



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**CLIMATE CHANGE AND PEACEBUILDING:
THE EFFECTS OF ENVIRONMENTAL HAZARDS
ON UNITED NATIONS MISSIONS IN MALI AND SOMALIA**

by

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June 2023

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REPORT DOCUMENTATION PAGE			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE June 2023	3. REPORT TYPE AND DATES COVERED Master's thesis	
4. TITLE AND SUBTITLE CLIMATE CHANGE AND PEACEBUILDING: THE EFFECTS OF ENVIRONMENTAL HAZARDS ON UNITED NATIONS MISSIONS IN MALI AND SOMALIA			5. FUNDING NUMBERS	
6. AUTHOR(S) Oliver Engels				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release. Distribution is unlimited.			12b. DISTRIBUTION CODE A	
13. ABSTRACT (maximum 200 words) The effects of climate change are increasingly evident. This thesis analyzes how climate change affects United Nations (U.N.) peacebuilding missions. Through case studies of the Multidimensional Integrated Stabilization Mission in Mali (MINUSMA) and the United Nations Assistance Mission in Somalia (UNSOM), this thesis identifies how climate change amplifies environmental hazards that work against peacebuilding by undermining security and development. The case studies explore how the U.N. discusses climate change in the respective missions' official documents. Additionally, the analysis uses economic development and governance as proxies for assessing the missions' effectiveness at addressing climate change effects as part of their goal of building sustainable peace. The thesis also revisits the cases to analyze how climate change affects peacebuilding on the day-to-day basis of operations execution. The thesis finds that climate change impedes peacebuilding missions' attempts to create legitimate institutionalized governance and stimulate economic growth. Additionally, climate change creates a capability gap that undermines the execution of peacebuilding operations. The findings underscore the need for climate change-adapted mandates and appropriately equipped "blue helmets" that actively integrate the impacts of climate change into peacebuilding.				
14. SUBJECT TERMS environmental security, climate change, peacebuilding, Africa, Mali, Somalia, Multidimensional Integrated Stabilization Mission in Mali, MINUSMA, United Nations Assistance Mission in Somalia, UNSOM, governance, development, operations, United Nations, U.N.			15. NUMBER OF PAGES 151	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UU	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18

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OF ENVIRONMENTAL HAZARDS ON UNITED NATIONS
MISSIONS IN MALI AND SOMALIA**

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Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
(MIDDLE EAST, SOUTH ASIA, SUB-SAHARAN AFRICA)**

from the

**NAVAL POSTGRADUATE SCHOOL
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ABSTRACT

The effects of climate change are increasingly evident. This thesis analyzes how climate change affects United Nations (U.N.) peacebuilding missions. Through case studies of the Multidimensional Integrated Stabilization Mission in Mali (MINUSMA) and the United Nations Assistance Mission in Somalia (UNSOM), this thesis identifies how climate change amplifies environmental hazards that work against peacebuilding by undermining security and development. The case studies explore how the U.N. discusses climate change in the respective missions' official documents. Additionally, the analysis uses economic development and governance as proxies for assessing the missions' effectiveness at addressing climate change effects as part of their goal of building sustainable peace. The thesis also revisits the cases to analyze how climate change affects peacebuilding on the day-to-day basis of operations execution.

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LIST OF ACRONYMS AND ABBREVIATIONS

AMISOM	African Union Mission in Somalia
AOR	area of responsibility
AU	African Union
CCA	climate change adaptation
CNA	Center for Naval Analysis
CPIA	Country Policy and Institutional Assessment
DPKO	United Nations Department of Peacekeeping Operations
DPO	United Nations Department of Peace Operations
DPPA	Department of Political and Peacebuilding Affairs
ECOWAS	Economic Community of West African States
FEWSNET	Famine Early Warning Systems Network
FGS	Federal Government of Somalia
FSI	Fragile State Index
FSNAU	Food Security and Nutrition Analysis Unit
GDP	Gross Domestic Product
HDI	Human Development Index
ICRC	International Committee of the Red Cross
IDA	International Development Association
IDP	Internally Displaced Person
ILO	International Labour Organization
MINUSMA	Multidimensional Integrated Stabilization Mission in Mali
ND-GAIN	Notre Dame Global Adaptation Initiative
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OECD	Organization for Economic Co-operation and Development
PCRS	United Nations Peacekeeping Capability Readiness System
SIPRI	Stockholm International Peace Research Institute

TCC	Troop Contributing Country
U.N.	United Nations
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNSOM	United Nations Assistance Mission in Somalia
USAID	United States Agency for International Development
WHO	World Health Organization

ACKNOWLEDGMENTS

Learning is experience. Everything else is just information.

—Albert Einstein

First and foremost, I would like to thank my family for joining me in the venture of this intercontinental journey. The love, trust, and support of my wife and our two wonderful daughters are the fundamental basis for the success of this project. Even though my ladies are used to change as a military family, the step to the U.S. was a great challenge for all of them. I am all the happier, prouder, and more grateful that it has turned out to be a great experience for all of us.

In addition, I would like to express my special thanks to my two advisors, Professor Emily Meierding and Professor Jessica Piombo. Their experience, expertise, and also empathy were indispensable resources in writing this thesis. Whenever I encountered hurdles in terms of content, argumentation, language, emotion, or perseverance, they were there for me and helped to make this thesis a successful learning experience.

Furthermore, the tireless support of the staff at the Graduate Writing Center and the Dudley Knox Library here at NPS, as well as relatives, friends, and comrades back home in Germany, must be highlighted. Without the many acts of assistance ranging from taking care of our house, to meeting my need for nerve food, indulgence for forgotten phone calls and birthdays, as well as proofreading, technical and linguistic advice in writing the paper, this would not have been possible in the time available. I hope that everyone at home will gladly welcome us back soon, despite the burdens.

Lastly, I would like to thank everyone in the international community here in Monterey. I would like to thank my American and international comrades for discussing class content and our respective lives in general, DLI staff for the Proficiency Badge experience with U.S. soldiers, the Wednesday Night Laundry Runners for their patience with me when I needed a break from desk work, and many more unnamed but not forgotten people I had the pleasure to meet here. They all gave me a great experience that I will not forget. They have broadened my horizons and opened up the world for me a bit.

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I. INTRODUCTION

“We are on a fast track to climate disaster”¹: United Nations (U.N.) Secretary-General António Guterres recently emphasized the dramatic development the world is facing. While governments struggle to meet climate goals, environmental hazards are increasing in intensity and frequency. In sub-Saharan Africa, this development adds up to a situation of structural weakness, government failure, and armed conflict. Peacebuilding operations are long striving for peace in weak states with multi-dimensional security risks, which include these intensifying environmental hazards. This thesis addresses the following question: How does climate change affect peacebuilding operations? The question is approached by studying the cases of Mali and Somalia, both sub-Saharan countries where U.N. missions have long attempted to solve intra-state conflict and where environmental hazards are already affecting states’ security. The thesis aims to identify the environmental impacts on peacebuilding, not only at the strategic level in achieving sustainable peace, but also at the operational level where environmental hazards are affecting day-to-day peacebuilding operations.

A. A BETTER UNDERSTANDING OF CLIMATE CHANGE IMPACTS

Climate change is having an ever-greater impact globally. Notably, its corrosive effect on security highlights the increasing importance of considering climate change in peacebuilding. Nowadays, it is widely accepted that environmental factors are conflict drivers and multipliers.² Scholars observe that “transformation induced by climate change can sustain or exacerbate conflict dynamics just as it can create new ones.”³ And environmental transformation is no longer a marginal issue: Human behavior is

¹ António Guterres, *Secretary-General’s Video Message on the Launch of the Third IPCC Report* (New York: United Nations Secretary-General, 2022), <https://www.un.org/sg/en/content/sg/statement/2022-04-04/secretary-generals-video-message-the-launch-of-the-third-ipcc-report-scroll-down-for-languages>.

² OECD, “The Outlook for Fragile States,” in *Fragile States: Resource Flows and Trends, Conflict and Fragility* (Paris: OECD Publishing, 2013), 97, https://read.oecd-ilibrary.org/development/fragile-states_9789264190399-en.

³ Bruno Charbonneau and Maxime Ricard, eds., *Routledge Handbook of African Peacebuilding* (Abingdon, Oxon; New York, NY: Routledge, 2022), 9, <https://doi.org/10.4324/9780429060038>.

dramatically changing our planet's climate.⁴ Moreover, experts are highly confident that the impacts of human-induced climate change are getting increasingly severe and often irreversible.⁵ Consequently, the discussion on countermeasures is broadening from mitigation to include adaptation, acknowledging that some amount of climate change can no longer be avoided.

The area of operations of the largest U.N. missions is massively affected by climate change. In a report for the Stockholm International Peace Research Institute (SIPRI), Florian Krampe observes that “of the ten countries that host the most multilateral peace operations personnel, eight are located in areas highly exposed to climate change.”⁶ Seven of these countries lie on the African continent. Peacebuilding already often sits between two stools: on the one hand, the need for an immediate response to violent threats, and on the other hand, the effort for sustainable development towards lasting peace. Climate change adds an extra dimension that is not yet comprehensively approached. In fact, the United Nations Environmental Program (UNEP) found that environmentally related conflicts “are twice as likely to relapse into conflict within the first five years.”⁷ If peacebuilding does not adapt to this new dimension, it may fail to reach its goal.

During the latest review process of the U.N.'s peacebuilding architecture, major U.N. organizations stressed the growing importance of taking climate change's effects into

⁴ Gavin L. Foster, Dana L. Royer, and Daniel J. Lunt, “Future Climate Forcing Potentially without Precedent in the Last 420 Million Years,” *Nature Communications* 8 (April 2017): 14845, <https://doi.org/10.1038/ncomms14845>.

⁵ H.O. Rama et al., *Climate Change 2022: Impacts, Adaptation and Vulnerability Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge, UK: Cambridge University Press, 2022, <https://doi.org/10.1017/9781009325844>).

⁶ Florian Krampe, “Climate Change, Peacebuilding and Sustaining Peace” (Stockholm International Peace Research Institute, June 2019), https://sipri.org/sites/default/files/2019-06/pb_1906_ccr_peacebuilding_2.pdf.

⁷ United Nations Environment Programme, ed., *From Conflict to Peacebuilding: The Role of Natural Resources and the Environment*, Policy Paper, no. 1 (Nairobi, Kenya: United Nations Environment Programme, 2009), 13, https://www.iisd.org/system/files/publications/conflict_peacebuilding.pdf.

account in peacebuilding activities.⁸ Their report asks for a better understanding of the broader political and social impact of environmental hazards and calls for a more comprehensive and better-equipped U.N. framework to deal with the deteriorating environmental situation in the direction of achieving and sustaining peace. The request becomes increasingly urgent as climate effects grow in intensity and quantity.

This thesis responds to that recommendation by examining the effects of climate change on peacebuilding efforts in relevant case studies. The consequences still need to be better understood to adapt the U.N. peacebuilding toolkit on two levels: first, to better target climate-related root causes in strategic peacebuilding design, and second, to maintain the readiness and operational capability of peacebuilding forces in challenging environmental conditions. This thesis addresses a gap between the perception of climate change driving conflicts and peacebuilding trying to solve these conflicts. Thereby, this paper tries to help adjust the architecture of peacebuilding missions to better cope with these hazards and identify means to success in a deteriorating environment.

B. LITERATURE REVIEW

This review examines four different groups of literature to contextualize the research question. The first group examines how climate change can contribute to armed conflict. It evaluates climate change as a root cause of armed conflict, which must be considered in solving conflicts and preventing backsliding. The second group deals with peacebuilding in general: defining it and examining what researchers have identified as pathways or shortfalls for success. The third group focuses more narrowly on the role that environmental factors currently play in peacebuilding. These three sets of literature deliver the background for this thesis' first research focus: how climate change is affecting peacebuilding strategically, as a conflict management enterprise. They are followed by the examination of a fourth set of literature, which investigates climate change's operational

⁸ Department of Political and Peacebuilding Affairs (DPPA), United Nations Development Programme (UNDP), and United Nations Environment Programme (UNEP), "Thematic Paper on Climate Security," Thematic Papers on the 2020 Review of the U.N. Peacebuilding Architecture, 2020, https://www.un.org/peacebuilding/sites/www.un.org.peacebuilding/files/200326_thematic_paper_on_climate_security_v2_4.pdf.

impact on peacekeeping missions. This fourth part provides background for the thesis's second research focus: how climate change is affecting peacebuilding missions' operations on a day-to-day basis.

1. Climate Change and Armed Conflict

The relationship between environmental factors and insecurity has received increasing attention over the last few decades.⁹ In the 1990s, researchers discussed whether environmental factors should even be considered security issues.¹⁰ However, even though the early gloomy Malthusian forecasts on overpopulation and global starvation have not materialized,¹¹ the role of environmental factors in insecurity is now well established. The discussion today has become focused around weighing specific environmental factors against other influences and gaining a better understanding of how environmental factors are connected to insecurity. With regard to this thesis's scope on peacebuilding in Africa, this subsection does not examine the whole spectrum of insecurity but concentrates on scholarly explanations of how climate change causes intra-state armed conflict.

In one causal pathway, climate change erodes people's agriculturally based livelihoods. Leif Ohlsson relates environmental factors to poverty issues and argues that the loss of livelihood acts as an important conflict driver in what he calls "livelihood conflicts": i.e., environmentally induced intra-state conflict based on the loss of economic

⁹ Thomas F. Homer-Dixon, "Environmental Scarcities and Violent Conflict: Evidence from Cases," *International Security* 19, no. 1 (1994): 5–40, <https://doi.org/10.2307/2539147>; Tor A. Benjaminsen, "Does Supply-Induced Scarcity Drive Violent Conflicts in the African Sahel? The Case of the Tuareg Rebellion in Northern Mali," *Journal of Peace Research* 45, no. 6 (2008): 819–36, <http://www.jstor.org/stable/27640771>; Colin H. Kahl, "Population Growth, Environmental Degradation, and State-Sponsored Violence: The Case of Kenya, 1991–93," *International Security* 23, no. 2 (1998): 80–119, <https://doi.org/10.2307/2539380>; Marshall B. Burke et al., "Warming Increases the Risk of Civil War in Africa," *Proceedings of the National Academy of Sciences* 106, no. 49 (December 8, 2009): 20670–74, <https://doi.org/10.1073/pnas.0907998106>.

¹⁰ Marc A. Levy, "Is the Environment a National Security Issue?," *International Security* 20, no. 2 (1995): 35–62, <https://doi.org/10.2307/2539228>; Peter H. Gleick, "Environment and Security: The Clear Connections," *Bulletin of the Atomic Scientists* 47, no. 3 (April 1991): 16, <https://www.proquest.com/docview/197802770/abstract/81863B77148142B0PQ/1>; Daniel Deudney, "The Case Against Linking Environmental Degradation and National Security," *Millennium* 19, no. 3 (December 1, 1990): 461–76, <https://doi.org/10.1177/03058298900190031001>; Nils Petter Gleditsch, "Armed Conflict and the Environment: A Critique of the Literature," *Journal of Peace Research* 35, no. 3 (1998): 381–400, <https://www.jstor.org/libproxy.nps.edu:2048/stable/424942>.

¹¹ Paul R. Ehrlich, *The Population Bomb* (New York, NY: Ballantine Books, 1968).

bases.¹² The contradiction between environmental degradation and aspirations for sustainable development creates a dilemma, especially in agriculture-dominated economies.

