animal disease control; and  
(e) fisheries.

2. County health services, including, in particular—

- (a) county health facilities and pharmacies;
- (b) ambulance services;
- (c) promotion of primary health care;
- (d) licensing and control of undertakings that sell food to the public;
- (e) veterinary services (excluding regulation of the profession);
- (f) cemeteries, funeral parlours and crematoria; and
- (g) refuse removal, refuse dumps and solid waste disposal.

3. Control of air pollution, noise pollution, other public nuisances and outdoor advertising.

4. Cultural activities, public entertainment and public amenities, including—

(a) betting, casinos and other forms of gambling;

(b) racing;

(c) liquor licensing;

(d) cinemas;

(e) video shows and hiring;

(f) libraries;

(g) museums;

(h) sports and cultural activities and facilities; and

(i) county parks, beaches and recreation facilities.

5. County transport, including—

(a) county roads;

(b) street lighting;

(c) traffic and parking;

(d) public road transport; and

(e) ferries and harbours, excluding the regulation of international and national shipping and matters related thereto.

6. Animal control and welfare, including—

(a) licensing of dogs; and

(b) facilities for the accommodation, care and burial of animals.

7. Trade development and regulation, including—

(a) markets;

(b) trade licences (excluding regulation of professions);

(c) fair trading practices;

(d) local tourism; and

(e) cooperative societies.

8. County planning and development, including—

(a) statistics;

(b) land survey and mapping;

(c) boundaries and fencing;

(d) housing; and

(e) electricity and gas reticulation and energy regulation.

9. Pre-primary education, village polytechnics, homecraft centres and childcare facilities.

10. Implementation of specific national government policies on natural resources and environmental conservation, including—

(a) soil and water conservation; and

(b) forestry.

11. County public works and services, including—

(a) storm water management systems in built-up areas; and

(b) water and sanitation services.

12. Fire fighting services and disaster management.

13. Control of drugs and pornography.

14. Ensuring and coordinating the participation of communities and locations in governance at the local level and assisting communities and locations to develop the administrative capacity for the effective exercise of the functions and powers and participation in governance at the local level.

## 7.0.9 Appendix 9: Distribution of Constituencies and County Assembly Wards per County

County Name	Const. Name	Count of Const. Name
<b>BARINGO</b>	Baringo North	5
	Baringo Central	5
	Baringo South	4
	Eldama Ravine	6
	Mogotio	3
	Tiaty	7
<b>BARINGO Total</b>		<b>30</b>
<b>BOMET</b>	Bomet Central	5
	Bomet East	5
	Chepalungu	5
	Konoin	5
	Sotik	5
<b>BOMET Total</b>		<b>25</b>
<b>BUNGOMA</b>	Bumula	7
	Kabuchai	4
	Kanduyi	8
	Kimilili	4
	Mt. Elgon	6
	Sirisia	3
	Tongaren	6
	Webuye East	3
	Webuye West	4
<b>BUNGOMA Total</b>		<b>45</b>
<b>BUSIA</b>	Budalangi	4
	Butula	6
	Funyula	4
	Matayos	5
	Nambale	4
	Teso North	6
	Teso South	6
<b>BUSIA Total</b>		<b>35</b>
<b>ELGEYO/MARAKWET</b>	Keiyo North	4
	Keiyo South	6
	Marakwet East	4
	Marakwet West	6
<b>Elgeyo/Marakwet Total</b>		<b>20</b>
<b>EMBU</b>	Manyatta	6
	Mbeere North	3
	Mbeere South	5
	Runyenjes	6
<b>EMBU Total</b>		<b>20</b>
<b>GARISSA</b>	Balambala	5
	Dadaab	6
	Fafi	5
	Garissa Township	4

