From Climate Change to Conflict – Environmental Security Challenges in North-Western Kenya

Lisa Nowag

DOI: https://doi.org/10.22151/politikon.47.3

Lisa Nowag, 25, from Neuss (Germany), is a Master's student in "Peace and Conflict Studies" at Otto-von-Guericke-University Magdeburg. In 2017, she obtained her Bachelor's degree in "Cultural Anthropology" at Johannes-Gutenberg-University Mainz. Her research interests include sustainable development, human rights, civil society action, conflict resolution and environmental security. The regional focus of her studies lies on Sub-Saharan Africa and Southeast Asia. E-mail: lisa.nowag@ovgu.de.

Abstract

In recent years, debate and research on the effects of climate change have intensified. By contributing to natural disasters, sea-level rise and resource scarcity, changes in climate are anticipated to become a significant threat to environmental security. However, existing literature and case studies on the effects of climate change in relation to violence find diverging results. This research note therefore asks if and to what extent climate change can be regarded as a significant contributor to violent conflicts. By investigating climate-related effects on pastoral raiding in North-Western Kenya, the overall relationship between climate change and conflict is analysed on the basis of a practical case study. This analysis supports that climate change is a decisive factor in increasing violence. By multiplying previously existing socio-political tensions and triggering the outbreak of latent conflict, climate change can have impacts on both environmental and civil security. However, its effects are often not directly visible.

Keywords

Climate Change; Climate-Conflict Nexus; East Africa; Environment; North-Western Kenya; Pastoral Conflicts; Raiding; Resource Scarcity; Security

Introduction

> "Climate stress may well represent a challenge to international security just as dangerous – and more intractable – than the arms race between the United States and the Soviet Union during the Cold War or the proliferation of nuclear weapons among rogue states today" (Homer-Dixon 2007).

This statement of political scientist and ecologist Thomas Homer-Dixon, published by *The New York Times*, represents the rise of public debates as well as scientific research on the effects of climate change in recent years. While some consequences, such as increasing global temperatures, became apparent and undeniable, others remain hidden or are not directly related to climate change. An example of the later is a higher potential for the eruption of violent conflicts.

Discussed controversially by the international community, some scholars state that the capacity for environment-related factors to be drivers for conflict has been overemphasised since conflicts are deeply rooted within societal and governmental structures (Salehyan 2008, 317). Nevertheless, scientific literature on the topic is dominated by reports, books and articles supporting a strong linkage between climate change and conflicts. By contributing to natural disasters, sea-level rise and increasing resource scarcity, changes in climate are perceived as a significant threat to environmental security (Theisen et al. 2013, 615). Exposed to this threat are mainly those countries and communities which contribute less to climate change but suffer from poverty and poor governance. An especially affected region is East Africa due to its "high dependence on natural ecosystem resources, its history of violence, high levels of poverty and limited state capacity for climate change adaptation" (van Baalen and Mobjörk 2016, 10).

The aim of this research note is to contribute to the literature on the relationship between climate change and conflict through a case study of pastoral conflicts in North-Western Kenya. The structure of the research note reflects this two-step approach of theory and praxis. Following the introduction and methodology, the literature review presents and evaluates relevant research and alternative narratives on climate conflicts in general. The case study is then more practically orientated as it focuses on an example in Kenya. While climate-related environmental security challenges and their effects on Kenyan land and life will be analysed in the second section, measures of climate adaptation and conflict handling are taken into consideration in the third. Both parts of the case study aim to reflect on the overall research question of this research note: to what extent and under which conditions can climate change be regarded as a significant contributor to violent conflicts? Bringing theoretical aspects and practical insights of environmental security

challenges in North-Western Kenya together, the conclusion will give an outlook on future climate conflict projections as well as on the transferability of knowledge obtained onto other cases.

Methodology

In order to cope with the complexity of the chosen topic, case study research has been chosen as the methodological approach of the research note. Constituting one of the predominant methods in international politics, case study research is useful for understanding and analysing complex phenomena while complementing theories with practical examples. Thereby, case studies can be used either to generate new hypotheses or to test whether existing theories are able to correctly explain processes and conclusions of one or several particular cases (Bennett 2008, 22). The present research note applies a deductive approach by first considering theories of the climate-conflict nexus prevailing in scientific literature and then examining their applicability to the influence of climate change on pastoral raiding in North-Western Kenya.