In his recently published volume, Joshua Busby argues that climate change is more likely to cause conflict in states with weak state capacity and non-inclusive institutions.¹³ This argument is particularly relevant to this thesis's investigation of peacebuilding because rebuilding state capacity through institutions that represent and serve the population is one key element of peacebuilding's effort toward sustainable conflict resolution. While Busby concludes that states' institutional weakness is a mediating factor, this thesis explores whether hazardous environmental conditions and weak institutions mutually reinforce their negative influence toward insecurity instead of just collinearly driving conflict.

In recent years, states and intergovernmental organizations have also recognized the links between climate change and political instability. In 2015, the G7 states commissioned a report that strongly recommends they take concrete action against climate-related security issues:

Climate change is a global threat to security in the 21st century. We [the G7] must act quickly to limit the future risks to the planet we share and to the peace we seek. ... Climate change will stress the world's economic, social, and political systems. Where institutions and governments are unable to manage the stress or absorb the shocks of a changing climate, the risks to the stability of states and societies will increase.¹⁴

¹² Leif Ohlsson, *Livelihood Conflicts: Linking Poverty and Environment as Causes of Conflict*, SE-105 25 (Stockholm: Swedish International Development Agency, 2003), <https://www.sida.se/en/publications/livelihood-conflicts-linking-poverty-and-environment-as-causes-of-conflict>.

¹³ Joshua W. Busby, *States and Nature: The Effects of Climate Change on Security*, The Politics of Climate Change (Cambridge, United Kingdom ; New York, NY: Cambridge University Press, 2022). This volume's findings are based on numerous comparative case studies.

¹⁴ Lukas Rüttinger et al., "A New Climate for Peace: Taking Action on Climate and Fragility Risks," An independent report commissioned by the G7 members (Berlin, Germany: Printprinz GmbH, 2015), vii, https://climate-diplomacy.org/sites/default/files/2020-11/NewClimateForPeace_FullReport_small_0.pdf.

The report identifies seven global compound security risks by which climate change will drive instability.¹⁵ Three of these risks—local resource competition, livelihood insecurity and migration, and unintended effects of climate policies—are the most relevant for the scope of this thesis because of their connection to peacebuilding endeavors: the first two risks are directly linked to peacebuilding’s efforts toward economic development and settlement of disputes, the last can be related to consequences of institution building.

From these risks, the report identifies three policy areas in which action must be taken: climate change adaptation, development and humanitarian aid, and peacebuilding.¹⁶ The report acknowledges the negative impact of climate change on peacebuilding efforts and recommends better planning, more structured financing, and better integration of climate-related risks into peacebuilding efforts and methods.

Another, more Africa-focused report by Adelphi, a European think tank for climate, environment, and development, evaluates three United States Agency for International Development (USAID) programs in the Horn of Africa and identifies five mechanisms linking environmental hazards to conflict risk:

1. reduced livelihood security,
2. escalation of tensions due to competition over scarce resources,
3. reinforced patterns of marginalization and exclusion,
4. increased migratory movements, and
5. fueling of terrorism and armed groups.¹⁷

In addition to presenting these mechanisms, the report recommends better climate resilience promotion in peacebuilding.¹⁸

¹⁵ Rüttinger et al., viii–x.

¹⁶ Rüttinger et al., xi–xiv.

¹⁷ Adelphi, “Pathways to Peace: Addressing Conflict and Strengthening Stability in a Changing Climate, Lessons Learned from Resilience and Peacebuilding in the Horn of Africa” (Washington, DC: United States Agency for International Development, January 2020), 21–22, https://www.adelphi.de/de/system/files/mediathek/bilder/2020_USAID-ATLAS-Project_Lessons-learned-from-resilience-and-peacebuilding-in-the-Horn-of-Africa.pdf.

¹⁸ Adelphi, 34–37.

The literature shows a consensus that, when people lose their livelihood because of climate-induced environmental hazards, other conflict risks are reinforced, and tensions are more likely to deteriorate into conflict. This development is most likely to happen in weak states with exclusive institutions. While people's loss of livelihood will further diminish state capacity through reduced tax revenues and higher demands (e.g., to deliver aid or cover migration issues), this escalation becomes a vicious circle. We can see a shift in literature from identifying environmental security risks as drivers or contributors to conflict toward recommendations for environmental peacebuilding. Still, the research lacks concrete suggestions on how to integrate climate change resilience and adaptation into peacebuilding.

2. Peacebuilding

Peacebuilding, along with other U.N. measures, is one path to the overarching goal of international peace and security.¹⁹ The U.N. defines peacebuilding as

a complex, long-term process of creating the necessary conditions for sustainable peace. Peacebuilding measures address core issues that affect the functioning of society and the state, and seek to enhance the capacity of the state to effectively and legitimately carry out its core functions.²⁰

U.N. Secretary-General Boutros-Ghali first introduced the concept in the 1990s as a post-conflict idea of avoiding the recurrence of violence and relapsing into conflict.²¹ It has developed from a change in the U.N.'s paradigm from "negative peace," focusing on stopping a conflict, to "positive peace," intending to create conditions for peace to be sustained after an international peace operation has ended.²²

¹⁹ United Nations, "Peacekeeping Terminology," United Nations Peacekeeping, accessed October 23, 2022, <https://peacekeeping.un.org/en/terminology>.

²⁰ United Nations, Definition of "Peacebuilding."

²¹ Boutros Boutros-Ghali, "An Agenda for Peace," A/47/277 S/24111 (United Nations Secretary General, June 17, 1992), #20-21, <http://un-documents.net/a47-277.htm>.

²² Alina Rocha Menocal, "State Building for Peace: A New Paradigm for International Engagement in Post-Conflict Fragile States?," *Third World Quarterly* 32, no. 10 (November 1, 2011): 1716–18, <https://doi.org/10.1080/01436597.2011.610567>.

Peacebuilding is one element of conflict management, along with preventive diplomacy, conflict prevention, peacemaking, peace enforcement, and peacekeeping.²³ Often these elements are not clearly divided from each other. Especially in backsliding conflicts, the phases are not processed sequentially but often happen simultaneously. This blending of phases leads peacebuilding into a dilemma between serving the needs of conflict-affected people in the short term and developing state capacity in the long term. Peacebuilding is nonetheless generally considered to be the latest phase of conflict management and resolution, as shown in Figure 1. Its components can be summarized into four core elements: (1) aid, (2) restoration, (3) economic development, and (4) prevention through training.

²³ Boutros-Ghali, “An Agenda for Peace.”

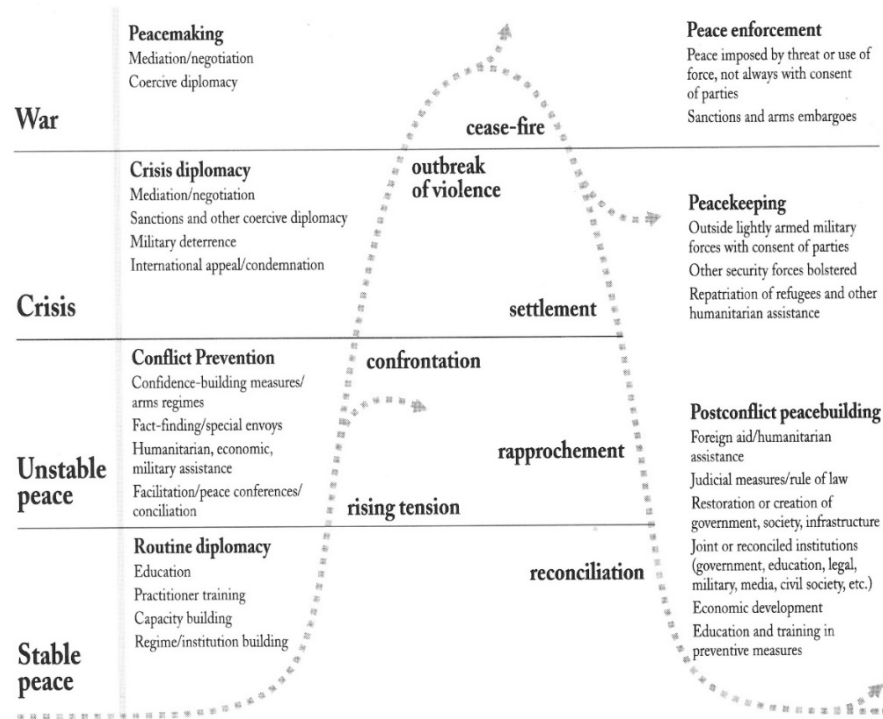


Figure 1. The Conflict Management Cycle.²⁴

To understand the impact of climate change on peacebuilding, it is essential first to know what causes peacebuilding's success and where research regularly identifies barriers to this success. Researchers have identified two prerequisites for success in U.N. peacebuilding operations: first, political support, both locally and among the veto powers of the Security Council; and second, conflict parties need to adapt their goals away from total individual success toward a beneficial compromise.²⁵ The second component is particularly important for the analysis of this thesis. If peacebuilding is to succeed, local parties must be able to see progress and a chance to achieve a better life through peace and cooperation instead of fighting. Although the necessity of a common belief in the compromise's success seems rather obvious, it is crucial to keep in mind that the long-term

²⁴ Source: Chester A. Crocker, Fen Osler Hampson, and Pamela R. Aall, eds., *Turbulent Peace: The Challenges of Managing International Conflict* (Washington, DC: United States Institute of Peace Press, 2001), xxviii.

²⁵ William J. Durch, ed., *The Evolution of UN Peacekeeping: Case Studies and Comparative Analysis* (New York, NY: St. Martin's Press, 1993), 12, 16–76.

approaches of peacebuilding often do not result in visible short-term improvements. The opposite can also be true; Rocha Menocal argues that peacebuilding sometimes undermines long-term efforts by shortcutting the construction of stable institutional structures in the short term.²⁶

Chester Crocker et al. identify the (re-) construction of institutions to strengthen state capacity, the stimulation of economic growth, and the building of functional security forces as necessary pathways to building lasting peace.²⁷ Similarly, Nicole Ball sees strengthening the government, building institutions, training security forces, and stimulating the economy as crucial for the success of peacebuilding.²⁸ There is a consensus that, besides security force establishment, organizing legitimate institutional governance and creating economic growth are two primary causes for the success of peacebuilding.

Effective peacebuilding requires the installation of a legitimate government carrying out good governance through comprehensive institutions.²⁹ Good governance is a prerequisite for a state's economic, social, and legitimate development.³⁰ For the abovementioned belief in the compromise, government institutions need to deliver citizens good services inclusively. Peacebuilding scenarios face the problem that institutions often do not exist or are part of the problem, as they lack capacity, exclude parts of the population, or feed clientelism networks. That makes the process of institutionalizing complicated and lengthy.

As explained in the preceding section on climate change and armed conflict, climate change has compromising effects on weak governments and ill-organized institutions.

²⁶ Rocha Menocal, "State Building for Peace."

²⁷ Crocker, Hampson, and Aall, *Turbulent Peace*.

²⁸ Nicole Ball, "The Challenge of Rebuilding War-Torn Societies," in *Turbulent Peace: The Challenges of Managing International Conflict*, ed. Chester A. Crocker, Fen Osler Hampson, and Pamela R. Aall (Washington, DC: United States Institute of Peace Press, 2001), 719–36.

²⁹ United Nations, *Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict* (Washington, DC: World Bank Publications, 2018), 78–82, <http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=5394181>.

³⁰ Derick W. Brinkerhoff, *Governance in Post-Conflict Societies: Rebuilding Fragile States*, Contemporary Security Studies (Abingdon, Oxon; New York, NY: Routledge, 2007), 2–7.

These explanations together with the previously mentioned peacebuilding success strategies indicate an opposing weave of climate change and peacebuilding.

Apart from endless international aid, only a functioning economy can deliver the necessary resources in the form of tax revenues to enable the government to maintain institutions and sustain citizen services. Although Jonathan Sears points out that peacebuilding faces the dilemma of needing everything at once, he also suggests the need for economic development as central.³¹ Development is both a purpose and a requirement for peacebuilding. This ties back into the livelihood conflict scheme seen earlier in this literature review. The population's loss of livelihood equals negative economic development, making peacebuilding's success less probable.

3. Environmental Peacebuilding

The idea of environmental peacebuilding arose in the late 1990s, as researchers recognized that environmental factors should not only be seen as security risks but could also be proactively leveraged as an initial point for improving the conditions for peace.³² This section examines the role researchers now see for environmental factors in peacebuilding.

In a design similar to the one shown in Figure 1, Figure 2 shows where the U.N. identifies environmental risks and opportunities in the conflict management cycle. In the peacebuilding phase, environmental issues may raise post-conflict tensions, but they also bring an opportunity for resource cooperation.

³¹ Jonathan M. Sears, "Development and Peacebuilding," in *Routledge Handbook of African Peacebuilding*, ed. Bruno Charbonneau and Maxime Ricard (Abingdon, Oxon; New York, NY: Routledge, 2022), 138–54, <https://doi.org/10.4324/9780429060038>.

³² Ken Conca and Michael D. Beevers, "Environmental Pathways to Peace," in *Routledge Handbook of Environmental Conflict and Peacebuilding*, ed. Joakim Öjendal and Ashok Swain (Abingdon, Oxon; New York, NY: Routledge, 2018), 54, <https://doi.org/10.4324/9781315473772>; Ken Conca and Geoffrey D. Dabelko, *Environmental Peacemaking* (Washington, DC: Woodrow Wilson Center Press, 2003); Florian Krampe and Ashok Swain, "Environmental Peacebuilding," in *The Oxford Handbook of Peacebuilding, Statebuilding, and Peace Formation*, ed. Oliver P. Richmond and Gözüm Visoka (New York, NY: Oxford University Press, 2021), 563–78, <https://doi.org/10.1093/oxfordhb/9780190904418.013.40>.

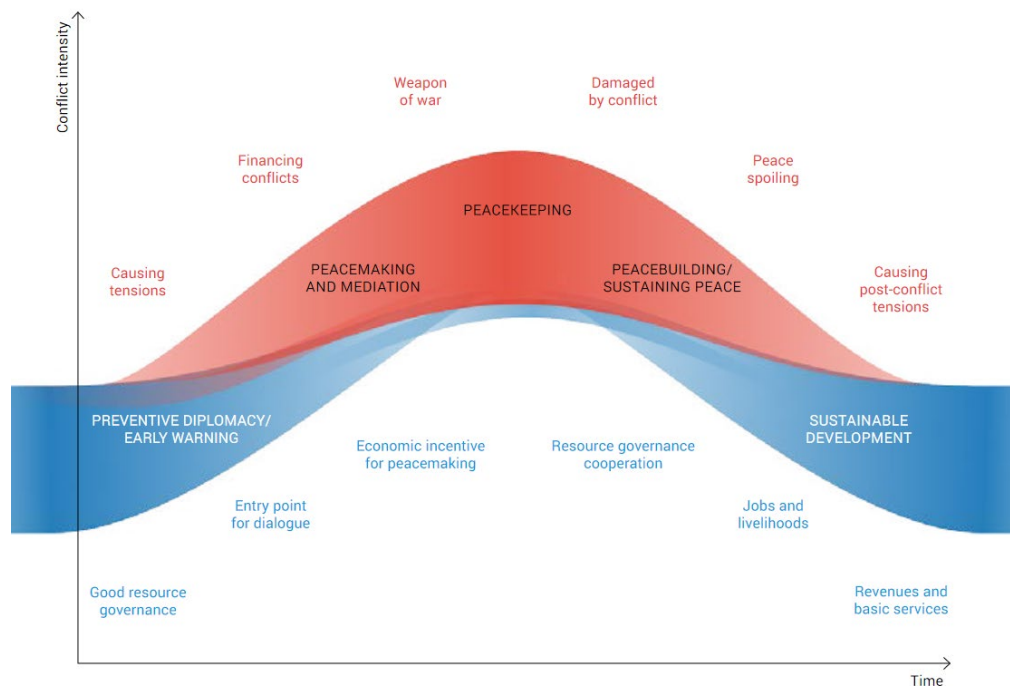


Figure 2. Conceptualization of Risks [red] and Opportunities [blue] from Natural Resources and the Environment along the Peace and Security Continuum.³³

Much environmental peacebuilding literature focuses on resource cooperation.³⁴ Optimistic parts of the literature almost invariably deal with intergovernmental cooperation and the strength of related agreements. Florian Krampe et al.’s contact hypothesis, postulating that intergroup cooperation reduces conflict stress, is based solely on interstate case evidence.³⁵ In contrast, Larry A. Swatuk finds that where climate change is related to

³³ Source: Environmental Cooperation for Peacebuilding Programme, “ECP Final Report 2016” (United Nations Environment Programme, 2016), 15, https://postconflict.unep.ch/publications/ECP/ECP_final_report_Nov2016.pdf.