Ijara	4
Lagdera	6
<b>GARISSA Total</b>	<b>30</b>
<b>HOMA BAY</b>	
Homa Bay Town	4
Kabondo Kasipul	4
Karachuonyo	7
Kasipul	5
Ndhiwa	7
Rangwe	4
Suba North	5
Suba South	4
<b>HOMA BAY Total</b>	<b>40</b>
<b>ISILO</b>	
Isiolo North	7
Isiolo South	3
<b>ISILO Total</b>	<b>10</b>
<b>KAJIADO</b>	
Kajiado Central	5
Kajiado East	5
Kajiado North	5
Kajiado South	5
Kajiado West	5
<b>KAJIADO Total</b>	<b>25</b>
<b>KAKAMEGA</b>	
Butere	5
Ikolomani	4
Khwisero	4
Likuyani	5
Lugari	6
Lurambi	6
Malava	7
Matungu	5
Mumias East	3
Mumias West	4
Navakholo	5
Shinyalu	6
<b>KAKAMEGA Total</b>	<b>60</b>
<b>KERICHO</b>	
Ainamoi	6
Belgut	5
Bureti	7
Kipkelion East	4
Kipkelion West	4
Sigowet/Soin	4
<b>KERICHO Total</b>	<b>30</b>
<b>KIAMBU</b>	
Gatundu North	4
Gatundu South	4
Githunguri	5
Juja	5
Kabete	5
Kiambaa	5
Kiambu	4
Kikuyu	5
Lari	5
Limuru	5

Ruiru	8
Thika Town	5
<b>KIAMBU Total</b>	<b>60</b>
<b>KILIFI</b>	
Ganze	4
Kaloleni	4
Kilifi North	7
Kilifi South	5
Magarini	6
Malindi	5
Rabai	4
<b>KILIFI Total</b>	<b>35</b>
<b>KIRINYAGA</b>	
Gichugu	5
Kirinyaga Central	4
Mwea	8
Ndia	3
<b>KIRINYAGA Total</b>	<b>20</b>
<b>KISII</b>	
Bobasi	8
Bomachoge Borabu	4
Bomachoge Chache	3
Bonchari	4
Kitutu Chache North	4
Kitutu Chache South	5
Nyaribari Chache	6
Nyaribari Masaba	5
South Mugirango	6
<b>KISII Total</b>	<b>45</b>
<b>KISUMU</b>	
Kisumu Central	6
Kisumu East	5
Kisumu West	5
Muhoroni	5
Nyakach	5
Nyando	5
Seme	4
<b>KISUMU Total</b>	<b>35</b>
<b>KITUI</b>	
Kitui Central	5
Kitui East	6
Kitui Rural	4
Kitui South	6
Kitui West	4
Mwingi Central	6
Mwingi North	5
Mwingi West	4
<b>KITUI Total</b>	<b>40</b>
<b>KWALE</b>	
Kinango	7
Lungalunga	4
Matuga	5
Msambweni	4
<b>KWALE Total</b>	<b>20</b>
<b>LAIKIPIA</b>	
Laikipia East	5
Laikipia North	4
Laikipia West	6

<b>LAIKIPIA Total</b>		<b>15</b>
<b>LAMU</b>	Lamu East	3
	Lamu West	7
<b>LAMU Total</b>		<b>10</b>
<b>MACHAKOS</b>	Kangundo	4
	Kathiani	4
	Machakos Town	7
	Masinga	5
	Matungulu	5
	Mavoko	4
	Mwala	6
	Yatta	5
<b>MACHAKOS Total</b>		<b>40</b>
<b>MAKUENI</b>	Kaiti	4
	Kibwezi East	4
	Kibwezi West	6
	Kilome	3
	Makueni	7
	Mbooni	6
<b>MAKUENI Total</b>		<b>30</b>
<b>MANDERA</b>	Banissa	5
	Lafey	5
	Mandera East	5
	Mandera North	5
	Mandera South	5
	Mandera West	5
<b>MANDERA Total</b>		<b>30</b>
<b>MARSABIT</b>	Laisamis	5
	Moyale	7
	North Horr	5
	Saku	3
<b>MARSABIT Total</b>		<b>20</b>
<b>MERU</b>	Buuri	5
	Central Imenti	4
	Igembe Central	5
	Igembe North	5
	Igembe South	5
	North Imenti	5
	South Imenti	6
	Tigania East	5
	Tigania West	5
<b>MERU Total</b>		<b>45</b>
<b>MIGORI</b>	Awendo	4
	Kuria East	5
	Kuria West	7
	Nyatike	7
	Rongo	4
	Suna East	4
	Suna West	4
	Uriri	5
<b>MIGORI Total</b>		<b>40</b>