For the first part, a comparative scientific literature review was conducted. The review draws on studies from peace and conflict scholarship as well as on more general political and ecological literature and aims to create a general overview of interrelations between data on climate-induced environmental changes and violent conflict. In order to draw conclusions about the impact of climate change on the likelihood of conflicts that go beyond theoretical assumptions, an analysis of different empirical studies and scientific reports on one specific case have been elaborated as a second step. Due to the limited framework of this research note, data and information were gathered by analysis of previously conducted research instead of carrying out an independent study. While this can be considered a weakness and a lack of originality, the research note nevertheless attempts to fill a current research gap with the combination of theoretical and practical assumptions in one coherent argumentation.

The research area chosen for this note is situated in East Africa, a part of the world severely affected by climate change and communal conflict. In particular, a region in North-Western Kenya consisting of the counties Turkana and Pokot will be investigated. This region presents a suitable case for the framework of the present research note because of its high sensitivity to climatic changes and the importance of natural resources for pastoralist communities living in this area. The effects of climate change on environment, population and conflict can therefore be easily observed and analysed.

Literature Review: Climate Change as a Cause of Conflict?

Having its roots in the 1960s, the idea of an interdependence between climate change and conflict has evolved quickly since the end of the Cold War and caused controversial debates in recent years (Raleigh and Urdal 2007, 675). In order to give a theoretical introduction to the topic, this section deals with the development of the climate-conflict nexus, including arguments in favour as well as criticism. The question of whether climate change poses a security threat relies on assumptions of interrelations between environmental changes and violence, which are therefore presented in the first subchapter. With ongoing scientific research, the argument that climate change has a crucial effect on the eruption of conflicts evolved over the last decades. The rise of the climate-conflict nexus will therefore be evaluated in a second step. In addition, the last part of this chapter deals with alternative narratives on the relationship between climate change and conflict, including critical approaches.

Interrelation between Environmental Changes and Violence

The connection between environmental changes and violence came up in peace and conflict research during the 1990s with studies from scholars like Günther Bächler and Thomas Homer-Dixon. Environmental changes in their early sense, however, focused on resource scarcities caused by humans, rather than changes in climate. According to this perspective, Homer-Dixon defines environmental change as "a human-induced decline in the quantity or quality of a renewable resource that occurs faster than it is renewed by natural processes" (Homer-Dixon 1994, 8). The development of environmental transformations can therefore be characterized as exponential, while resource production in general is a linear procedure. Additional factors contributing to resource scarcities are population growth and unequal resource distribution which occur relatively exponentially rather than linearly and are thus difficult to estimate. Even with no reference to climate change, Homer-Dixon directly relates environmental scarcities to a rising potential of violence:

> "Environmental scarcities are already contributing to violent conflicts in many parts of the developing world. These conflicts are probably the early signs of an upsurge of violence in the coming decades that will be induced or aggravated by scarcity. […] Poor societies will be particularly affected since they are less able to buffer themselves from environmental scarcities and the social crises they cause" (Homer-Dixon 1994, 6).

Moreover, he defines three different types of conflicts erupting in reaction to environmental changes: interstate scarcity conflicts due to decreasing resources, such as

clean water and agricultural land, ethnic clashes as a result of population movements caused by environmental stress and intrastate insurgencies or civil strives provoked by economic deprivation (Homer-Dixon 1994, 6).

Building on Homer-Dixon's arguments, Günther Bächler states that environmental transformations and conflicts are mutually dependent or at least facilitate each other, calling their interrelation a security dilemma. While environmental changes contribute to the emergence as well as to the intensification of violent conflicts on the one hand, peace and security challenges induced by social and political maldevelopment further environmental disruption on the other (Bächler 1998, 24). While Homer-Dixon only focused on environmental aspects leading to an increase in violence, Bächler also emphasizes the significance of sociopolitical factors:

> "Environmental degradation may be a background reason for a certain conflict, it may be a factor leading to channeling or cleavages along lines between distinct groups, and it may even be a triggering factor to a conflict dynamic. However, passing the threshold of violence definitely depends on sociopolitical factors and not on the degree of environmental degradation as such" (Bächler 1998, 32).

Keeping in mind the importance of sociopolitical factors, such as institutional capacities, for the eruption of violence, Bächler calls for an in-depth examination of the point at which environmental conflicts turn violent (Bächler 1998). Despite questioning the influence of resource scarcities on the outburst of violence, he generally also argues that there is a correlation between environmental degradation and conflict.