³⁴ Aaron T Wolf, “Conflict and Cooperation Along International Waterways,” *Water Policy* 1, no. 2 (1998): 251–65; Shlomi Dinar, Ariel Dinar, and Pradeep Kurukulasuriya, “Scarcity and Cooperation along International Rivers: An Empirical Assessment of Bilateral Treaties,” *International Studies Quarterly* 55, no. 3 (2011): 809–33, <https://www.jstor.org.libproxy.nps.edu:2048/stable/23020068>; Tobias Ide, “Does Environmental Peacemaking between States Work? Insights on Cooperative Environmental Agreements and Reconciliation in International Rivalries,” *Journal of Peace Research* 55, no. 3 (May 1, 2018): 351–65, <https://doi.org/10.1177/0022343317750216>.

³⁵ Florian Krampe, Farah Hegazi, and Stacy D. VanDeveer, “Sustaining Peace through Better Resource Governance: Three Potential Mechanisms for Environmental Peacebuilding,” *World Development* 144 (August 2021): 2–3, <https://doi.org/10.1016/j.worlddev.2021.105508>.

intra-state conflict, especially on land use, cooperation mostly fails.³⁶ Later research, by Ashok Swain and Florian Krampe, identifies intra-state cooperation potential through societal collaboration on environmental resources.³⁷ But these authors also emphasize its fragility and the likelihood of its producing negative unwanted outcomes if not fairly governed.

On the intra-state level, researchers argue that long-term environmental peacebuilding requires good governance.³⁸ This idea ties back into Crocker et al.'s requirement for legitimate state institutions.³⁹ The success of building peace in the aftermath of environmental intra-state conflicts relies on effective natural resource management.⁴⁰ Krampe et al. link this management to the mechanism of "state service provision."⁴¹ Derick Brinkerhoff summarizes that "service delivery and economic development effectiveness relate to legitimacy in that citizens tend to withdraw support from governments that cannot or will not provide basic services, limit corrupt practices, and generate some level of economic opportunity."⁴² To succeed and prevent backsliding, peacebuilding must address both the short-term provision of basic state services and the establishment of legitimate governmental institutions: quick improvements in daily life as well as the foundation for sustainable management of natural resources and the basis for incisive economic development.

Governmental institutions that deliver state services through resource management risk new tensions if service distribution is perceived as unequal. As a natural resource for

³⁶ Larry A. Swatuk, "Environmental Cooperation for Regional Peace and Security in Southern Africa," in *Environmental Peacemaking*, by Ken Conca and Geoffrey D. Dabelko (Washington, DC: Woodrow Wilson Center Press, 2003), 120–60.

³⁷ Krampe and Swain, "Environmental Peacebuilding."

³⁸ Ashok Swain and Florian Krampe, "Stability and Sustainability in Peace Building: Priority Area for Warfare Ecology," in *Warfare Ecology*, ed. Gary E. Machlis et al., NATO Science for Peace and Security Series C: Environmental Security (Dordrecht: Springer Netherlands, 2011), 199–210, https://doi.org/10.1007/978-94-007-1214-0_14.

³⁹ Crocker, Hampson, and Aall, *Turbulent Peace*.

⁴⁰ Conca and Beevers, "Environmental Pathways to Peace," 66.

⁴¹ Krampe, Hegazi, and VanDeveer, "Sustaining Peace through Better Resource Governance," 7–8.

⁴² Brinkerhoff, *Governance in Post-Conflict Societies*, 6.

rural economies, land is the primary environmental factor at stake in resource-related conflicts.⁴³ Tobias Ide argues that conflict will escalate rather than subside where unequal distribution and discrimination fall among existing grievances.⁴⁴ The cooperation aspect may be integrated at the institutional level through inclusion. But where climate change further reduces usable land, institutions may end up with less to distribute than is absolutely needed. International aid may help support the needs; however, where this support dominates, local institutions will be considered even more inefficient, which will further undermine the state's legitimacy.⁴⁵

A relatively new aspect of environmental peacebuilding is the implementation of climate change adaptation (CCA). CCA measures, such as constructing irrigation systems, are more technical by nature. They can therefore depoliticize environmental factors, improve living conditions, and provide a basis for economic consolidation. But even well-intended CCA may be the basis for renewed disputes if implemented insensitively. U.N. programs still need to be better coordinated with security aspects in this regard to avoid unintentionally creating harm.⁴⁶

The U.N. is incorporating these scholarly insights into peacebuilding gradually over time.⁴⁷ The recognition that resolving resource conflicts requires effective institutions, good governance, and sustainable development was explicitly reflected in the U.N. mandates for the missions in Liberia and Timor-Leste, which instructed them to “assist the transitional government in restoring proper administration of natural resources” and “assist

⁴³ Environmental Cooperation for Peacebuilding Programme, “ECP Final Report 2016,” 21.

⁴⁴ Tobias Ide, “The Dark Side of Environmental Peacebuilding,” *World Development* 127 (March 1, 2020): 5, <https://doi.org/10.1016/j.worlddev.2019.104777>.

⁴⁵ Ide, 5.

⁴⁶ Adelphi, “Addressing Conflict and Strengthening Stability in a Changing Climate,” 10.

⁴⁷ David Jensen and Amanda Kron, “Environmental Peacebuilding and the United Nations,” in *Routledge Handbook of African Peacebuilding*, ed. Bruno Charbonneau and Maxime Ricard (Abingdon, Oxon; New York, NY: Routledge, 2022), 121–42, <https://doi.org/10.4324/9780429060038>.

in the establishment of conditions for sustainable development.”⁴⁸ In both missions, U.N. peacebuilders assisted in the institutionalized administration of land use and resources.⁴⁹ However, climate change will lead to ever fewer resources to distribute. Adaptation is the key to managing best what is left, so recommendations for investing more in CCA are becoming more prominent.⁵⁰

4. Operational Impacts on Peacebuilding Missions

In addition to affecting armed conflict and broader peacebuilding strategies, environmental hazards can also affect peacebuilding on a day-to-day operational basis. Nevertheless, the operational peacebuilding literature focuses more on how U.N. troops affect the environment than the other way around. The U.N. uses the phrase “Greening Blue Helmets” to refer to efforts the U.N. has implemented to reduce the environmental footprint of its troops.⁵¹ Scholars have also focused on the effect military forces have or can have on the environment.⁵²

In contrast, very little scholarly literature examines how U.N. forces are affected by degrading and more hazardous environmental conditions. This omission may be because military forces usually classify information on deficiencies in their capabilities. Yet, in 2021, SIPRI published a policy paper on multifaceted, climate-related security risks and

⁴⁸ United Nations Security Council, *Resolution 1509: The Situation in Liberia*, S/RES/1509 (New York, NY: United Nations, 2003), 4, <http://unscr.com/files/2003/01509.pdf>; United Nations Security Council, *Resolution 1272: The Situation in East Timor*, S/RES/1272 (New York, NY: United Nations, 1999), 3, <http://unscr.com/files/1999/01272.pdf>.

⁴⁹ Jensen and Kron, “Environmental Peacebuilding and the United Nations,” 131.

⁵⁰ United Nations Environment Programme, ed., *Livelihood Security: Climate Change, Migration and Conflict in the Sahel* (Geneva, Switzerland: United Nations Environment Programme, 2011), 10, <https://publications.iom.int/books/livelihood-security-climate-change-migration-and-conflict-sahel>; Dennis Tänzler, “Climate Diplomacy and Peace,” in *Routledge Handbook of Environmental Conflict and Peacebuilding*, ed. Joakim Öjendal and Ashok Swain (Abingdon, Oxon; New York, NY: Routledge, 2018), 303, <https://doi.org/10.4324/9781315473772>.

⁵¹ Environmental Cooperation for Peacebuilding Programme, “ECP Final Report 2016,” 30.

⁵² Saleem H. Ali and Rebecca Pincus, “The Role of the Military in Environmental Peacebuilding,” in *Routledge Handbook of Environmental Conflict and Peacebuilding*, ed. Joakim Öjendal and Ashok Swain (Abingdon, Oxon; New York, NY: Routledge, 2018), 306–14, <https://doi.org/10.4324/9781315473772>.

peacebuilding that contains information on this issue.⁵³ Incorporating numerous interviews with U.N. officials working in Mali and correspondence with local officials, the SIPRI paper delivers rare insights into how environmental hazards limit U.N. missions' work (e.g., flooding and sandstorms limit the forces' mobility, the support chain gets disturbed, and requirements for casualty evacuation are no longer met). In addition, some news articles have described how environmental hazards impact U.N. forces' operations.⁵⁴ In some incidents, U.N. operations were hampered by sandstorms or a lack of water supply.

Studies of other military operations have also considered how environmental hazards could negatively affect operations. In 2014, the Center for Naval Analyses (CNA) Military Advisory Board forecasted that the “projected impacts of climate change could be detrimental to [U.S.] military readiness, strain base resilience both at home and abroad, and may limit our ability to respond to future demands.”⁵⁵ Rising average temperatures reduce deployed personnel's endurance and complicate training. Meanwhile, extreme weather will increase demands for military engagement in humanitarian aid and disaster relief while simultaneously threatening critical logistics, mobility, and infrastructure of military forces. These predictions are at least as applicable to U.N. forces, most of whom are less capable and less well-equipped than U.S. troops.

The U.N. peacebuilding architecture calls for a comprehensive approach and emphasizes the necessity of implementing the whole U.N. system into peacebuilding

⁵³ Farah Hegazi, Florian Krampe, and Elizabeth Seymour Smith, “Climate-Related Security Risks and Peacebuilding in Mali” (Stockholm International Peace Research Institute, 2021), <https://www.jstor.org/stable/resrep30912>.

⁵⁴ Björn Lenz, “Stockdunkel mitten am Tag – Sandsturm über Camp Castor” [Pitch black in the middle of the day—sandstorm over Camp Castor], *Einsätze der Bundeswehr*, July 13, 2022, <https://www.bundeswehr.de/de/aktuelles/meldungen/stockdunkel-mitten-am-tag-sandsturm-ueber-castor-5463266>; Guido Ritter, “Operation Neptun in Mali: Trinkwasser aus dem Niger” [Operation Neptune in Mali: Drinking water from the Niger River], *Einsätze der Bundeswehr*, July 24, 2019, <https://www.bundeswehr.de/de/einsaetze-bundeswehr/mali-einsaetze/minusma-bundeswehr-un-einsatz-mali/operation-neptun-minusma-mali-trinkwasser-aus-dem-niger-87618>.

⁵⁵ CAN Military Advisory Board, *National Security and the Accelerating Risks of Climate Change* (Alexandria, VA: CAN Corporation, 2014), 3, https://www.cna.org/reports/2014/MAB_5-8-14.pdf.

efforts.⁵⁶ However, when it comes to U.N. missions implementing these efforts on the ground, the U.N. relies on uniformed personnel based on membership states' troop contributions. It therefore depends on the contributed troops' capabilities and how well they can perform in adverse environmental conditions. Expeditionary forces are usually equipped and trained to operate self-sustainably under challenging conditions. Even so, modern, technology-focused militaries sometimes run into operational limits set by hazardous environmental conditions.

Although limited in number, the available sources show clear indicators that rising temperatures and changing precipitation can negatively impact the mobility, supply, readiness, and endurance of military forces. The U.N. does not yet seem to have adequately considered these effects with respect to peacebuilding forces.

C. POTENTIAL EXPLANATIONS AND HYPOTHESES

This thesis investigates two aspects of environmental factors' effects on peacebuilding. First, it looks at how environmental factors impact U.N. peacebuilding missions' ability to build positive peace. The literature review has shown that environmental hazards multiply security risks and amplify conflicts. Even where research sees positive potential in environmental peacebuilding, it is connected to the risk of adverse outcomes. Moreover, conflicts' sustainable resolution depends on institution-building and economic growth—two efforts that are both being undermined by climate change. Those findings lead to this thesis's first hypothesis: U.N. missions that fail to adequately address or effectively integrate the security impacts of environmental hazards into their peacebuilding efforts will not succeed in building positive peace. This thesis anticipates that climate change will impede attempts to create legitimate institutionalized governance and stimulate economic growth. These limitations will thwart the missions' goal of building and sustaining peace.

⁵⁶ United Nations General Assembly, *Review of the United Nations Peacebuilding Architecture*, A/RES/70/262 (New York, NY: United Nations, 2016), 2, 5, https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_262.pdf.

Second, the thesis examines whether environmental factors negatively impact peacebuilding mission operations and, if so, how. There is limited documented research on the operational limitations environmental hazards pose to U.N. forces. However, the observations presented in reports like the CNA analysis and from the author's personal military experience lead to the thesis's second hypothesis: climate change reveals a growing capability gap among U.N. troops that hinders the execution of peacebuilding operations. Local conflict-driving parties may leverage this capability gap as they are more used to and better prepared for challenging environmental conditions. This thesis expects climate change to put U.N. troops at an operational disadvantage, thereby undermining peacebuilding's chances of success.

D. RESEARCH DESIGN

This thesis evaluates the hypotheses by conducting qualitative case studies of two U.N. peacebuilding operations: the Multidimensional Integrated Stabilization Mission in Mali (MINUSMA), initiated in April 2013, and the United Nations Assistance Mission in Somalia (UNSOM), initiated in June 2013. Both repeatedly extended and ongoing missions are attempting to build peace in long-lasting conflicts with multidimensional roots, including the adverse effects of climate change. The cases of Mali and Somalia share similarities in how climate change has contributed to the respective conflicts.⁵⁷ And, despite long-lasting U.N. peacebuilding attempts, both countries face severe security problems such as armed conflict and insurgency.⁵⁸ Although its generalizability is limited by the number cases studied, the thesis expects to find some consistency in climate change's effects on peacebuilding missions. Examining both cases' mission architectures

⁵⁷ Hegazi, Krampe, and Smith, "Climate-Related Security Risks and Peacebuilding in Mali"; Potsdam Institute for Climate Impact Research, "Risk Profile for Somalia Reveals High Exposure to Future Climate Change Impacts" (Potsdam: Potsdam Institute for Climate Impact Research, February 24, 2022), <https://www.pik-potsdam.de/en/news/latest-news/somalia-high-exposure-to-future-climate-change-impacts>; Olivia Giovetti, "Breaking down the Decade of Drought in Somalia," *Concern Worldwide U.S.*, January 22, 2020, <https://www.concernusa.org/story/decade-drought-in-somalia/>.