<b>MOMBASA</b>	Changamwe	5
	Jomvu	3
	Kisauni	7
	Likoni	5
	Mvita	5
	Nyali	5
<b>MOMBASA Total</b>		<b>30</b>
<b>MURANG'A</b>	Gatanga	6
	Kandara	6
	Kangema	3
	Kigumo	5
	Kiharu	6
	Maragwa	6
	Mathioya	3
<b>MURANG'A Total</b>		<b>35</b>
<b>NAIROBI CITY</b>	Dagoretti North	5
	Dagoretti South	5
	Embakasi Central	5
	Embakasi East	5
	Embakasi North	5
	Embakasi South	5
	Embakasi West	4
	Kamukunji	5
	Kasarani	5
	Kibra	5
	Langata	5
	Makadara	4
	Mathare	6
	Roysambu	5
	Ruaraka	5
	Starehe	6
	Westlands	5
<b>NAIROBI CITY Total</b>		<b>85</b>
<b>NAKURU</b>	Bahati	5
	Gilgil	5
	Kuresoi North	4
	Kuresoi South	4
	Molo	4
	Naivasha	8
	Nakuru Town East	5
	Nakuru Town West	6
	Njoro	6
	Rongai	5
	Subukia	3
<b>NAKURU Total</b>		<b>55</b>
<b>NANDI</b>	Aldai	6
	Chesumei	5
	Emgwen	4
	Mosop	7
	Nandi Hills	4
	Tinderet	4

<b>NANDI Total</b>		<b>30</b>
<b>NAROK</b>	Emurua Dikirr	4
	Kilgoris	6
	Narok East	4
	Narok North	6
	Narok South	6
	Narok West	4
<b>NAROK Total</b>		<b>30</b>
<b>NYAMIRA</b>	Borabu	4
	Kitutu Masaba	6
	North Mugirango	5
	West Mugirango	5
<b>NYAMIRA Total</b>		<b>20</b>
<b>NYANDARUA</b>	Kinangop	8
	Kipipiri	4
	Ndaragwa	4
	Ol Jorok	4
	Ol Kalou	5
<b>NYANDARUA Total</b>		<b>25</b>
<b>NYERI</b>	Kieni	8
	Mathira	6
	Mukurweini	4
	Nyeri Town	5
	Othaya	4
	Tetu	3
<b>NYERI Total</b>		<b>30</b>
<b>SAMBURU</b>	Samburu East	4
	Samburu North	6
	Samburu West	5
<b>SAMBURU Total</b>		<b>15</b>
<b>SIAYA</b>	Alego Usonga	6
	Bondo	6
	Gem	6
	Rarieda	5
	Ugenya	4
	Ugunja	3
<b>SIAYA Total</b>		<b>30</b>
<b>TAITA TAVETA</b>	Mwatate	5
	Taveta	5
	Voi	6
	Wundanyi	4
<b>TAITA TAVETA Total</b>		<b>20</b>
<b>TANA RIVER</b>	Bura	5
	Galole	4
	Garsen	6
<b>TANA RIVER Total</b>		<b>15</b>
<b>THARAKA - NITHI</b>	Chuka/Igambang'ombe	5
	Maara	5
	Tharaka	5
<b>Tharaka - Nithi Total</b>		<b>15</b>