In later research, the early approaches of Homer-Dixon were often criticized for being too speculative, lacking scientific evidence and presenting only a one-sided perspective of the environment-conflict relation (Gleditsch 2007, 181). However, with scholars like Bächler building upon his assumptions, his work served as a major reference point for future studies on climate change as an amplifier of conflicts.

The Climate-Conflict Nexus

The discourse shifted from interrelations of human-induced environmental changes and violence to the direct notion of climate change as a contributor to armed conflicts in the early 2000s. Mainly influenced by reports of the "Intergovernmental Panel on Climate Change" (IPCC) on the effects of climate change, peace and conflict scholars started to build up the climate-conflict nexus. Renowned authors in this field are Nils Petter Gleditsch, Ole Magnus Theisen and Halvard Buhaug among others.

The climate-conflict nexus is based on the assumption that climate change leads to the "loss of livelihood, economic decline, and increased insecurity either directly or through

forced migration" (Theisen et al. 2013, 615). Scholars argue that as a result of the climate-induced reduction in resources, such as land or water, affected societies are likely to fight over the remaining ones. Even if communities try to resolve the problem of resource scarcity in a peaceful way by partially migrating to another area, they might create new scarcities and conflicts when settling in already inhabited territories, where resources might be constrained as well (Theisen et al. 2013, 615). In addition, migration always bears the risk of ethnic clashes between migrants and hosting communities. Hence, climate refugees increase the likelihood of conflicts in their new areas of residences (Barnett and Adger 2007, 643).

Research connecting climate change and conflict also focuses on other aspects and arguments besides the main theory on resource scarcity. For example, a linkage often made in psychological literature is the connection between hot temperatures and individual aggression which leads to the assumption that global warming automatically contributes to increased violence due to personal discomfort (Anderson 2001). This theory was adopted in several interdisciplinary studies. For example, a research by Marshall Burke et al. (2009) found strong historical interrelations between temperature and the outburst of civil wars in Sub-Saharan Africa, concluding with the prognosis that, based on current projections of future temperature trends, there will be an increase in violent conflicts of roughly 54 percent by 2030 (Burke et al. 2009). However, such statistics should only be seen as possible development trends rather than reliable predictions of the future. Whether and to what extent violence really increases depends most likely on other factors besides heat-related individual aggression.

Other scholars focus on the impacts of weather extremes, such as large shifts in the frequency and strength of rainfall. Rainfall deviations can be regarded as especially problematic for rural communities because they are dependent on rain-fed agriculture, whether for food production or income (Fjelde and Uexkull 2012, 445). As a result, people affected by severe precipitation anomalies often suffer from hunger and poverty, and communal conflicts are more likely to arise. Slighter changes in rainfall, however, are controversially discussed in peace and conflict scholarship. While some scholars argue that violence is expected to occur in rather dry years, others claim there is an increase in violence during times which are wetter than usual (Theisen et al. 2013, 616ff.).

Two other important effects of climate change that might contribute to the eruption of violent conflicts in certain cases are higher risks of natural disasters and rising sea-levels. However, there is a lack of in-depth research on those aspects. Further studies

are therefore necessary to give a well-founded statement on whether they enhance the potential of conflict or not (Theisen et al. 2013, 619ff.). Moreover, natural disasters as well as rising sea-levels are mainly affecting islands and coastal areas of Asian countries. As the focus of this research note lays on climate-related conflicts in East Africa, where these factors are less relevant, they will not be further elaborated in the present framework.

Alternative Narratives: Disillusioning the Climate-Conflict Nexus

Despite the arguments describing a relationship between environmental transformations through climate change and violent conflicts presented in the previous chapters, the climate-conflict nexus is not accepted without criticism. The key critique addresses especially the lack of scientific sources when it comes to conclusions about climate change and conflict. As stated before, studies on the climate-conflict nexus are mainly based on IPCC reports. However, critical scholars question if the IPCC had sufficient access to peer-reviewed sources when composing their publications. According to sociologist and political scientist Nils Petter Gleditsch:

> "the IPCC is not charged with the task of doing research; rather it 'reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide' [quoted from the IPCC homepage]. In an area where little or no research has been conducted, the IPCC has a poor basis for an assessment" (Gleditsch 2012, 3).

On the other side, autonomous studies by peace and conflict scholars largely focus on specific cases and are therefore perceived as not suitable to draw general conclusions from. In fact, recent empirical analyses come to diverse and diverging results. "The general impression left by this new wave of research is that direct links are few and weak; causal pathways are complex and contingent on a host of additional factors" (Salehyan 2008, 316).