⁵⁸ Africa Center for Strategic Studies, "Sahel and Somalia Drive Rise in Africa's Militant Islamist Group Violence," Africa Center for Strategic Studies, August 9, 2022, <https://africacenter.org/spotlight/sahel-and-somalia-drive-uninterrupted-rise-in-african-militant-islamist-group-violence-over-past-decade/>.

and their efforts in institutionalization and economic growth allows for identifying similarities, patterns, or graded differences in response to the research question.

The thesis approaches each case study by assessing the current state of the peacebuilding mission. After first gaining an insight into the security situation of the country, each case study evaluates how climate change contributed to the respective case's security situation. This includes a brief evaluation of how climate change affected each conflict's onset and trajectory. Since these issues are well-researched for both cases, this thesis draws on the existing literature's findings.

In the core of the analysis, the paper then assesses the effects of climate change on the respective U.N. mission. It bases this assessment first on the missions' mandates and the U.N. Secretary-General's recurring reports to the Security Council evaluating each mission.⁵⁹ The U.N. documents are evaluated in terms of the extent to which climate change is directly considered here, and how this consideration developed over time. A further focus lies on the evaluation of indirect effects of climate change on the success of the respective mission. The progress of each mission is checked against independent data sources and how those assess the state of sustainable peace. Although it is not assumed capable of measuring mission success numerically, this approach still delivers a qualitative impression of whether—over time—the missions are succeeding or failing at building peace.

To maintain consistency with the existing literature's suggestions about the causes of peacebuilding successes and failures, this portion of each case study concentrates on institution building and economic development. It assesses whether institution building, the establishment of good governance, and economic progress are being affected by climate change. While existing environmental peacebuilding literature mostly evaluates whether climate-related issues are positively integrated into government reforms and development, this thesis examines to what extent climate change weakens institutions and hampers

⁵⁹ There are currently 38 reports, dated from March 2013 to October 2022, on the situation in Mali and 40 reports, dated between April 2013 and May 2022, on the situation in Somalia published on the missions' resources websites: <https://minusma.unmissions.org/en/reports> and <https://unsom.unmissions.org/secretary-generals-reports>. Additionally, the U.N. occasionally publishes benchmark matrices that assess mission goals' implementation status.

growth up to the failure of peacebuilding. The thesis approaches this research focus by examining both missions' mandates and their development over time regarding environmental and climate-related issues. It further encompasses scholarly literature that analyzes both countries' well-studied security situations and explores how those situations relate climate change effects to peacebuilding missions.

The roots of both cases' conflicts reach further back than the selected U.N. missions. This thesis, however, concentrates on the past decade to cover a reasonable timeframe in which the most recent climate developments can be related to simultaneously and continuously ongoing peacebuilding missions. Since the understanding of climatologic effects has gradually developed, more emphasis is placed on recent developments wherever possible.

Finally, on the second research focus, this thesis investigates climate change's effects on the operational level of U.N. missions. It summarizes each mission's forces, capabilities, and tasks based on the openly available information on the missions' websites. Then, the thesis studies how climate change is affecting these operational tasks. Since there is limited existing scholarly research on the topic, the thesis draws on single exemplary events documented in U.N. mission reports and news to assess whether climatological effects impact operations' execution. Further, the research looks into the missions' respective mandates to examine whether the U.N. includes lessons learned on climate change's effects in the capability requirements for troop-contributing nations.

E. THESIS OVERVIEW AND CHAPTER OUTLINE

This thesis consists of five chapters. Chapter I introduces the research question and highlights its significance. It addresses the relevant literature, lays out the potential answers to the research question, and describes how the thesis's research is designed to test these potential explanations.

Chapters II and III examine the thesis's first research focus on the two UN peacebuilding missions: MINUSMA and UNSOM. Each of these case-related chapters begins with an overview of the security situation in the respective country and identifies how climate change drove insecurity in the individual cases. After that, the chapters

analyze how climate change directly and indirectly affects these particular U.N. peacebuilding missions.

With the expectation that the effects of climate change on the operations' execution are similar in both cases, Chapter IV addresses the thesis's second hypothesis in one case-combining chapter. Finally, Chapter V summarizes the country-related findings, reviewing similarities, patterns, and differences between the two considered cases. The chapter also provides recommendations on adjusting U.N. peacebuilding architecture and the capabilities of U.N. forces. This review feeds into the overall conclusion on how climate change affects peacebuilding and underpins the suggestions for further research.

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II. MULTIDIMENSIONAL INTEGRATED STABILIZATION MISSION IN MALI (MINUSMA)

A. MALI AND ITS SECURITY SITUATION

Mali is witness to a long history of political instability and armed conflict. Recurring uprisings and armed conflict reach back into the era of French colonization beginning in the late 19th and early 20th century. The history and origin of conflict in Mali have been well-studied in various sectors of political science. They are mostly associated with the marginalization of a particular ethnic group, i.e., the nomadic Tuareg people in Mali's north.⁶⁰ The Tuareg have been facing threats to their livelihood through land loss and livestock starvation. In addition to being deprived of their traditional source of income, the Tuareg have been excluded from political participation.

Since gaining independence from French colonial rule in 1960, Mali has undergone several waves of political reform alternating with the resurgence of unrest, uprisings, and insurgency. In the 1990s, Mali witnessed enormous efforts toward governmental democratization and decentralization and was once recognized as the prime example of democratization in Africa.⁶¹ However, 20 years of democratization failed to solve the underlying causes of unrest and did not prevent another Tuareg rebellion in 2012.

During the last ten years, the security situation in Mali has been characterized by a concentration of coups d'état and attempts to restore state order. In the aftermath of the Arab Spring, some Tuareg, who had been driven out of Mali by the loss of their livelihood

⁶⁰ Jean Sebastian Lecocq, *Disputed Desert: Decolonisation, Competing Nationalisms and Tuareg Rebellions in Northern Mali*, Afrika-Studiecentrum Series, vol. 19 (Leiden, Netherlands: Brill, 2010); Petra C. Besenhard and Nikolai G. Wenzel, "Circumventing the Predatory State: Lessons and Futures for the Tuareg from the New Development Economics," *International Journal of Development Issues* 16, no. 3 (2017): 245–59, <https://doi.org/10.1108/IJDI-03-2017-0032>; Emizet F. Kisangani, "The Tuaregs' Rebellions in Mali and Niger and the U.S. Global War on Terror," *International Journal on World Peace* 29, no. 1 (March 2012): 59–97, <http://www.proquest.com/docview/1014055312/abstract/146368AC1E0D4C59PQ/1>; Dona J. Stewart, *What Is Next for Mali?: The Roots of Conflict and Challenges to Stability* (Carlisle Barracks, PA: Strategic Studies Institute and U.S. Army War College Press, 2013).

⁶¹ Robert Pringle, *Democratization in Mali: Putting History to Work*, Peaceworks No. 58 (Washington, DC: United States Institute of Peace Press, 2006), <https://www.usip.org/publications/2006/10/democratization-mali-putting-history-work>.

and had fought for a living in Libya, returned to the northern territories of Mali. Historically not well-integrated and unbound to a social contract with the Malian state, in 2012, Tuareg rebels allied with Islamic insurgent groups and seized territory in northern Mali. They pursued independence efforts to establish their state separate from the Malian central government.

Upset with the incompetency of Mali's central government in dealing with the crisis and perceived as being inadequately tasked and supported to fight the Tuareg, parts of the Malian military overthrew the government in 2012 and installed an interim military rule.⁶² Although parliamentary elections were held in 2013 and 2020, they failed to democratically stabilize Mali. Following further coups in 2020 and 2021, a transitional military government led by Assimi Goïta has remained in power. Despite sanctions by the Economic Community of West African States (ECOWAS) and other international organizations, the military government has continued to postpone free elections until at least 2024.⁶³

Islamist insurgent groups allied with the Tuareg in the 2012 uprisings are increasingly taking advantage of the deteriorating situation. They have been able to recruit large numbers of new members and spread terrorist acts from Mali's north further into the country's south.⁶⁴ Initially, a French counterterrorism operation tried to stop this development. Since 2013, the U.N. mission MINUSMA has been in the country to consolidate peace, restore governance, and secure Mali's territorial integrity.

In addition to the security situation, the economic situation in Mali is poor. Before MINUSMA began in 2013, Mali's economy was growing, but it faced persistent challenges, such as poverty, inequality, and unemployment. According to the World Bank,

⁶² Bruno Charbonneau and Luise Wiuff Moe, "Counterinsurgency and Peacebuilding in Somalia and Mali," in *Routledge Handbook of African Peacebuilding*, ed. Bruno Charbonneau and Maxime Ricard (Abingdon, Oxon; New York, NY: Routledge, 2022), 213, <https://doi.org/10.4324/9780429060038>.

⁶³ Tagesschau, "Mali: Militärjunta verspricht Wahlen bis Ende 2024" [Mali: Military junta promises elections by the end of 2024], [tagesschau.de](https://www.tagesschau.de), June 7, 2022, <https://www.tagesschau.de/ausland/mali-271.html>.

⁶⁴ Mathieu Bere, "Armed Rebellion, Violent Extremism, and the Challenges of International Intervention in Mali," *African Conflict and Peacebuilding Review* 7, no. 2 (Fall 2017): 60–84, <https://doi.org/10.2979/africonfpeacrevi.7.2.03>.

Mali's gross domestic product (GDP) growth rate averaged 5.6% per year from 2002 to 2011, driven mainly by agriculture, livestock, and gold mining.⁶⁵ However, poverty remained widespread, with an estimated 41.1% of the population living below the poverty line in 2009, amid persistently high inequality.⁶⁶ The unemployment rate also stayed high, particularly among youth. Of the poor, 90% live in rural areas with limited access to basic services, such as health care and education. Poverty, underdevelopment, lack of education and opportunities for the youth in Mali directly fuel the precarious security situation: young Malians will likely join militant groups for the lack of an economic alternative and to dispel their anger at being trapped in poverty.

B. ENVIRONMENTAL SECURITY IN MALI

Historical developments and the role of the Tuareg do not directly explain which role climate change has played in Mali's security. To help answer the research question about how climate change affects peacebuilding operations and how MINUSMA incorporates these effects into their peacebuilding efforts, this section summarizes how climate change-induced environmental hazards alter Mali's security situation. It examines hazards, vulnerabilities, and mechanisms that mutually enforce adverse security effects. A peacebuilding mission must consider these effects to build sustainable peace successfully.

1. Environmental Hazards

Climate change manifests in Mali mainly through changes in precipitation and rising temperatures. These changes cause environmental hazards that compromise the livelihood of the Malian people. Rainfall in Mali varies enormously, both regionally and seasonally. For the northern region of Timbuktu, the World Bank's data on the last 30 years describe a regular eight-month dry season with less than 5 mm monthly rainfall and still

⁶⁵ World Bank Group, "The World Bank in Mali: Overview," World Bank, April 14, 2022, <https://www.worldbank.org/en/country/mali/overview>; World Bank, "GDP Growth (Annual %) (NY.GDP.MKTP.KD.ZG)," The World Bank Group, accessed February 20, 2023, <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG>.

⁶⁶ World Bank, "Poverty Headcount Ratio at National Poverty Lines (% of Population) (SI.POV.NAHC)," The World Bank Group, accessed March 23, 2023, <https://data.worldbank.org/indicator/SI.POV.NAHC?locations=ML>.

limited rain in the rainy season of around 35 mm; in contrast, the southern region of Sikasso faces only three dry months and has a maximum rainfall of about 350 mm during July.⁶⁷ Long-term observations suggest that, over time, rainfall becomes harder to calculate and more erratic.⁶⁸ Precipitation models predict more heavy rainfall events in the south, while the north will face even less rain in the future.⁶⁹ Droughts in predominantly arid areas will become more frequent and intense, while wetlands near larger bodies of water will likely experience more frequent and severe flooding.

a. Droughts

Droughts are a significant root cause for the loss of livelihood that led to former and current conflicts in Mali. Literature marks a long list of droughts in Northern Mali: 1903, 1913–14, 1930–32, 1944–48, 1972–75, 1982–87, 2005, 2010, and 2011–12.⁷⁰ This list does not yet include the severe drought of 2020, when environmental hazards overlapped with the worldwide pandemic. While in years of sufficient precipitation the nomadic pastoralists stay in a relatively limited area, during droughts they are forced to move greater distances. In search of pasture, nomads encroach on regions already occupied by settled farmers. While these farmers already suffer from the drought themselves, disputes and conflicts over land use quickly arise.

A comparison between livelihood zones in Mali in 2010 and 2014 shows that areas for nomadic pastoralism around the Niger loop in the north greatly diminished as did

⁶⁷ World Bank Group, “Mali,” Climate Change Knowledge Portal, Historical Precipitation Data 1991–2020, accessed February 5, 2023, <https://climateknowledgeportal.worldbank.org/country/mali>.

⁶⁸ Anab Ovidie Grand, Andrew E. Yaw Tchie, and Kheira Tarif, “Climate, Peace and Security Fact Sheet: Mali,” Norwegian Institute of International Affairs (NUPI), 2021, 2, <http://www.jstor.org/stable/resrep38879>.

⁶⁹ United States Agency of International Development, *Climate Risk Profile Mali* (Washington, DC: United States Agency of International Development, 2018), 2, https://www.climatelinks.org/sites/default/files/asset/document/Mali_CRP_Final.pdf.

⁷⁰ Benjaminsen, “Does Supply-Induced Scarcity Drive Violent Conflicts in the African Sahel?,” 828; Climate Diplomacy, “A New Climate for Peace: Mali,” Climate Diplomacy, accessed July 19, 2022, <https://climate-diplomacy.org/new-climate-peace-mali>.

agricultural cropland along the Niger River and the Niger lakes.⁷¹ For example, the Fabiguine lake system in the region of Timbuktu is a large water resource saving fresh water from the short rain- and flood seasons. While it once supported fishing, pasture, and over 60,000 ha of agriculture, satellite pictures from 1974 to 2016 show that it has almost completely vanished.⁷² Although recovery attempts were undertaken, the region seems agriculturally lost. An increasing scarcity of usable agricultural areas causes the loss of agriculturally based livelihoods.

Figure 3 contains a World Bank graphic on environmental hazards in Mali over time, including epidemics of pests on livestock, floods, and droughts, measured by the number of people affected. On a logarithmic scale, it shows that the drought in 1991 affected more than 300,000 people; in 2005, 1 million people; in 2010–11, up to 3.5 million people; and in 2020, almost 7 million people. According to other World Bank data, Mali's total population in 2020 was around 21 million,⁷³ meaning that the drought of 2020 impacted every third Malian.

⁷¹ FEWS NET Data Center, "Livelihood Zones 2010/2014 Mali," Famine Early Warning Systems Network, accessed February 6, 2023, https://fewsn.net/fews-data/335?tid=17&field_data_portal_date_start%5Bvalue%5D%5Byear%5D=&field_data_portal_date_start%5Bvalue%5D%5Bmonth%5D=&field_data_portal_date_end%5Bvalue%5D%5Byear%5D=&field_data_portal_date_end%5Bvalue%5D%5Bmonth%5D=.

⁷² United Nations Environment Programme, *Saving Lake Faguibine*, United Nations Environment Program Foresight Brief (Nairobi, Kenya: United Nations Environment Program, 2017), 1, <http://www.unep.org/resources/emerging-issues/saving-lake-faguibine>.

⁷³ World Bank, "Population, Total (SP.POP.TOTL)," The World Bank Group, accessed February 6, 2023, <https://data.worldbank.org/indicator/SP.POP.TOTL>.