<b>TRANS NZOIA</b>	Cherangany	7
	Endebess	3
	Kiminini	6
	Kwanza	4
	Saboti	5
<b>TRANS NZOIA Total</b>		<b>25</b>
<b>TURKANA</b>	Loima	4
	Turkana Central	5
	Turkana East	3
	Turkana North	6
	Turkana South	5
	Turkana West	7
<b>TURKANA Total</b>		<b>30</b>
<b>UASIN GISHU</b>	Ainabkoi	3
	Kapseret	5
	Kesses	4
	Moiben	5
	Soy	7
	Turbo	6
<b>UASIN GISHU Total</b>		<b>30</b>
<b>VIHIGA</b>	Emuhaya	3
	Hamisi	7
	Luanda	5
	Sabatia	6
	Vihiga	4
<b>VIHIGA Total</b>		<b>25</b>
<b>WAJIR</b>	Eldas	4
	Taraj	4
	Wajir East	4
	Wajir North	7
	Wajir South	7
	Wajir West	4
<b>WAJIR Total</b>		<b>30</b>
<b>WEST POKOT</b>	Kacheliba	6
	Kapenguria	6
	Pokot South	4
	Sigor	4
<b>WEST POKOT Total</b>		<b>20</b>
<b>(blank)</b>	(blank)	
<b>(blank) Total</b>		
<b>Grand Total</b>		<b>1450</b>

Data Source: IEBC

## 7.0.10 Appendix 10: Average Gross County Product (GCP) and Average Gross Value Added (GVA) per County for 2013-2020

County Name	Avg-GCP (in Constant Prices KSh million)	%Avg-GVA
Baringo	53,143	0.75
Bomet	101,408	1.43
Bungoma	144,015	2.04
Busia	59,714	0.84
Elgeyo-Marakwet	65,918	0.93
Embu	109,553	1.55
Garissa	41,955	0.59
Homa Bay	86,387	1.23
Isiolo	18,683	0.26
Kajiado	107,779	1.52
Kakamega	153,515	2.17
Kericho	117,794	1.67
Kiambu	415,443	5.88
Kilifi	150,361	2.13
Kirinyaga	92,494	1.31
Kisii	140,021	1.98
Kisumu	182,524	2.58
Kitui	89,606	1.27
Kwale	82,320	1.17
Laikipia	65,115	0.92
Lamu	23,209	0.33
Machakos	245,340	3.48
Makueni	79,045	1.12
Mandera	36,981	0.52
Marsabit	38,199	0.54
Meru	221,776	3.14
Migori	86,258	1.22
Mombasa	368,837	5.22
Murang'a	140,899	2.00
Nairobi City	1,967,809	27.75
Nakuru	351,045	4.96
Nandi	107,368	1.52
Narok	114,480	1.61
Nyamira	77,722	1.10
Nyandarua	96,883	1.37
Nyeri	146,738	2.08
Samburu	20,392	0.29
Siaya	72,168	1.02
Taita Taveta	45,369	0.64
Tana River	20,898	0.30
Tharaka-Nithi	42,185	0.60
Trans Nzoia	110,780	1.56
Turkana	72,980	1.03
Uasin Gishu	169,043	2.39
Vihiga	55,510	0.79
Wajir	35,695	0.50

## 7.0.11 Appendix 11: CARG Pentagon and Analysis Framework

### a) Adaptation governance dimensions

Heinen et al.'s (2022) Dimensions of Climate Governance			Termeer et al.'s (2017) Elements		
#	Dimension	Explanation	Questions explored	Assumptions	Element
	The governance issue (interdependent policy problem) - ISSUE	A common goal or an interdependent policy problem that needs solving	<i>How is adaptation framed and problematised as a governance issue?</i>	Adaptation needs to be framed and problematised as a governance issue first before adaptation governance is done.	<b>Framing the problem</b>
	Statutory responsibilities of decision-making centres - GOVERNORS	Multiple decision-making centres are part of the governance arrangement because they can contribute to solving a particular issue based on their statutory responsibilities	<i>Who bears the (statutory) responsibility for adaptation governance and where are they located?</i>	If adaptation is framed and problematised as a policy issue, there must be (statutory) responsibility allotted for decision-making in its governance at different levels/scales.	<b>Levels of action</b>
	Types of interactions among decisions-makers - GOVERNING	Decision makers may cooperate, compete, resolve conflicts, learn from each other, and mutually adjust their behaviour and/or negotiate	<i>What is the nature of interactions between and among those involved in adaptation governance?</i>	Governing adaptation involves series of different types of interactions among and between both the governors and the governed.	<b>Most appropriate form of leadership</b>