The notion of additional factors furthering violent conflicts in climate change-affected areas leads to the second point of criticism. Critics state that when climate change is linked to armed conflict the role of coping mechanisms is often ignored. Such mechanisms are, for example, the capability of governmental institutions to handle environmental stress, the level of technological progress or the range of human agency (Fjelde and Uexkull 2012, 444; Salehyan 2008, 317). Variations in the effectiveness of these coping mechanisms might explain the fact that climate change poses a potential security threat in some regions, while other areas do not seem to be affected at all. In this sense, "economic, political and social factors determine how countries handle resource scarcity. Wealthy and democratic countries are likely to be more capable both to adapt to resource scarcity and to mitigate conflict" (Raleigh and Urdal 2007, 675).

While the previous points criticize the deterministic character of arguments within the climate-conflict nexus but admit that climate change can in fact act as a multiplier of violent conflicts under certain conditions, there are alternative narratives. Some research even states that climate change should not only be disregarded as contributing to conflicts, but on the contrary is supposed to strengthen peace. A strong advocate of this theory is Erik Gartzke, who states that critical challenges for citizens and policymakers – such as climate change – further economic development and international cooperation (Gartzke 2012). When applying climate adaption and mitigation measures, societies are thus believed to interact in a more peaceful manner.

To conclude the preceding literature review of theories supporting or rejecting the climate-conflict nexus, there is no academic consensus on the relation between rising conflict potentials and environmental degradation through climate change. However, a deterministic perspective on climate change—unreflectively describing it as a direct cause of violent conflict—is widely present within political discussions in the international community. One reason for this might be that the potential of climate change to exacerbate violent conflicts can be used as a convincing argument in public debates and often serves as a rhetorical device for politicians and social activists to support their claims and policy proposals for increased environmental protection (Salehyan 2008, 317f.). In order not to follow this determinism, the present research note holds back general assumptions but rather focuses on one specific case which will be analysed in the following section.

Case Study: Environmental Security in North-Western Kenya

> "Kenya has witnessed an alarming upsurge in the incidence and severity of extreme climatic events caused by climate change. […] In Northern Kenya, longer and more frequent droughts continue to ravage pastoralist populations. […] With over 70 percent of Kenyans dependent for their livelihoods on agriculture, the long-term health of the country's environment and natural resources are critical to its very survival" (Kenyan Ministry of Environment and Mineral Resources 2009, cited after Campbell et al. 2009, 7).

As stated in an announcement of the National Climate Change Response Strategy (NCCRS), published in 2010, Kenya is highly sensitive to environmental transformations. Especially affected are its North-Western regions Turkana and Pokot which were therefore selected as the research subject of this analysis. Since the two counties are characterized by high temperatures, low precipitation levels and arid to semi-arid climate, landscapes are mainly consisting of shrubland, savanna and desert (Schilling et al. 2014, 246). Most of the people in Turkana and Pokot are pastoralists, earning their living by cattle herding. Their

livelihood is therefore strongly dependent on natural resources, such as agricultural land and sufficient rainfall, which is needed to feed and maintain their livestock (Njiru 2012, 514). However, these already dry areas are extremely vulnerable when it comes to changes in climate and precipitation. Thus, climate change has recently led to severe environmental and social transformations in North-Western Kenya. The following section studies ways these changes are affecting Kenyan land and life, and climate adaption measures of the country and its inhabitants towards the occurring transformations. Moreover, it attempts to answer the question of whether climate change is a cause of conflict in Kenya.

Effects of Climate Change on Kenyan Land and Life

In North-Western Kenya two major impacts of climate change can be observed in the last decades: temperature rise and rainfall variability. Several scientific reports found that there has been an increase in temperature by approximately 1°C from 1960 until 2010 in Kenya (Campbell et al. 2009, 6; McSweeney et al. 2008, 2). Future projections assume that at the current state of climate change adaptation and mitigation, temperatures in East Africa will rise by 2.8°C by 2060 and by 4.5 °C by 2100 (Schilling et al. 2014, 243). As a result of the country's warming, "the frequency and intensity of drought periods in northern Kenya does appear to have been increasing: the region recorded 28 major droughts in the last century, four of which have occurred in the last decade" (Campbell et al. 2009, 7f.). A higher rate of droughts has large impacts on the pastoralist communities in Turkana and Pokot. Since dry periods lead to natural resource scarcities, pastoralists suffer from livestock loss, which is even more difficult to compensate and to recover from if intervals between droughts are getting shorter (Schilling et al. 2014, 245).