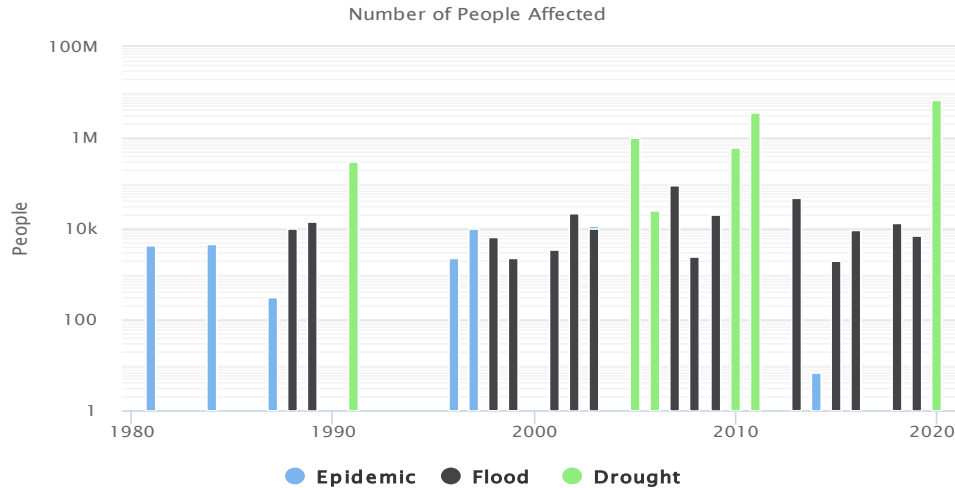


Figure 3. Mali: Key Natural Hazard Statistics 1980–2020.⁷⁴

Based on the statistics in Figure 3, it becomes evident that droughts are becoming more frequent and more significant. The higher frequency and longer duration of droughts have adverse cumulative effects on freshwater reserves. Although part of the erratic precipitation is natural for Mali’s volatile climate, droughts have increasingly affected the country in the last two decades, continuously eroding nature’s innate ability to adapt.⁷⁵

b. Floods

Although it may seem contradictory at first glance, in addition to droughts, floods are a further factor threatening livelihoods in Mali. Mali is divided into two extremes: the dry north, dominated by the Sahara, and the humid south, influenced by rivers and tropical seasonal rainfalls. In the latter region, mixed crop and livestock production account for large parts of agricultural output. This part of Mali is dominated by the Inner Niger Delta and the Senegal River, which covers more than half of the country, providing the vast majority of Mali’s surface water for freshwater needs and agriculture irrigation.⁷⁶

⁷⁴ Source: World Bank Group, “Mali.”

⁷⁵ World Bank Group.

⁷⁶ United States Agency of International Development, *Climate Risk Profile Mali*, 2–3.

Especially in the Niger Delta, the condition of arable land is related to seasonal, regional floodings during the rainy season. Precipitation changes have influenced Malian rivers' water flow, leading to a loss of potential agricultural areas.⁷⁷ Seasonal floods have become shorter and more intense. The drier soil cannot handle the more extreme flood events and can gradually benefit less from them. Although the total amount of yearly rainfall has not changed much, the change in seasonal and regional concentration brought through climate change has reduced and shifted commercially arable land.

Floods do not only affect agricultural livelihoods, but they also become existentially life-threatening. In 2020, the Red Cross needed to support 80,000 people affected by deadly floods nationwide.⁷⁸ People already daily struggling to survive in the face of food insecurity, land degradation, and armed conflict have been deprived of their few belongings and shelter by the floods. Severe floods destroyed crops and infrastructure, throwing farmers into poverty, and leading to even more food insecurity and increased migration. The weak Malian state can barely meet the growing demand for aid, even with international assistance. This state's failure further erodes societal trust and confidence in the government and exacerbates security problems.

2. Vulnerability

An economy highly dependent on agriculture makes Mali particularly vulnerable to the previously mentioned environmental hazards. According to the World Bank's World Development Indicators, almost two-thirds of Mali's workforce is employed in agriculture.⁷⁹ Although agriculture is a low-added-value sector, it stands for more than one-third of Mali's GDP: from 2010 to 2020, this share increased from 33% to 36.2%.⁸⁰

⁷⁷ United States Agency of International Development, 3–4.

⁷⁸ "Mali's Invisible Front Line: Climate Change in a Conflict Zone," International Committee of the Red Cross, February 18, 2021, <https://www.icrc.org/en/document/mali-invisible-front-line-climate-change-conflict-zone>.

⁷⁹ World Bank, "Table 2.3: Employment by Sector 2015/2020," World Development Indicators, accessed February 6, 2023, <http://wdi.worldbank.org/table/2.3>. The source data distinguishes three sectors: agriculture, industry, and services, and splits the results by gender for the years 2015 and 2020. On average employment lies by 62.3% in agriculture, 7.7% in industry, and 30% in services.

⁸⁰ World Bank, "Table 4.2: Structure of Value Added 2010/2020," The World Bank Group, accessed February 6, 2023, <http://wdi.worldbank.org/table/4.2>.

When environmental hazards erode the foundation for this part of the economy, the income of a majority of the population will vanish. Massively reduced incomes will then undermine the generation of tax revenues for the provision of state services that will be all the more necessary.

The aforementioned shifts in precipitation and temperatures cascade downstream of second and third-order effects, further increasing the population's vulnerability to environmental hazards. The growing season shortens, the number of suitable crops gets smaller, and the ways that pastoralists husband their livestock change. While the changes themselves are in precipitation and temperature, those cause many climate change adaptations and will finally reduce overall resilience.

Additionally, ongoing armed conflict makes Mali more susceptible to climate change and volatility. An ongoing armed conflict can exacerbate climate change effects by affecting the natural adaptive capacity of a state and its people.⁸¹ A conflict that brings political instability and weakens governmental institutions limits a state's ability to cope with the adverse effects of climate change and makes people more vulnerable to losing what is left of their livelihood. In Mali, these factors add to each other and make the country more vulnerable and less adaptive to climate change.⁸²

Mali is one of the world's most sensitive countries regarding climate change. According to the Notre Dame Global Adaptation Initiative (ND-GAIN), Mali's vulnerability to the adverse effects of climate change is the seventh highest among 182 listed countries worldwide.⁸³ Although Mali's overall vulnerability index has slightly declined from 0.619 in 2000 to 0.598 in 2020, the component of sensitivity, which

⁸¹ ICRC, "When Rain Turns to Dust," International Committee of the Red Cross, July 13, 2020, <https://www.icrc.org/en/publication/4487-when-rain-turns-dust>.

⁸² Climate-related Peace and Security Risks Project, "Climate, Peace, and Security Fact Sheet Mali," Stockholm International Peace Research Institute and Norwegian Institute of International Affairs, May 2021, 1–2, https://sipri.org/sites/default/files/210526%20Final%20Mali%20Climate%20Peace%20Security%20Fact%20Sheet_EN.pdf.

⁸³ Notre Dame Global Adaptation Initiative, "Rankings," University of Notre Dame, Vulnerability, accessed February 6, 2023, <https://gain.nd.edu/our-work/country-index/rankings/>. Based on data that measures a country's exposure, sensitivity, and ability to adapt to the negative impact of climate change.

measures the “extent to which a country is dependent upon a sector negatively affected by climate hazard, or the proportion of the population particularly susceptible to a climate change hazard” has risen from 0.442 to 0.448 in the same time. The combination of high vulnerability and low readiness for adaptation measures makes Mali most susceptible to the adverse effects of climate change.

3. Mechanisms

In the agriculturally dependent economy of Mali, the environmental hazards just described contribute to conflicts over scarce resources of arable land and agriculturally available water. In the past, droughts have often led to disputes and armed uprisings. The droughts of 1991, 2010–11, and 2020 are in significant temporal connection to uprisings leading to coups d'état. The Tuareg were especially impacted as droughts killed an enormous part of their livestock on which their wealth was grounded.⁸⁴ In the most recent conflict related to the drought of 2010–11, local disputes between farmers and herders, a long history of weak governance through corruption and unjust relief policies, and the Tuaregs' historically unfulfilled desire for an independent state finally culminated in enacting violent change.

The causal chain might not be as simple as Thomas Homer-Dixon's scarcity wars described.⁸⁵ However, the case of Mali quickly follows the causal chain of Ohlsson's model of livelihood conflicts (see Chapter I, Section B.1).⁸⁶ In Mali, the causal chain follows a line from environmental hazards along an agricultural failure to livelihood conflicts. It starts from an argument of rapid decline into poverty based on the loss of livelihood in agriculture that can no longer cope with the degeneration of arable land. The environmental hazards ultimately exacerbate pre-existing land-use conflicts between nomadic herders and settled farmers.

⁸⁴ Andrew Alesbury, “A Society in Motion: The Tuareg from the Pre-Colonial Era to Today,” *Nomadic Peoples* 17, no. 1 (2013): 119, <https://www.jstor.org/stable/43123923>.

⁸⁵ Homer-Dixon, “Environmental Scarcities and Violent Conflict.”

⁸⁶ Ohlsson, *Livelihood Conflicts*, 8–12.

The failure of the already weak Malian state to adequately address the competing needs of its inhabitants has further degraded general trust in the state. Mali's land tenure laws were composed out of inherited customary rules, laws from the colonial era, and reforms in the late 1980s and 1990s.⁸⁷ These laws are often disconnected, confusing, and leave space for dispute. Under Konaré's presidency in the 1990s, Mali tried to decentralize governance, especially to better integrate the Tuareg in Mali's north.⁸⁸ However, land tenure governance remained highly associated with clientelist networks.⁸⁹ Corrupt institutions under the control of local strongman did not solve land disputes and often further marginalized certain groups. The climate change-induced reduction of arable land, in combination with weak institutions led to grievances, increased marginalization and exclusion and exacerbated mistrust in Mali's state capacity.

In the absence of economic alternatives, many Malians have faced two poor alternatives: erosion of livelihoods which forced massive migration—predominantly internal displacement—or facilitated recruitment and exploitation for insurgent groups.⁹⁰ While dealing with internally displaced persons (IDP) ties up state capacity, non-state actors can fill the vacuum and promote insurgency as an economic alternative.

The causal mechanisms of the onset of environmental conflict in Mali partly happened long before the current phase of insecurity. However, environmental root causes remain unsolved, exacerbating other conflict risks and leading to the resurgence of hostilities and the doubting of the social contract. In the society of Mali, where livelihood is highly dependent on natural resources, all five mechanisms of environmental conflict as identified by USAID (see Chapter I, Section B.1) can be observed: (1) endangered

⁸⁷ United Nations Environment Programme, *Livelihood Security*, 20–22.

⁸⁸ Susanna Wing and Brehima Kassibo, "Comparative Assessment of Decentralization in Africa: Mali Desk Study" (Washington, DC: United States Agency for International Development, July 2010), 1–5, https://pdf.usaid.gov/pdf_docs/PNADX217.pdf.

⁸⁹ Ole Martin Gaasholt, "State Decentralisation and Local Politics in Mali," *Cadernos de Estudos Africanos*, no. 5/6 (June 1, 2004): 75–88, <https://doi.org/10.4000/cea.1375>; Charles E. Benjamin, "Legal Pluralism and Decentralization: Natural Resource Management in Mali," *World Development* 36, no. 11 (November 2008): 2255–76, <https://doi.org/10.1016/j.worlddev.2008.03.005>.

⁹⁰ Hegazi, Krampe, and Smith, "Climate-Related Security Risks and Peacebuilding in Mali," 38, 23–24.

livelihood, (2) tensions over scarce resources, (3) reinforced marginalization and exclusion, (4) migration, and (5) increased terrorism and armed violence.⁹¹ In the past, the Malian government's failure to deal with climate change effects has battered the social contract, making it even harder to reestablish effective state capacity.

C. MINUSMA: HISTORY AND MANDATES

In April 2013, the United Nations Security Council, acting under Chapter VII of the U.N. Charter, adopted Resolution 2100 and decided to establish the United Nations Multidimensional Integrated Stabilization Mission in Mali (or MINUSMA).⁹² MINUSMA officially began its work in Mali on July 1, 2013, to stabilize the country after the Tuareg rebellion of 2012 and to restore governmental authority and Mali's integrity throughout its territory. Since then, MINUSMA's mission has been extended annually through nine Security Council resolutions.⁹³ Currently, MINUSMA's mandate is extended until June 30, 2023, and allows a total of "13,289 military personnel and 1,920 police personnel."⁹⁴ Thereby, MINUSMA is presently the fourth largest active U.N. mission, only slightly surpassed in total personnel by the U.N. missions in South Sudan, Congo, and the Central African Republic.

Labeled as a peacekeeping mission, MINUSMA encompasses extensive peacebuilding efforts. Concerning the complex political and security situation in Mali, MINUSMA is a U.N. mission where the distinct conflict management cycle phases blend into each other (see Chapter I, Section B.2). Besides classic peacekeeping tasks like the provision of protection against imminent threats of physical violence and deterrence against threats posed by armed elements, the first MINUSMA mandate already

⁹¹ Adelphi, "Addressing Conflict and Strengthening Stability in a Changing Climate," 21–22.

⁹² United Nations Security Council, *Resolution 2100: Establishment of the UN Multidimensional Integrated Stabilization Mission in Mali (MINUSMA)*, S/RES/2100 (New York, NY: United Nations, 2013), 5, <https://digitallibrary.un.org/record/748429>.

⁹³ United Nations, "United Nations Digital Library," accessed January 31, 2023, <https://digitallibrary.un.org>. The U.N. Digital Library lists Resolutions 2164 (2014), 2227 (2015), 2295 (2016), 2364 (2017), 2423 (2018), 2480 (2019), 2531 (2020), 2584 (2021), and 2640 (2022) extending MINUSMA.

⁹⁴ United Nations Security Council, *Resolution 2640 (2022)*, S/RES/2640 (New York, NY: United Nations, 2022), 6, <https://digitallibrary.un.org/record/3979224>.

prominently included peacebuilding tasks. Through Resolution 2100, MINUSMA was assigned to “support ... Mali to extend and re-establish state administration throughout the country,” “support ... rebuilding the Malian security sector,” “exercise good offices, confidence-building and facilitation at the national and local levels,” and to “facilitate ... an inclusive national dialogue and reconciliation process.”⁹⁵ Although MINUSMA’s mandate was focused on the security sector and elections at this early stage, the first mission statement already clearly tasked establishing good governance and state capacity through inclusive institutions.

Mali’s economic development was soon added to MINUSMA’s priorities. In October 2015, the Organization for Economic Co-operation and Development (OECD) and the Malian government held an international donor conference to generate funds for economic recovery programs in Mali.⁹⁶ During that conference, the Malian government committed to establishing a strategy for economic recovery and development to mobilize and effectively utilize domestic resources, private investment, and development aid. Through expert hearings in the Security Council Working Group on Peacekeeping Operations in Mali, the Security Council became aware that it was necessary “to address the root causes of terrorism and violent extremism by fighting poverty, underdevelopment, ignorance and the lack of opportunities and employment for young people.”⁹⁷ It also became evident that fighting insurgency and the disarmament of irregular armed groups alone would not build sustainable peace or prevent backsliding. In 2016, the MINUSMA mission statement began addressing economic recovery and development.⁹⁸ Both the U.N. and the Malian government had recognized the need for a concerted strategy for economic reconstruction.

⁹⁵ United Nations Security Council, *Resolution 2100 (2013)*, 7–8.

⁹⁶ OECD, “International Conference for the Economic Recovery and Development of Mali: ‘Building an Emerging Mali,’” accessed February 3, 2023, <https://www.oecd.org/development/international-conference-for-the-economic-recovery-and-development-of-mali-building-an-emerging-mali.htm>.