Rules-in-use – RULES OF THE GAME	The rules-in-use may either be self-regulated among decisionmakers or constituted by legislative rules (state or federal laws)	<i>What are the rules of the adaptation governance 'game' and how did they come about?</i>	Adaptation governance are necessarily regulated by certain rules that influence their governing behaviour.	<b>Selection of policy instruments; Timing of policies; Science-policy interface</b>
Degree of dependencies in decision-making among decision-makers – INTERDEPENDENCE	The extent to which decisions by one decision-making centre are formally independent or formally interdependent on decisions by another centre	<i>How interdependent is decision-making among the adaptation governance actors?</i>	In any governance ecosystem, decisions made by each actor can influence or be influenced by other decisions made by other actors.	<b>Alignment across sectoral boundaries</b>

## b) Resultant CARG Pentagon

#	Dimension	Assumptions	Questions explored	Rationale/Logic: why the answers
	<i>Adaptation governors</i>	If adaptation is framed and problematised as a policy issue, there must be (statutory) responsibility allotted for decision-making in its governance at different levels/scales.	<i>Who bears the (statutory) responsibility for adaptation governance and where are they located?</i>	
	<i>Adaptation (as a policy problem)</i>	Adaptation needs to be framed and problematised as a governance issue first before adaptation governance is done.	<i>How is adaptation framed and problematised as a governance issue?</i>	
	<i>Rules-of-the-game</i>	Adaptation governors are necessarily regulated by certain rules that influence their governing behaviour.	<i>What are the rules of the adaptation governance 'game' and how did they come about?</i>	
	<i>Governing adaptation</i>	Governing adaptation involves series of different types of interactions among	<i>What is the nature of interactions between and</i>	

	and between both the governors and the governed.	<i>among those involved in adaptation governance?</i>
<i>Interdependence</i>	In any governance ecosystem, decisions made by each actor can influence or be influenced by other decisions made by other actors.	<i>How interdependent is decision-making among the adaptation governance actors?</i>

## 7.0.12 Appendix 12: Information Sheet with the Consent Form

### Transboundary Climate Risks and Adaptation Governance

**Martin Brown Munene**

Department of Geography and Environment/Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science (LSE)

### Information for participants

Thank you for considering participating in this study which will take place from October 2019. This information sheet outlines the purpose of the study and provides a description of your involvement and rights as a participant, if you agree to take part.

#### 1. What is the research about?

The aim of this PhD research project is to explore how transboundary climate risks and adaptation are dealt with in selected cases. It seeks to understand the nature/quality of climate risks/impacts, and how they are/can be made governable. On the governance side, the project specifically focuses on existing and potential mechanisms, processes and agents (different conventional and unconventional actors) of climate risk and adaptation governance at global, regional, national and subnational levels to better understand the barriers, opportunities and potential for collective regional approaches in dealing with cross-border climate risks.

It utilises a case study approach using mixed methods for data collection and analysis and entails an extensive review of academic and grey literature and policy documents, as well as primary data collection through surveys and interviews in the case studies.

#### 2. Do I have to take part?

It is up to you to decide whether or not to take part. You do not have to take part if you do not want to. If you do decide to take part I will ask you to sign a consent form which you can sign and return in advance of the *interview/survey* or sign at the actual meeting.

#### 3. What will my involvement be?

You will be asked to take part in an *interview/Survey* to share your experience/knowledge of climate risks and adaptation governance in your area.

#### 4. How do I withdraw from the study?

You can withdraw at any point of the study, without having to give a reason. If any questions during the **interview/survey** make you feel uncomfortable, you do not have to answer them. Withdrawing from the study will have no effect on you. If you withdraw from the study we will not retain the information you have given thus far, unless you are happy for us to do so.

### **5. What will my information be used for?**

I will use the collected information for research purposes only, including writing academic papers and informing future research on the subject.