This development is only intensified through the effects of a higher variation in precipitation. In fact, no significant change in the annual amount of rainfall can be observed statistically since the 1960s. However, the precipitation levels during rain seasons—from March to May and October to December—has increased, while the quantity of rainfall between those wet seasons has decreased (Schilling et al. 2014, 243f.). As heavy rainfall events are projected to arise more often in the future, scientists predict an overall increase in the proportion of annual rainfall in Kenya on a range of 1 to 13 percent by 2090 (McSweeney et al. 2008, 3). It could be assumed that the environment as well as pastoralists and their livestock benefit from higher rainfall amounts since water scarcity is reduced. However, as mentioned above, rainfall occurs unequally over the course of the year. As a matter of fact, "strong rainfall events followed by extended dry periods increase

the likelihood of floods and droughts, especially in combination with the strong warming trend" (Schilling et al. 2014, 245).

Connecting these observations to Homer-Dixon's scarcity theory presented in the literature review, the effects of climate change in North-Western Kenya can be considered to further the likelihood of violence. As most people rely on rain-fed agriculture to ensure their livelihoods, transformations in the frequency of droughts and the availability of water are likely to cause resource conflicts. This connection is also stated in a report by the International Institute of Sustainable Development (IISD), which argues that "on the one hand, climate change is one of a range of factors causing natural resource scarcity and competition; on the other, natural resource scarcity and competition is one of a range of factors causing conflict" (Campbell et al. 2009, 12). Emphasizing that climate change, however, is only one among several factors contributing to resource scarcity and thus to conflict, the ISSD's observations also reflects the critical position towards the deterministic designation of climate change as a cause of conflict presented in this research note. However, conflicts over natural resources in Kenya's North-Western regions Turkana and Pokot, such as violent attempts to gain the control over water sources, have strong potential to threaten food security on the one side and human safety on the other (Campbell et al. 2009, 10).

Moreover, conflicts between different ethnic groups in Turkana and Pokot are more likely to arise due to the effects of climate change. Environmental scientist Janpeter Schilling, who conducted several researches on the linkage of climate change and conflict in North-Western Kenya, found a strong interrelation between environmental transformations and increasing violent raids. Even though pastoralist raiding has a long history between the communities in Turkana and Pokot, incidents appear to increase with rising temperatures and changes in precipitation (Schilling et al. 2014, 248ff.). Scholars supporting the theory that climate change contributes more to peace than it causes or exacerbates violence argue that raiding in pastoral communities is less likely during droughts. According to this argumentation, pastoralists have less economic incentive to steel cattle in dry years because feeding options are limited and might be even insufficient for one's own herd (Theisen 2012, 84). Being aware of such theories, Schilling states:

> "In regular years with sufficient rain, raiding is mostly conducted before and during the rainy seasons because animals are healthier, they can travel longer distances and raiders find cover for their attacks. But when rains partly or completely fail and a certain threshold of resource scarcity is reached, raids are conducted despite less fortunate raiding conditions. The raids during dry periods

> do not primarily serve the purpose of restocking but rather aim at gaining or securing control over scarce pasture and water resources" (Schilling et al. 2014, 256).

According to Schilling's research, violent conflicts between pastoralists in Turkana and Pokot are even more recurrent in recent years due to both a higher frequency of droughts leading to resource scarcity on the one hand and increasing precipitation during rain seasons leading to temporary resource rich environments on the other hand. Having analysed the effects of climate change on Kenyan land and life, I conclude that climate change clearly contributes to the likelihood of conflicts in this particular case. However, it is not the only cause and rather acts as a multiplier of already existing violent tensions in Turkana and Pokot.

Climate Adaptation and Conflict Handling

To get an overall image of how conflict in North-Western Kenya is affected by climate change, it is important to look at climate adaptation and mitigation measures and evaluate in which ways they can contribute to the peaceful handling of conflicts. In Turkana and Pokot, a high level of local adaptation procedures can be observed while the central government fails to take efficient action and to provide security (Eriksen and Lind 2009, 830).

As a result of climate change-induced environmental changes presented in the previous chapter, pastoral communities started to diversify their livelihoods, "developed a highly flexible social system and an elaborate set of both individual and collective-based survival strategies" (Omolo 2010, 89). Such strategies include for example the expansion of grazing ranges and an adjustment of the wandering of herds and are therefore dependent on enhanced cooperation and interaction with neighbouring groups. Increased interactions might strengthen friendly relationships between different communities, when having "a cooperative character in the form of reciprocal grazing arrangements" (Schilling et al. 2014, 253). However, they are also likely to contribute to intercommunal conflict, since the expansion of grazing areas is perceived as invasive by groups that are not engaged in grazing associations (Schilling et al. 2014).