⁹⁷ Mahamat Zene Cherif, “Letter from the Chair of the Security Council Working Group on Peacekeeping Operations Addressed to the President of the Security Council,” United Nations, December 29, 2015, 12–13, <https://digitallibrary.un.org/record/817352>.

⁹⁸ United Nations Security Council, *Resolution 2295 (2016)*, S/RES/2295 (New York, NY: United Nations, 2016), 6, <https://digitallibrary.un.org/record/833195>.

The U.N. Security Council then included following up on this strategy and monitoring funds distribution in MINUSMA's 2016 mandate. The implementation of the 2015 Agreement on Peace and Reconciliation in Mali⁹⁹—often called the Algiers peace agreement—provided the framework for this task. The Secretary-General incorporated Mali's economic development assessments into his periodic situation reports. He observed that “stabilizing the situation in Mali and combating terrorism will require addressing the grievances of the disenfranchised and the poor. Advancing the reforms envisaged under the agreement [on peace and reconciliation in Mali], investing in economic development, and providing opportunities will be critical in this regard.”¹⁰⁰ A key element in MINUSMA's peacebuilding efforts is stimulating economic growth to offer economic opportunities.

Environmental aspects first appeared in MINUSMA's mandate in 2014. Security Council Resolution 2164 considered the environmental impact of the mission's footprint in Mali and asked for appropriate management of resources.¹⁰¹ While resource and waste management is not about countering devastating climate change effects for the benefit of Mali's development, MINUSMA thus early implicitly acknowledged existing environmental risks and took steps not to make the situation unnecessarily worse through its presence.

It took until 2018 for the United Nations to accept climate change effects on the security situation of Mali in MINUSMA's mandate, and then the inclusion was underemphasized, underprovisioned, and short-lived.¹⁰² In early 2018, in reaction to inconsistent progress and deteriorating conditions in Mali, the U.N. assigned an expert team to review MINUSMA's strategy. The review team supported the impression that

⁹⁹ Government of the Republic of Mali, “Accord Pour La Paix Et La Reconciliation Au Mali. Issu Du Processus d'Alger” (peace agreement, Algiers, 2015), https://www.un.org/en/pdfs/EN-ML_150620_Accord-pour-la-paix-et-la-reconciliation-au-Mali_Issu-du-Processus-d'Alger.pdf.

¹⁰⁰ United Nations Secretary General, *Situation in Mali: Report of the Secretary-General*, S/2019/983 (New York, NY: United Nations, 2019), 16, <https://digitallibrary.un.org/record/3841840>.

¹⁰¹ United Nations Security Council, *Resolution 2164 (2014)*, S/RES/2164 (New York, NY: United Nations, 2014), 8–9, <https://digitallibrary.un.org/record/773580?ln=en>.

¹⁰² United Nations Security Council, *Resolution 2423 (2018)*, S/RES/2423 (New York, NY: United Nations, 2018), 4, <https://digitallibrary.un.org/record/1631974>.

Mali's deteriorated security was likely oversimplified as only related to terrorism and organized crime. Instead, the team suggested that "fundamental causes of instability, such as the multiplicity of localized conflicts over resources and land, [and] climate change ... must be taken into account."¹⁰³ In reaction to the 2018 Security Council resolution on the extension of MINUSMA's mandate, MINUSMA and the U.N. country team established an Integrated Strategic Framework to incorporate these causes of insecurity. The subsequent MINUSMA mandates from 2018 until today have all accounted for environmental security risks in one of the opening paragraphs:

[The Security Council emphasizes] the need for adequate risk assessment and risk management strategies, by the government of Mali and the United Nations, of ecological changes, natural disasters, drought, desertification, land degradation, food insecurity, energy access, climate change, among other factors, on the security and stability of Mali.¹⁰⁴

Nonetheless, this wording only points out the necessity for risk assessment. It does not translate into actual tasks. Only the 2018 mandate includes a paragraph that gets closer to tasking environmental security among the mission's activities:

[The Security Council] notes the importance for the Government of Mali and the United Nations to take into consideration, as appropriate, the security implications of the adverse effects of climate change and other ecological changes and natural disasters, among other factors, in their activities, programs and strategies in Mali.¹⁰⁵

Still, the position of this paragraph on the penultimate page of the document underscores the low importance attributed to this aspect. In the mandate that followed in 2019, this paragraph had already disappeared. It did not reappear in later resolutions; the only climate-related remnants were the emphasis on the necessity of an environmental risk assessment

¹⁰³ United Nations Secretary General, *Situation in Mali: Report of the Secretary-General*, S/2018/541 (New York, NY: United Nations, 2018), 10–11, <https://digitallibrary.un.org/record/1628998>.

¹⁰⁴ United Nations Security Council, *Resolution 2480 (2019)*, S/RES/2480 (New York, NY: United Nations, 2019), 2, <https://digitallibrary.un.org/record/3811284>; United Nations Security Council, *Resolution 2531 (2020)*, S/RES/2531 (New York, NY: United Nations, 2020), 3, <https://digitallibrary.un.org/record/3870256>; United Nations Security Council, *Resolution 2584 (2021)*, S/RES/2584 (New York, NY: United Nations, 2021), 3, <https://digitallibrary.un.org/record/3930674>; United Nations Security Council, *Resolution 2640 (2022)*, 3.

¹⁰⁵ United Nations Security Council, *Resolution 2423 (2018)*, 17.

and a mandate to minimize MINUSMA's environmental footprint. No concrete action against climate-related security factors was ever tasked to MINUSMA. The task of considering appropriate actions against climate change effects only experienced a brief flash in the mandate and was gone before it translated into concrete measures.

MINUSMA's mandates only emphasize the importance of risk assessment but lack specific measures or strategies in place to address identified risks. Neither the mission mandate, as stated in the Security Council resolutions, nor the periodic reports by the Secretary-General to the Security Council explicitly reflect on the effects of climate change on economic growth and institutional state capacity in Mali. For a detailed evaluation see Appendix C. The official MINUSMA-related U.N. papers merely repeat the opening paragraph about climate change risk assessment year after year without tasking MINUSMA to act.

The U.N. and MINUSMA are only lately and still not sufficiently taking the relations between climate change, the loss of people's livelihoods, and Mali's poor governance into account in their peacebuilding efforts. Since 2013 the U.N. Secretary-General has reported to the Security Council on the situation in Mali through a series of 40 reports in total. The term 'climate change' did not appear in these reports until 2018.¹⁰⁶ Floods and droughts mentioned in the reports are almost exclusively linked to the humanitarian situation, food insecurity, and the need for relief supplies. Floods are first acknowledged as a cause of migration and intercommunal clashes in a fall 2018 report.¹⁰⁷ In a 2019 report, the assessment of droughts switched from causing food insecurity to deteriorating livelihoods.¹⁰⁸ In 2022, the U.N. Secretary-General finally concluded that climate change is causing displacement, affecting primarily vulnerable populations by reducing their access to basic social services and safety nets.¹⁰⁹ While

¹⁰⁶ United Nations Secretary General, *Situation in Mali S/2018/541*, 11.

¹⁰⁷ United Nations Secretary General, *Situation in Mali: Report of the Secretary-General*, S/2018/866 (New York, NY: United Nations, 2018), 11, <https://digitallibrary.un.org/record/1644147>.

¹⁰⁸ United Nations Secretary General, *Situation in Mali: Report of the Secretary General*, S/2019/262 (New York, NY: United Nations, 2019), 10, <https://digitallibrary.un.org/record/3797941?ln=en>.

¹⁰⁹ United Nations Secretary General, *Situation in Mali: Report of the Secretary-General*, S/2022/446 (New York, NY: United Nations, 2022), 12, <https://digitallibrary.un.org/record/3976385>.

MINUSMA's mandate still only tasked risk assessment, as of 2021, a tiny flood prevention project, sharing a \$ 3 million budget with seven other projects, was the only CCA measure ever reported.¹¹⁰ By providing relief supplies, the U.N. is trying to alleviate hardship in Mali. However, perceived injustice in aid distribution is increasing mistrust in Malian governance. Moreover, enormous resources are invested in fighting symptoms instead of addressing underlying roots.

D. EFFECTS OF MINUSMA'S PRESENCE

As described earlier, droughts and floods negatively affect Mali's economy, state capacity, and security. In the previous section, MINUSMA's mandate was examined and shown not to fight the effects of climate change directly. When SIPRI researchers interviewed MINUSMA officials, one officer blamed the lack of mandate for MINUSMA not directly addressing the effects of climate change on security.¹¹¹ Officials are thus aware of the effects but counter them only reactively instead of preventing them. Rather than looking at how MINUSMA has responded directly to environmental factors, this section examines how Mali's institutions and economy developed over time during MINUSMA's peacebuilding endeavor. As earlier sections noted, institutional good governance and economic development are intermediate factors that shape the impact of environmental hazards. Analyzing how Mali has economically and institutionally developed during the ongoing time of MINUSMA's activity will show if MINUSMA has helped Mali to counter the impact of environmental hazards indirectly.

From 2011 to 2021, measured in terms of per capita GDP, Mali's economy has been growing at an average annual rate of 0.4%.¹¹² It declined sharply from 2011 to 2013 in connection with the drought. With the start of MINUSMA, Mali's economy then grew firmly again in 2014 (+3.7%); after that, however, growth has been steadily declining and relapsed deeply into the negative in 2020. In MINUSMA's presence and amid strong

¹¹⁰ United Nations Secretary General, *Situation in Mali: Report of the Secretary-General*, S/2021/519 (New York, NY: United Nations, 2021), 13, <https://digitallibrary.un.org/record/3928143?ln=en>.

¹¹¹ Hegazi, Krampe, and Smith, "Climate-Related Security Risks and Peacebuilding in Mali," 45.

¹¹² World Bank, "GDP per Capita Growth (Annual %) (NY.GDP.PCAP.KD.ZG)," The World Bank Group, accessed February 20, 2023, <https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG>.

population growth, Mali's GDP has still been growing—except for the pandemic and drought related decline in 2020. Unfortunately, economic growth nevertheless did not translate into an overall positive development.

Despite MINUSMA's efforts, Mali's development failed to keep pace with general development in the sub-Saharan region after the droughts of 2010–11. Following droughts, Mali typically experiences setbacks in essential development factors like health, education, and standard of living. Referring to the Human Development Index (HDI), Mali is considered a low-development country, showing one of the lowest HDIs in the world.¹¹³ Mali is at the lower end, even among the mostly low-ranking sub-Saharan African countries. Generally following the world's slowly increasing HDI at a far distance, Mali's development index negatively stands out by declining in 2011–12 and 2020. Although the decrease in 2020 may partly be associated with the effects of the COVID-19 pandemic, Mali's HDI experiences ongoing setbacks, particularly due to droughts (See Figure 4). MINUSMA aims at development but cannot counter the negative influences of environmental factors.

¹¹³ United Nations Development Programme (UNDP), "Human Development Index (HDI)," United Nations Development Reports, accessed February 14, 2023, <https://hdr.undp.org/data-center/specific-country-data>.

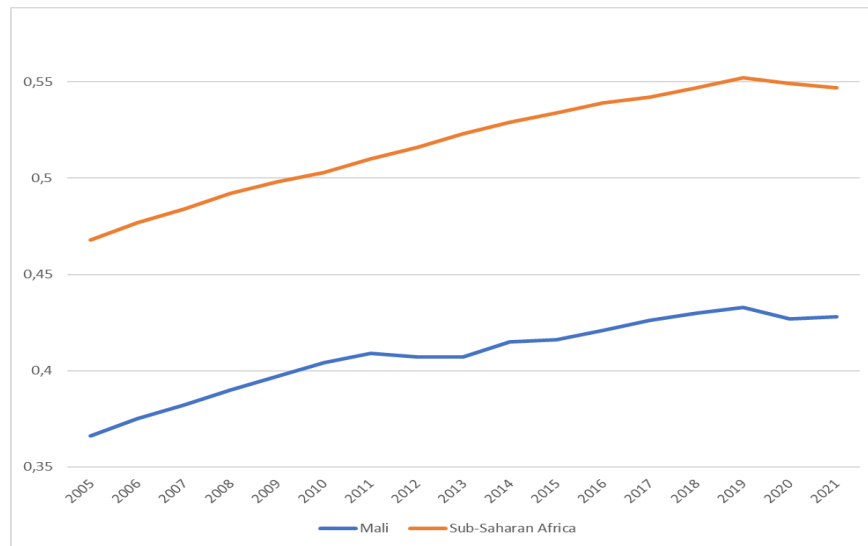


Figure 4. Mali's Human Development Index.¹¹⁴

MINUSMA also fails in improving Mali's governance quality. The World Bank's Country Policy and Institutional Assessment (CPIA) evaluates the effectiveness of a nation's institutional and policy structure to create growth, reduce poverty, and use aid effectively.¹¹⁵ Concerning MINUSMA's peacebuilding goal of institution building and good governance, the CPIA set of indicators may measure MINUSMA's progress. Mali's average scores of the CPIA data cluster on public administration and institutions steadily declined from 2010 to 2021, with significant drops in 2010–12 and 2019–21.¹¹⁶ Two indicators significantly drove the cluster's average setback: (1) transparency, accountability, and corruption; and (2) property rights and rule-based governance (See

¹¹⁴Source: United Nations Development Programme (UNDP), "Human Development Index (HDI)," United Nations Development Reports, accessed February 14, 2023, <https://hdr.undp.org/data-center/specific-country-data>.

¹¹⁵ Independent Evaluation Group, "The World Bank's Country Policy and Institutional Assessment: An IEG Evaluation" (Washington, DC: World Bank, September 2010), 15, <https://doi.org/10.1596/978-0-8213-8427-5>.

¹¹⁶ World Bank, "CPIA Public Sector Management and Institutions Cluster Average (IQ.CPA.PUBS.XQ)," World Development Indicators, accessed February 14, 2023, <https://databank.worldbank.org/reports.aspx?source=2&series=IQ.CPA.PUBS.XQ>.

Figure 5).¹¹⁷ Instead of improving institutional governance through the help of MINUSMA, Mali's governance quality has decreased, with significant regression following droughts. When severe droughts occur, Mali's institutions fall back into bad policies undermining the peacebuilding efforts of institutionalizing good governance. The most precipitous drop occurred before MINUSMA's deployment and is only indirectly connected to climate change. However, MINUSMA does not seem to have caused any progress. Instead, the cluster average has further declined during the latest drought.

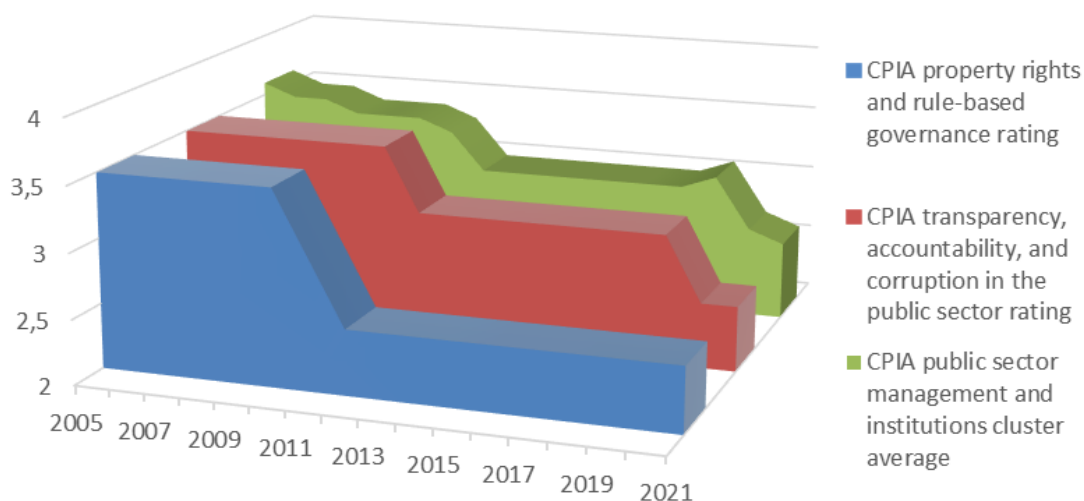


Figure 5. Mali's Country Policy and Institutional Assessment.¹¹⁸

¹¹⁷ World Bank, "CPIA Transparency, Accountability, and Corruption in the Public Sector Rating (IQ.CPA.TRAN.XQ)," World Development Indicators, accessed February 14, 2023, <https://databank.worldbank.org/reports.aspx?source=2&series=IQ.CPA.TRAN.XQ>; World Bank, "CPIA Property Rights and Rule-Based Governance Rating (IQ.CPA.PROP.XQ)," World Development Indicators, accessed February 14, 2023, <https://databank.worldbank.org/reports.aspx?source=2&series=IQ.CPA.PROP.XQ>.