### **6. Will my taking part and my data be kept confidential? Will it be anonymised?**

The records from this study will be kept as confidential as possible. Only myself and my supervisor will have access to the files and any audio tapes. Your data will be anonymised – your name will not be used in any reports or publications resulting from the study, unless you agree to be named in the research and/or associated with any responses. All digital files, transcripts and summaries will be given codes and stored separately from any names or other direct identification of participants. Any hard copies of research information will be kept in locked files at all times.

**Limits to confidentiality:** confidentiality will be maintained as far as it is possible, unless you tell us something which implies that you or someone you mention might be in significant danger of harm and unable to act for themselves; in this case, we may have to inform the relevant agencies of this, but we would discuss this with you first.

### **7. Data Protection Privacy Notice**

The LSE Research Privacy Policy can be found at: <https://info.lse.ac.uk/staff/divisions/Secretarys-Division/Assets/Documents/Information-Records-Management/Privacy-Notice-for-Research-v1.1.pdf>

The legal basis used to process your personal data will be Students “Legitimate interests”. The legal basis used to process special category personal data (e.g. data that reveals racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership, health, sex life or sexual orientation, genetic or biometric data) will be for scientific and historical research or statistical purposes.

To request a copy of the data held about you please contact: [gld.info.rights@lse.ac.uk](mailto:gld.info.rights@lse.ac.uk)

### **8. What if I have a question or complaint?**

If you have any questions regarding this study please contact the researcher, Martin Brown Munene, on [M.B.Munene@lse.ac.uk](mailto:M.B.Munene@lse.ac.uk).

If you have any concerns or complaints regarding the conduct of this research, please contact the LSE Research Governance Manager via [research.ethics@lse.ac.uk](mailto:research.ethics@lse.ac.uk).

If you are happy to take part in this study, please sign the consent sheet attached.

# CONSENT FORM

## Transboundary Climate Risks and Adaptation Governance

Name of researcher: Martin Brown Munene

Participation in this research study is ENTIRELY VOLUNTARY.

Please circle around your response or delete appropriately.

I have read and understood the study information dated ..... , or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.	YES / NO
I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.	YES / NO
I agree to the <b>interview/survey</b> being audio recorded	YES / NO
I agree to the <b>interview/survey</b> being video recorded	YES / NO
I agree to the <b>interview/survey</b> being photographed	YES / NO
I understand that the information I provide will be used for <b>research purposes only, including writing of research outputs (e.g. thesis, academic papers etc)</b> and that the information will be anonymised.	YES / NO
I agree that the information I provide can be quoted in research outputs.	YES / NO
I agree that my real name can be used for quotes.	YES / NO
<i>If I provide any written information (e.g. diary), I agree to joint copyright of the ..... to Martin Brown Munene – the researcher.</i>	YES / NO
I understand that any personal information that can identify me – such as my name, address, will be kept confidential and not shared with anyone other than myself / beyond the study team.	YES / NO
I give permission for the (anonymised) information I provide to be deposited in a data archive so that it may be used for future research.	YES / NO

Please retain a copy of this consent form.

**Participant** name:

Signature: \_\_\_\_\_

Date \_\_\_\_\_

**Interviewer** name:

Signature: \_\_\_\_\_

Date \_\_\_\_\_

For information please contact: **Martin Brown Munene, [M.B.Munene@lse.ac.uk](mailto:M.B.Munene@lse.ac.uk).**

## 7.0.13 Appendix 13: Data Management Plan

### PLAN OVERVIEW

*A Data Management Plan created using DMPonline*

**Title:** Transboundary Climate Risks and Adaptation Governance

**Creator:** Martin Munene

**Principal Investigator:** Martin Munene

**Data Manager:** Martin Munene

**Affiliation:** London School of Economics and Political Science

**Template:** LSE Data Management Plan for Researchers

**ORCID iD:** 0000-0003-4539-7956

#### **Project abstract:**

This research project focuses on the governability and governance potential of transboundary climate risks and adaptation. It seeks to understand the nature/quality of climate risks/impacts, and how they are/can be made governable. On the governance side, the project specifically focuses on current and potential mechanisms, processes and agents of climate risk and adaptation governance at the global and regional levels to better understand the barriers, opportunities and potential for collective regional approaches to addressing cross-border climate risks in Eastern Africa. Through the selected case studies – Kenya's border areas with other countries - the research will develop conceptual and empirical insights into regional-level transboundary adaptation and mitigation, thereby illuminating a scale largely overlooked in climate change research. It utilises the case study approach using mixed methods for data collection and analysis and entails an extensive review of academic and grey literature and policy documents, as well as primary data collection through surveys and interviews in the case studies.