Despite high internal efforts to respond to the threat of raiding through the social organization of resource use, an increase in conflicts cannot be prevented without any form of governmental engagement. In fact, the Kenyan government is well aware of the threats of climate change. This becomes especially clear when looking at the earlier mentioned National Climate Change Response Strategy (NCCRS), which shows not only the intention to deal with climate change-induced environmental destruction and resource scarcity, but

also presents an explicit policy approach (GoK 2010). Moreover, the country is constantly working on the implementation of adaption and mitigation measures within the framework of its National Climate Change Action Plans (NCCAPs) (GoK 2013; GoK 2018). While NCCAP I (2013-2017) largely focused on the reduction of carbon emissions and mitigation actions like reforestation, NCCAP II (2018-2022) aims to reach change on the legislative level by the development of a policy and regulatory framework in order to better equip government and stakeholders for the control and elimination of potential causes of climate change.

However, government strategies are so far failing to effectively reach the county level where support would be needed for the creation of legislation appropriate to the respective local contexts. On the contrary, pastoralist communities have been significantly marginalised by the central government when it comes to economic and political adaptation strategies (Schilling et al. 2014, 246). The political marginalisation of the regions Turkana and Pokot exists not only since environmental security challenges in recent years but is deeply manifested in the country's structure and the government's negative overall attitude towards pastoralism (Eriksen and Lind 2009, 831). For example, the national government fails to supply basic civil services like education, healthcare provisions and insurances to the North-Western regions. As pastoralists suffer from substantial livelihood losses due to an increased frequency of droughts, the implementation of a social security system could help to compensate environmental scarcities (Schilling et al. 2014, 253). But since government support is non-existent, pastoralists might feel even greater pressure to secure resources for their livestock through raiding. Moreover, the lack of governmental institutions can be seen as another conflict furthering aspect:

> "In general, enforcement of the rule of law in these areas is weak and access to justice is limited. In this context, conflict actors are able to operate relatively freely and with a high degree of impunity. Communities often defend themselves by mobilising and arming their youth, increasing the number of conflict actors and making the use of violence to resolve disputes far more likely" (Campbell et al. 2009, 6).

Being limited in their power to implement the compliance of official grazing rules and regulations for the use of resources, local capacities are largely left alone in dealing with the effects of climate change. A successful adaptation to recent environmental transformations which would decrease the potential of violent conflicts, however, appears to be only possible through cooperation between the national and the local level.

Conclusion

The aim of this research note was to contribute to literature on the climate-conflict nexus through an in-depth case study on North-Western Kenya. The underlying research question has been 'to what extent and under which conditions can climate change be regarded as a significant contributor to violent conflicts?' By first reviewing this nexus from a theoretical perspective, the controversy of the research topic became obvious. While scholars like Homer-Dixon argue that there is a strong link between environmental transformations and the eruption of violence, others stress the importance of additional factors like social and political structures. Connections drawn in scientific literature primarily focus on the effects of rising temperatures and variations in rainfall since several studies have shown that such changes facilitate the likelihood of droughts and floods which contribute to severe resource scarcities. Whether climate change-induced resource scarcities are in fact the sole cause for the eruption of violent conflict is debatable, and in academia, there is no consensus on this question yet.

Instead of following deterministic approaches on the climate-conflict nexus, this research note argues that environmental transformations caused by climate change are multipliers of existing sociopolitical tensions. As such tensions exist in many cohabiting communities but are often latent and thus not visible, the effects of climate change can also act as triggers for the eruption of violence. In this sense, climate change is indeed contributing to conflict but rarely as a direct cause. In addition, IGOs and NGOs working in affected regions are often cautious in naming climate change as a decisive factor for violence because downplaying internal causes of conflict, for example, hostile behaviour, could reinforce conflicts.

The analysis of environmental security challenges in North-Western Kenya, conducted in the second part of this note, supports the perception of climate change as a conflict multiplier. As Kenya's rural population largely relies on rain-fed agriculture to secure their livelihoods, the slightest changes in climate and ensuing transformations of environmental conditions can have intense effects on the people's propensity to violence. Tensions between the pastoralist communities in Turkana and Pokot are deeply rooted in history and are therefore likely to escalate under extreme conditions. Moreover, the North-Western part of Kenya is generally marginalised by the country's government and receives no support in adapting to the effects of climate change. In conclusion, this case suggests that climate change is enhancing existing conflict potential on the one hand, while on the

other hand the simultaneous lack of governmental coping mechanisms is leading to the eruption of conflicts.