¹¹⁸Source: World Bank, "CPIA Transparency, Accountability, and Corruption in the Public Sector Rating (IQ.CPA.TRAN.XQ)," World Development Indicators, accessed February 14, 2023, <https://databank.worldbank.org/reports.aspx?source=2&series=IQ.CPA.TRAN.XQ>; World Bank, "CPIA Public Sector Management and Institutions Cluster Average (IQ.CPA.PUBS.XQ)," World Development Indicators, accessed February 14, 2023, <https://databank.worldbank.org/reports.aspx?source=2&series=IQ.CPA.PUBS.XQ>; World Bank, "CPIA Property Rights and Rule-Based Governance Rating (IQ.CPA.PROP.XQ)," World Development Indicators, accessed February 14, 2023, <https://databank.worldbank.org/reports.aspx?source=2&series=IQ.CPA.PROP.XQ>.

Governance on land rights remains a significant issue in Mali. While climate change is reducing the total available arable land, good governance on rights related to scarce land becomes critical. If land rights are not firmly implemented and enforced consistently and fairly, disputes quickly escalate into conflict. Since 2000, the Malian government has been working on a new land use legislation. However, implementing inclusive land rights literally takes decades, and the laws still poorly integrate minorities.¹¹⁹ The International Development Association (IDA) resource allocation index averages 20 indicators of the CPIA cluster. The indicator assigns “higher scores ... [to] a country that, given its stage of development, has a policy and institutional framework that more strongly fosters growth and poverty reduction.”¹²⁰ Measured on a scale from 1 (low) to 6 (high), Mali’s score has fallen from 3.6 in 2010 to 3.2 in 2021, ranking Mali 44th out of 82 listed countries.¹²¹ A significant decline in the indicator for land rights and rule-based governance from 2010 to 2012 had a particularly negative impact here. This change in valuation reflects Mali’s poor governance in response to the 2010–11 droughts and the settlement of land rights disputes at that time. Climate change is occurring more quickly than the legislature is adopting new laws. Climate change’s negative impacts on the rule of law in land use undermine MINUSMA’s efforts to improve the overall governance quality.

An Afrobarometer survey provides strong evidence that climate change is exacerbating conflict in Mali by undermining trust in the government. How much poor governance fuels insurgency and conflict depends largely on the population’s perception of state institutions. Where the state is not perceived as providing efficiently and fairly, people will likely turn to other actors. The Malian population perceives climate change’s effects as threatening its well-being and expects its government to do something about it. The section on mechanisms showed how suffering from climate change will undermine

¹¹⁹ LANDac, “Food Security and Land Governance Factsheet Mali” (Utrecht, Netherlands: Utrecht University, Faculty of Geosciences Human Geography & Planning (SGPL), June 2016), <http://landgovernance.org/assets/20160608-Factsheet-Mali.pdf>.

¹²⁰ World Bank, “World Development Indicators Metadata,” World Bank Group, accessed April 28, 2023, <https://databank.worldbank.org/reports.aspx?source=2&type=metadata&series=IQ.CPA.IRAI.XQ>.

¹²¹ World Bank, “IDA Resource Allocation Index (IQ.CPA.IRAI.XQ),” The World Bank Group, accessed February 8, 2023, <https://data.worldbank.org/indicator/IQ.CPA.IRAI.XQ?locations=ML>.

people's trust in the state (See Chapter II, Section B.3). According to the most recent Afrobarometer survey, most Malian citizens are informed about climate change, and 80% of them reply that climate change has made their lives somewhat or much worse.¹²² The same survey reveals that a majority, or 62%, perceive droughts to have become worse during the last ten years.¹²³ On the other hand, only 37% of Malians had the impression that floods have become somewhat to much worse. However, this number may be lower due to the floods' regionally limited extent and, consequently, comparatively fewer people personally affected.

Most Malian people think Mali's government is the entity primarily responsible for doing something about climate change effects and must immediately do more.¹²⁴ The opinion on the Malian government's overall performance in limiting the impacts of climate change is divided.¹²⁵ Nevertheless, the survey findings indicate a pronounced wide-ranging concern about the Malian government's climate change-related policies. In the already contested social-contract context, this public opinion strongly suggests that climate change undermines MINUSMA's efforts to restore stable and effective governance as well as public trust.

E. SUMMARY OF THE MALIAN CASE

This chapter has evaluated the thesis's first hypothesis: U.N. missions that fail to adequately address or effectively integrate the security impacts of environmental hazards into their peacebuilding efforts will not successfully build positive peace. The case of MINUSMA supports the hypothesis. Climate change has impeded MINUSMA's attempts

¹²² Afrobarometer, "Les changements climatiques aggravent la vie et nécessitent l'action du gouvernement, selon les Maliens" [Climate change makes life worse and requires government action, Malians say], press release (Bamako, January 30, 2023), 3, <https://www.afrobarometer.org/articles/les-changements-climatiques-aggravent-la-vie-et-necessitent-laction-du-gouvernement-selon-les-maliens/>.

¹²³ Afrobarometer, 2.

¹²⁴ Afrobarometer, 3–4; 57% consider the Malian government as primarily responsible for limiting climate change and reducing its impact while 88% agree or strongly agree that the government must act now, and 92% say the government must do somewhat or much more.

¹²⁵ Afrobarometer, 5.

to create legitimate institutionalized governance and stimulate economic growth. These limitations hinder the mission's goal of building and sustaining peace.

In Mali, climate change feeds into armed conflict while, simultaneously, armed conflict reduces the population's and the country's ability to adapt to climate change. MINUSMA does not properly address climate-related root causes of the conflict. Mutually reinforcing effects undermine MINUSMA's attempts at building sustainable peace. The sensitivity of economic and governance factors to droughts indicates that MINUSMA has so far failed to make Mali more resilient.

Although Mali's economy has seemed to develop positively, albeit slowly, in the presence of MINUSMA, more general development indicators suggest that economic growth is not translating into overall progress for all Malians. Droughts especially cause severe relapses in Mali's development. Substantial aid programs cushion adverse effects in the short term and mitigate famine, for example. However, distributing aid through corrupt government channels reinforces negative practices, worsens the population's perceptions of institutions, and does not lead to long-term improvements. Climate change wipes away people's livelihoods to such an extent that more than immediate emergency aid is needed. MINUSMA's humanitarian aid supports people's immediate survival but does not provide long-term survival alternatives. Additionally, Mali's poor governance does not provide for enough resilience.

MINUSMA does not strengthen the Malian government enough to enable adequate coping with the deteriorating environmental situation. The government's poor performance further weakens the population's confidence in the government, making it a vicious circle. Even if insurgencies are effectively countered at times, underlying conflicts over land use rights in the struggle for resilient livelihoods will resurge until enforceable regulations are in place and the government can be held liable for them. Only if governmental institutions accountably protect livelihoods will migration stop, the insurgency's recruitment channels dry out, and peace have a chance to last.

MINUSMA has long failed to perceive that climate change is undermining Mali's security situation. People's loss of their livelihoods has heightened tensions, triggered

migration, increased marginalization of vulnerable populations, and facilitated recruitment by armed groups. Instead of targeting the roots of the problem with CCA measures, MINUSMA spent considerable funds on providing relief goods. The Malian government channeled these supplies, reinforcing negative practices and worsening people's perceptions of Mali's institutions. MINUSMA, still caught in a dilemma between short-term needs and long-term improvements, is only slowly beginning to align its operations with CCA.

In summary, climate change has negatively affected the situation in Mali through its impact on political institutions and development. Through this mechanism, climate change indirectly undermined MINUSMA's ability to achieve its governance-and-development peacebuilding mandate.

Concerning climate change, the MINUSMA's mandate has too long remained focused on risk assessment instead of taking risks into account to implement concrete actions and countermeasures. The effects of climate change have substantially undermined peacebuilding efforts. In coordination with the U.N. country team, MINUSMA must consistently implement climate adaptation measures to protect the livelihoods of ordinary citizens. In addition, stable government institutions such as courts that can resolve disputes peacefully must be established and strengthened. Otherwise, responding to worsening environmental hazards will remain a Sisyphean task. Reducing the rock will ease the uphill push; flattening the hill will prevent the rock from rolling back down.

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III. UNITED NATIONS ASSISTANCE MISSION IN SOMALIA (UNSOM)

A. SOMALIA AND ITS SECURITY SITUATION

With the fall of the communist authoritarian Barre regime in Somalia in 1991, the Somali government collapsed.¹²⁶ The collapse started a prolonged period of civil war and international interventions. Famously referenced in the film *Black Hawk Down*,¹²⁷ Somalia's intra-state conflict became well known for the struggle between intervening international troops and violent local actors. Following the disintegration of its state in 1991, Somalia has witnessed various international and regional endeavors aimed at restoring formal government structures, combating insurgents, and ensuring stability.¹²⁸

Somalia's geography and colonial history are shaping its state structure. Somalia stretches around the corner of the Horn of Africa, occupying a strategically important position adjacent to major international maritime trade routes. Its geography includes a diverse landscape of plains, plateaus, and highlands, with a long coastline along the Indian Ocean. Somalia's climate is generally hot and dry, with occasional monsoon rains in the coastal areas.¹²⁹ Somalia looks back on an eventful history from British and Italian colonial times.¹³⁰ Although there is some Somali national identity, the Somali people are spread across the territory of Somalia, Ethiopia, and Kenya. From the beginning of the Somali state, there was a lack of national unity and a missing sense of belonging among Somalis. In recent years, Somalia has experienced a secessionist and autonomy movement, with the self-declared Republic of Somaliland and Puntland seeking autonomy from the

¹²⁶ Jo Rose and Janaka Jayawickrama, "Capacity Building of Institutions for Disaster Risk Reduction," *Built Environment Project and Asset Management* 6, no. 4 (2016): 397, <https://doi.org/10.1108/BEPAM-06-2015-0024>.

¹²⁷ *Black Hawk Down*, Motion picture, Sony Pictures, 2001, <https://www.imdb.com/title/tt0265086/>.

¹²⁸ Charbonneau and Moe, "Counterinsurgency and Peacebuilding in Somalia and Mali," 210.

¹²⁹ World Bank Group, "Somalia," Climate Change Knowledge Portal, Current Climate, accessed March 5, 2023, <https://climateknowledgeportal.worldbank.org/country/somalia>.

¹³⁰ I. M. Lewis, *A Modern History of the Somali: Nation and State in the Horn of Africa*, 4th ed., Eastern African Studies (Oxford, UK: James Currey, 2002).

Federal Government of Somalia (FGS) in Mogadishu. The central government in Mogadishu is not succeeding in creating national unity and establishing functioning governance structures in the federal state.

In fact, Somalia is the prime example of a failed state. The former president of the World Peace Foundation, Robert Rotberg, even called Somalia a collapsed state, expressing that Somalia is “an extreme version of a failed state ... [with a] total vacuum of [state] authority.”¹³¹ Combining 12 indicators of a state’s monopoly on the use of force, legitimacy, provision of public services, and international relations, the Fund for Peace ranks Somalia as the second most fragile state in the world—measuring fragility instead of determining any state as failed.¹³² The vacuum left by decades of weak and fragmented Somali state institutions was filled by a complex informal structure of traditional clan governance, customary laws, Islamic courts, non-state armed groups, and humanitarian organizations.¹³³

A mix of progress and challenges has characterized the security situation in Somalia over the last ten years. Following the ousting of the Islamic extremist group Al-Shabaab from Mogadishu and other urban areas from 2011 to 2014, the African Union Mission in Somalia (AMISOM) has been working with the Somali National Army to push the militants out of other key areas in the country.¹³⁴ The United Nations Assistance Mission in Somalia (UNSOM) has played a significant role in promoting political stability and economic development.

Somalia continues to experience significant security challenges, including ongoing conflict between government forces and armed groups, as well as inter-clan violence. The

¹³¹ Robert I. Rotberg, “The New Nature of Nation-State Failure,” *The Washington Quarterly* 25, no. 3 (September 1, 2002): 90, <https://doi.org/10.1162/01636600260046253>.

¹³² Fund For Peace, “Fragile State Index (FSI),” FSI Country Statistics, accessed February 27, 2023, <https://fragilestatesindex.org/country-data/>.

¹³³ Ken Menkhaus, “Managing Risk in Ungoverned Space: Local and International Actors in Somalia,” *The SAIS Review of International Affairs* 36, no. 1 (2016): 109–20, <https://www.jstor.org/stable/27001422>.

¹³⁴ Lauren Ploch Blanchard, *Al Shabaab*, In Focus - IF10170 (Washington, DC: Congressional Research Service, February 14, 2023), <https://crsreports.congress.gov/product/pdf/IF/IF10170>.

Al-Shabaab extremist group remains the most significant threat to stability in the country, carrying out frequent attacks on government targets and civilians alike.¹³⁵ Additionally, Somalia has been hit by severe recurring droughts, which have led to widespread food insecurity and famine.¹³⁶ The situation is particularly dire in rural areas, where many communities rely on livestock and agriculture for their livelihoods. Humanitarian organizations have been working to provide aid and assistance, but access to some areas remains challenging due to insecurity and conflict.

Somaliland, a self-declared independent state in northern Somalia, stands out from the rest of the country for having maintained a relatively stable security situation compared to the rest of Somalia. The region has its own security forces and has largely been able to keep Al-Shabaab and other armed groups at bay. In terms of economic development, Somaliland has made some progress in recent years. The region has seen increased investment in infrastructure, including the construction of a new airport and seaport.¹³⁷ The government has also launched initiatives to attract foreign investment and promote job creation. However, the lack of international recognition of Somaliland's independence has limited its access to aid and foreign investment. It is worth noting that the situation in Somaliland is distinct from the rest of Somalia, and the international community, including the U.N. mission, has largely focused its efforts on supporting the federal government in Mogadishu. The map of Somalia in Figure 6 shows Somaliland in northern Somalia adjacent to Puntland, a state in the northeast. Some analysts argue that greater engagement with Somaliland could help to promote stability and development in the region, and there

¹³⁵ Blanchard.

¹³⁶ Humanitarian Action, "Humanitarian Needs Overview Somalia," United Nations Office for the Coordination of Humanitarian Affairs (OCHA), February 2022, 72–75, https://reliefweb.int/attachments/6c6e850f-ef21-4266-b0ee-70168794e8ea/20230208_Somalia%20_HNO_2023.pdf?_gl=1*106x7wo*_ga*MTc3Nzc4NDY3Ny4xNjc4MzE5NDY1*_ga_E60ZNx2F68*MTY3ODMxOTQ2NC4xLjEuMTY3ODMxOTU2Ny40MC4wLjA.