**ID:** 47280

**Last modified:** 05-11-2019

### TRANSBOUNDARY CLIMATE RISKS AND ADAPTATION GOVERNANCE

#### DATA COLLECTION

**Provide a summary of the data addressing the following issues: Specify the types and formats of data generated/collected Existing data being re-used (if any) The origin(s) of the data**

This research will draw from secondary data available from state and non-state agencies - in the form of policy documents and reports - and primary data collected in audio, video, photographic and textual formats through interviews, workshops, focus groups, surveys and field visits. The collation and analysis will be done using common and familiar computer software - such as MS Excel, Nvivo, Stata, SPSS.

## DATA STORAGE AND INFORMATION SECURITY

**Have you passed the [LSE Information Security User Awareness Training course](#)?**

Yes

**Do you have sufficient storage or will you need additional space?**

- Yes

**Has responsibility for backup and recovery been identified and allocated?**

- Yes

**Can you describe how you will ensure collaborators can access your data securely?**

- No, I don't have any collaborators

**Does the data provider have specific requirements about storage and access, require you to fill in a questionnaire, or submit details about the conditions data may be held under?**

- No

I do not have a specific data provider.

## RESEARCH ETHICS

**Does your research involve human participants (living or dead), or involve data about directly identifiable human subjects?**

- Yes

**If you are collecting primary data, describe your process of obtaining informed consent from research participants.**

The research participants will be informed about the nature of the research project, the type of data collected and how they will be treated as well as their rights regarding participation and withdrawal from the study through a succinct Infomation Sheet that has been prepared and shared with participants before the meeting. An equally succinct consent form will be shared with them to obtain their consent on specific issues outlined therein. Thus, informed consent will be obtained in writing as much as possible. Where it is not possible/desirable, verbal consent will be obtained accordingly.

**If you are collecting primary data that can identify living individuals, how will you anonymise/pseudoanonymise personal data?**

All digital files, transcripts and data summaries will be assigned codes and stored separately from any names or other direct identification of participants. Any hard copies of research information will always be kept in locked files, until they are digitised - after which the digital copies will be stored securely in the LSE Drive/OneDrive and the hard copies destroyed accordingly.

## DATA OWNERSHIP

**Clarify the copyright and intellectual property ownership of the data.**

London School of Economics will hold copyright and intellectual property ownership of the data.

## **PRESERVATION AND DATA SHARING**

**What is the long-term preservation and sharing plan for the dataset? Outline how these data will be made available. - Outline any restrictions on data sharing due to data sensitivity. - Outline any restrictions on data sharing due to the need to protect proprietary or patentable data.**

It is not envisaged that the data collected will be shared externally. However, should the need arise, only the anonymised files would be made accessible by third parties.

## **DOCUMENTATION AND METADATA**

**What documentation and metadata will accompany the data to help ensure it has context and meaning?**

Any data sets created will be described either in "readme" text files or in file headers.

## **COSTS**

**Will additional resources be needed for preservation and making the data sharable?**

No additional costs are anticipated for the preservation of data and making data sharable.



**THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013 (Rev. 2014)**  
Legal Notice No. 108: The Science, Technology and Innovation (Research Licensing) Regulations, 2014

**The National Commission for Science, Technology and Innovation**, hereafter referred to as the Commission, was established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

**CONDITIONS OF THE RESEARCH LICENSE**

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to.
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way:
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  - ii. Adversely affect the lives of Kenyans
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  - iv. Result in exploitation of intellectual property rights of communities in Kenya
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