Bringing together the theoretical examination of the climate-conflict nexus and the example of climate-affected intensified pastoral conflicts in Kenya, this research note finds that climate change contributes to conflict to a limited extent but is never the sole cause. The intensity of its effects strongly depends when there are co-existing environmental, social, political and even cultural circumstances in each specific region and its communities. Areas that are already suffering from environmental scarcities as well as poor governance are more likely to turn violent because of the multiplier effect of climate change than resource rich regions with a stable government and political system. As a consequence, countries in the Global South are, in most cases, more vulnerable to climate change due to their geographic location and lower governmental adaptation and mitigation capacities. On the contrary, countries in the Global North are in general able to compensate changes in climate and less dependent on natural resources in order to secure their living. Arguments of scientists and politicians coming from less-affected countries, which deny the potential of climate change to aggravate violent conflicts, thus have to be seen critically (Lewandowsky et al. 2015). However, there are also governments from states in the Global South, such as India or Mozambique, who oppose the idea of climate change as a conflict multiplier even if there is significant evidence. It can thus be said that states in general tend to neglect the effects of climate change, if mitigation measures are not consistent with their current policy lines.

This research note analysed the increase in violent conflicts through climate change-induced resource scarcity. As already mentioned, other interesting factors to study within the climate-conflict nexus would be the rise of sea-levels as well as the increase of natural disasters. The investigation of these additional consequences of climate change would also open up another research area—namely South East Asia, a region extremely vulnerable to sea-level rise and natural disasters. Further research could also elaborate and compare different aspects of climate change and their effects on the likelihood of violence and conflicts. Moreover, the question how to efficiently handle conflicts related to climate change remains open for further studies.

References

Anderson, Craig A. 2001. "Heat and Violence." *Current Directions in Psychological Science* 10, no. 1: 33–38. https://doi.org/10.1111%2F1467-8721.00109.

Bächler, Günther. 1998. "Why Environmental Transformation Causes Violence: A Synthesis." *Environmental Change and Security Project Report* 4, no. 1: 24–44.

Barnett, Jon, and W. Neil Adger. 2007. "Climate Change, Human Security and Violent Conflict." *Political Geography* 26, no. 6: 639–655. https://doi.org/10.1016/j.polgeo.2007.03.003.

Bennett, Andrew. 2008. "Case Study Methods: Design, Use, and Comparative Advantages." In *Models, Numbers, and Cases: Methods for Studying International Relations*, edited by Detlef F. Sprinz and Yael Wolinsky-Nahmias, 19–55. Ann Arbor: University of Michigan Press.

Burke, Marshall B., Edward Miguel, Shanker Satyanath, John A. Dykema, and David B. Lobell. 2009. "Warming Increases the Risk of Civil War in Africa." *Proceedings of the National Academy of Sciences* 106, no. 49: 20670–20674. https://doi.org/10.1073/pnas.0907998106.

Campbell, Ivan, Alec Crawford, Sarah Dalrymple, and Rob Craig. 2009. *Climate Change and Conflict. Lessons from Community Conservancies in Northern Kenya*. Winnipeg: International Institute for Sustainable Development.

Eriksen, Siri, and Jeremy Lind. 2009. "Adaptation as a Political Process: Adjusting to Drought and Conflict in Kenya's Drylands." *Environmental Management* 43, no. 5 (May): 817–835. https://doi.org/10.1007/s00267-008-9189-0.

Fjelde, Hanne, and Nina von Uexkull. 2012. "Climate Triggers: Rainfall Anomalies, Vulnerability and Communal Conflict in Sub-Saharan Africa." *Political Geography* 31, no. 7: 444–453. https://doi.org/10.1016/j.polgeo.2012.08.004.

Gartzke, Erik. 2012. "Could Climate Change Precipitate Peace?" *Journal of Peace Research* 49, no. 1: 177–192. https://doi.org/10.1177%2F0022343311427342.

Gleditsch, Nils Petter. 2007. "Environmental Change, Security, and Conflict." In *Leashing the Dogs of War. Conflict Management in a Divided World*, edited by Chester A. Crocker, Fen Osler Hampson, and Pamela Aall, 177–195. Washington: United States Institute of Peace Press.

Gleditsch, Nils Petter. 2012. "Whither the Weather? Climate Change and Conflict." *Journal of Peace Research* 49, no. 1: 3–9. https://doi.org/10.1177%2F0022343311431288.

GoK, Government of Kenya. 2010. *National Climate Change Response Strategy*. Nairobi: Ministry of Environment and Forestry. Accessed March 1, 2019. https://www.adaptation-undp.org/sites/default/files/downloads/kenya-national_climate_change_response_strategy.pdf.

GoK, Government of Kenya. 2013. *National Climate Change Action Plan (Kenya): 2013–2017*. Nairobi: Ministry of Environment and Forestry. Accessed March 1, 2019. https://cdkn.org/wp-content/uploads/2013/03/Kenya-National-Climate-Change-Action-Plan.pdf.

GoK, Government of Kenya. 2018. *National Climate Change Action Plan (Kenya): 2018–2022*. Nairobi: Ministry of Environment and Forestry. Accessed March 1, 2019. http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2018/10/8737.pdf.

Homer-Dixon, Thomas F. 1994 "Environmental Scarcities and Violent Conflict: Evidence from Cases." *International Security* 19, no. 1: 5-40. https://doi.org/10.2307/2539147.

Homer-Dixon, Thomas. 2007. "Terror in the Weather Forecast." *The New York Times*, April 24, 2017. https://www.nytimes.com/2007/04/24/opinion/24homer-dixon.html.

Lewandowsky, Stephan, Naomi Oreskes, James S. Risbey, Ben R. Newell, and Michael Smithson. 2015. "Seepage: Climate change denial and its effect on the scientific community." *Global Environmental Change* 33: 1–13. https://doi.org/10.1016/j.gloenvcha.2015.02.013.

McSweeney, Carol, Mark New, and Gil Lizcano. 2008. "Country Profiles: Kenya." UNDP Climate Change Country Profiles. Accessed February 27, 2019. https://www.geog.ox.ac.uk/research/climate/projects/undp-cp/.

Njiru, Beth Njeri. 2012. "Climate Change, Resource Competition, and Conflict amongst Pastoral Communities in Kenya." In *Climate Change, Human Security and Violent Conflict. Challenges for Societal Stability*, edited by Jürgen Scheffran, Michael Brzoska, Hans Günter Brauch, Peter Michael Link, and Janpeter Schilling, 513–527. Berlin/Heidelberg, Germany: Springer-Verlag. https://doi.org/10.1007/978-3-642-28626-1.

Omolo, Nancy A. 2010. "Gender and Climate Change-Induced Conflict in Pastoral Communities: Case Study of Turkana in North-Western Kenya." *African Journal on Conflict Resolution* 10, no. 2: 81–102. https://doi.org/10.4314/ajcr.v10i2.63312.

Raleigh, Clionadh, and Henrik Urdal. 2007. "Climate Change, Environmental Degradation and Armed Conflict." *Political Geography* 26, no. 6 (August): 674–694. https://doi.org/10.1016/j.polgeo.2007.06.005.

Salehyan, Idean. 2008. "From Climate Change to Conflict? No Consensus Yet." *Journal of Peace Research* 45, no. 3: 315–326. https://doi.org/10.1177%2F0022343308088812.

Schilling, Janpeter, Moses Hillary Akuno, Jürgen Scheffran, and Thomas Weinzieri. 2014. "On Raids and Relations: Climate Change, Pastoral Conflict and Adaptation in North-Western Kenya." In *Conflict-Sensitive Adaptation to Climate Change in Africa*, edited by Salome Bronkhorst and Urmilla Bob, 241–265. Berlin: Berliner Wissenschaftsverlag.

Theisen, Ole Magnus. 2012. "Climate Clashes? Weather Variability, Land Pressure, and Organized Violence in Kenya, 1989–2004." *Journal of Peace Research* 49, no. 1: 81–96. https://doi.org/10.1177%2F0022343311425842.

Theisen, Ole Magnus, Nils Petter Gleditsch, and Halvard Buhaug. 2013. "Is Climate Change a Driver of Armed Conflict?" *Climatic Change* 117, no. 3: 613–625. https://doi.org/10.1007/s10584-012-0649-4.

van Baalen, Sebastian, and Malin Mobjörk. 2016. *A Coming Anarchy? Pathways from Climate Change to Violent Conflict in East Africa*. Stockholm: Stockholm University, Stockholm International Peace Research Institute & The Swedish Institute of International Affairs.