¹³⁷ Godfrey Ivudria, "Refurbished Berbera Airport a Game-Changer," *East African Business Week* (blog), November 23, 2021, <https://www.busiweek.com/refurbished-berbera-airport-a-game-changer/>; Dhruv Gandhi, "Africa in the News: DRC Inga Dam Agreement and Somaliland Port Expansion," *Brookings* (blog), October 20, 2018, <https://www.brookings.edu/blog/africa-in-focus/2018/10/20/africa-in-the-news-drc-inga-dam-agreement-and-somaliland-port-expansion/>.

have been calls for greater recognition of Somaliland's independence.¹³⁸ Nevertheless, since this thesis analyzes climate change's impacts on U.N. missions, this chapter focuses on the U.N. mission's efforts on Somalia and its federal government rather than analyzing the specific dynamics in Somaliland.



Figure 6. Somalia Map.¹³⁹

Despite the challenges of insurgency, food insecurity, and secessionist aspirations, there are some signs of progress in Somalia, including the establishment of a new federal government and development of new economic opportunities. On the other hand,

¹³⁸ David H. Shinn, "Somaliland: The Little Country That Could," Center for Strategic and International Studies, Africa Notes No. 9 (November 2002), <https://www.csis.org/analysis/africa-notes-somaliland-little-country-could-november-2002>; Ahmed M. Musa and Cindy Horst, "State Formation and Economic Development in Post-War Somaliland: The Impact of the Private Sector in an Unrecognised State," *Conflict, Security & Development* 19, no. 1 (January 2, 2019): 35–53, <https://doi.org/10.1080/14678802.2019.1561621>.

¹³⁹Source: "Somalia Map," in *The World Factbook*, Central Intelligence Agency, accessed April 16, 2023, <https://www.cia.gov/the-world-factbook/countries/somalia/map>.

Somalia's presidential elections have been repeatedly delayed due to the security situation, the electoral process as a whole is criticized as lacking transparency, and the composition of the electoral commission is not considered truly democratic. Nevertheless, there have been repeated democratic transitions that eventually led to the reelection of former President Hassan Sheikh Mohamud in 2022.¹⁴⁰ These early signs of restoring stability have prompted some Somalis to return from the diaspora to translate foreign education into economic investment in their homeland.¹⁴¹ Beneath the surface of these positive developments, however, Somalia still needs more state capacity to address the high demand for public services. Despite the long-ongoing international effort to rebuild the formal Somali state, formal state authority exists largely on paper only, while Somalia continues to be governed by clan structures and informal rules.

B. ENVIRONMENTAL SECURITY IN SOMALIA

Climate change has multiple impacts on the situation in Somalia. Environmental security in Somalia is linked to several environmental hazards. Like in the Malian case (See Chapter II), this section describes how environmental hazards are linked to Somalia's security situation. The section discloses an extensive set of environmental hazards, a cluster of vulnerabilities and specific mechanisms through which Somalia is susceptible to climate change-induced insecurity.

1. Environmental Hazards

The picture of environmental hazards in Somalia is more diverse than in Mali. Figure 7 shows the World Bank's national hazard statistics for Somalia since the 1980s, measured by the number of people affected. Like in Figure 3, the numbers in Figure 7 are shown in logarithmic scale, meaning that a difference between two major grid lines equals a factor of ten more affected persons. Although some hazards are not related to climate

¹⁴⁰ Nimi Princewill, "Former Somali President Returns to Power, Vows to Return Somalia to Stability," CNN, May 16, 2022, <https://www.cnn.com/2022/05/16/africa/somalia-elects-new-president-intl/index.html>.

¹⁴¹ Vice News, *Somalia's Fight to Rebuild After War*, video, 13:31, YouTube, 2020, <https://www.youtube.com/watch?v=BSP3TyVaTJw>.

change (e.g., earthquakes), the diagram shows a multifaceted set of environmental hazards. The chart displays that Somalia is suffering from various environmental hazards—often more than one at a time—that affect a significant portion of its population.

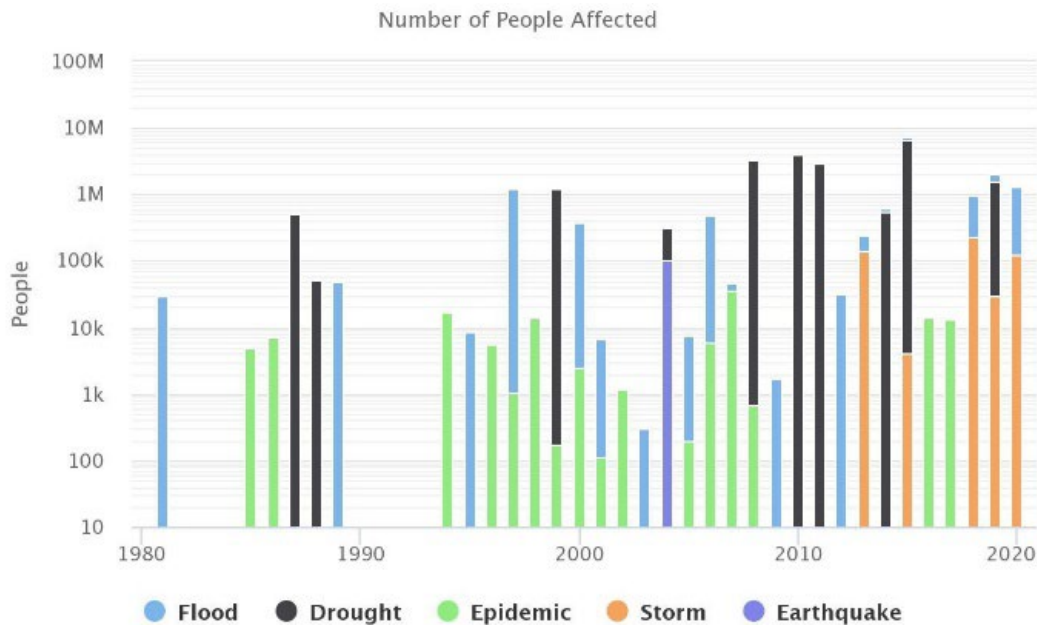


Figure 7. Somalia: Key National Hazard Statistics 1980–2020.¹⁴²

Before analyzing Somalia’s particular vulnerabilities and mechanisms by which these hazards translate into insecurity, the following subsections characterize the climate change-related hazards in this East African country.

a. Droughts

Somalia has experienced many periods of drought in the past, yet since 2011 the situation has been worse than ever. From late 2010 until spring 2012, the country experienced a massive drought, affecting millions of people.¹⁴³ It has been called the worst drought in 60 years, and Somalia’s government officially declared a famine to bring in

¹⁴²Source: World Bank Group, “Somalia.”

¹⁴³World Bank Group, Vulnerability.

humanitarian aid.¹⁴⁴ Humanitarian organizations report that, despite international aid and food supplies, over 250,000 Somalis have died, more than half of them children under the age of five.¹⁴⁵

The decade's only normal rainy season in 2013 was insufficient for recovery. Since then, Somalia has experienced several more droughts, each again newly named the worst drought in decades, throwing Somalia into a "decade of drought."¹⁴⁶ These droughts have resulted in persistent and severe food shortages and famine conditions. According to the latest United Nations Office for the Coordination of Humanitarian Affairs (OCHA) situation report on Somalia, there are currently 7.8 million people affected by drought, more than 1 million internally displaced, and 6.4 million people lacking access to safe water.¹⁴⁷ The situation is further compounded by ongoing conflict and insecurity, which limit access for humanitarian organizations and make it difficult to deliver aid to affected communities. While there have been some improvements in recent years, with better early warning systems and increased humanitarian aid, the threat of drought and famine remains a significant challenge for Somalia's people and government. The prolonged drought threatens the survival of many Somalis, undermines the foundation of Somalia's agricultural economy, and strains Somalia's state capacity.

b. Storms

While droughts deprive pastorals and farmers of their livelihoods, storms destroy the livelihoods of populations on Somalia's coastline, mainly fishermen. Somalia's geographic location, stretched along the edge of the Horn of Africa, goes along with the longest shoreline on the African continent.¹⁴⁸ Exposed to the Indian Ocean, Somalia often

¹⁴⁴ Giovetti, "Breaking down the Decade of Drought in Somalia."

¹⁴⁵ Giovetti.

¹⁴⁶ Giovetti.

¹⁴⁷ OCHA, "Somalia Situation Report," United Nations Office for the Coordination of Humanitarian Affairs (OCHA), September 18, 2022, <https://reliefweb.int/report/somalia/somalia-situation-report-31-aug-2022-enar>.

¹⁴⁸ World Bank, "Somalia Country Environmental Analysis: Diagnostic Study on Trends and Threats for Environmental and Natural Resources Challenges" (Washington, DC: World Bank, 2020), 28, <https://openknowledge.worldbank.org/handle/10986/34058>.

faces severe cyclones, while climate change increases the storms' occurrence and intensity.¹⁴⁹ These storms bring along high wind speeds and extremely concentrated rainfall. Both symptoms have destructive power: local flooding and extreme winds destroy people's homes and public infrastructure. Additionally, fishing vessels get damaged or destroyed, leaving locals without the means to generate income for reconstruction.

The destructive power of storms has strong short-term effects but can mostly be mitigated through humanitarian aid and disaster relief. However, the short-term effects create pressure on state services like infrastructure, health care, and relief distribution. Where state services do not function properly—which is likely the case in Somalia—the demands will not be covered, and people's trust in the government will be further undermined. It leaves space for other actors who may exploit the situation for their (ill) purposes.

c. Epidemic

Nowadays, when people read the word “epidemic,” the association with COVID-19 is inevitable. Although zoonotic-disease outbreaks may be linked to climate change, the impact of the COVID-19 pandemic is not considered in this paper. This section focuses on diseases that are related to climate change through the undersupply of potable water, the excessive spread of disease-transmitting vectors such as mosquitoes, and the increase in locust swarm outbreaks.

Water- and vector-transmitted viruses and bacteria (e.g., cholera, malaria, and the Rift Valley fever) break out more frequently and in larger numbers of cases. In Somalia, climate change increases the risks in this regard.¹⁵⁰ Due to differences in average temperatures, the living conditions of mosquitos transmitting diseases like malaria change, allowing a wider spread of these vectors. Additionally, some bacteria in water and food reproduce faster in higher temperatures, while clean drinking water is simultaneously less accessible and food is harder to keep fresh.

¹⁴⁹ World Bank Group, “Somalia.”

¹⁵⁰ World Bank Group.

These problems are exacerbated by the state of Somalia's inability to provide sufficient health care. The high number of infectious-disease cases poses additional pressure on Somalia's health system. In 2017, the World Health Organization (WHO) declared an emergency across Somalia when over 17,000 cases of cholera occurred, leaving almost 400 people dead.¹⁵¹ Additionally, ongoing fighting causes numerous complex trauma emergency cases among civilians. Furthermore, IDPs are harder to reach in vaccination campaigns, leaving more people vulnerable to infectious diseases. Related to health, climate change and conflict mutually enforce adverse effects on the population, against which the Somalian state does not supply enough service.

Epidemics not only affect Somalia's population directly, but they also undermine agricultural livelihoods. Rift Valley fever affects humans and livestock alike and can decimate productive livestock. Locusts' mass propagations have an even more devastating effect. In 2019, desert locusts destroyed crops on over 70,000 ha of farmland, seriously imperiling Somalia's food security and eradicating many farmers' income base.¹⁵² Experts state that climate change increases Africa's locust outbreak risk significantly.¹⁵³ At the same time, armed conflict prevents the use of aircraft to spray pesticides—prohibiting probably the most effective countermeasure for locust infestations. Again, we see climate change effects and insecurity as mutually reinforcing.

d. Extreme Heat

Extreme heat is an immediate environmental hazard with severe consequences. Rising temperatures are a general climate change-related development. They are usually not considered an environmental hazard but a development causing such hazards. Yet when temperatures become extremely high, the situation turns out to be directly threatening to

¹⁵¹ World Bank Group.

¹⁵² Giulia Paravicini, "Somalia Hit by Worst Desert Locust Invasion in 25 Years," Reuters, December 18, 2019, <https://www.reuters.com/article/us-somalia-locusts-idUSKBN1YM1SE>.

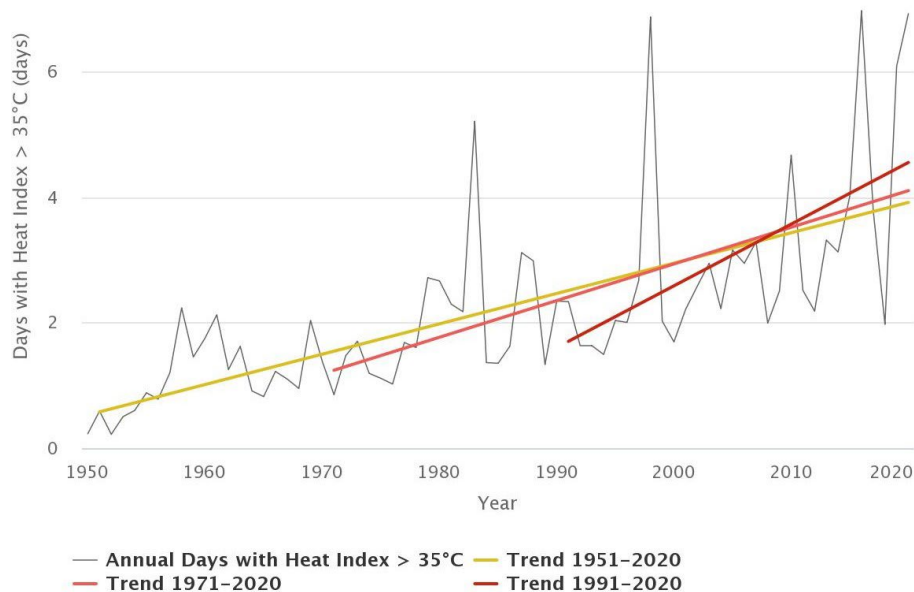
¹⁵³ Richard Munang, "Locust Swarms and Climate Change," United Nations Environment Programme, February 6, 2020, <http://www.unep.org/news-and-stories/story/locust-swarms-and-climate-change>; Jacob P. Youngblood et al., "Climate Change Expected to Improve Digestive Rate and Trigger Range Expansion in Outbreking Locusts," *Ecological Monographs* 93, no. 1 (2023): e1550, <https://doi.org/10.1002/ecm.1550>.

people. Extreme heat poses several direct and indirect health risks.¹⁵⁴ Although the WHO does not specify a concrete threshold for extreme heat, health hazards from extreme heat threaten people who lack heat-protective infrastructure, sufficient nutrition, and enough drinking water—as in Somalia. Even though the human body adapts to climatic conditions to some extent, heat can be immediately life-threatening to individuals unprotected from it. Health impacts range from rapid death from heat illness on top of chronic diseases to increased transmission of food and waterborne diseases.

In Somalia, extreme heat hazard risk is classified as high, meaning that “prolonged exposure to extreme heat ... is expected to occur at least once in the next five years.”¹⁵⁵ Figure 8 shows a disconcerting trend: In Somalia, the number of days with an extreme heat index exceeding 35°C is occurring more often; additionally, this trend is accelerating.

¹⁵⁴ World Health Organization, “Heat and Health,” WHO Newsroom, June 1, 2018, <https://www.who.int/news-room/fact-sheets/detail/climate-change-heat-and-health>.

¹⁵⁵ Think Hazard, “Somalia,” Global Facility for Disaster Reduction and Recovery, June 9, 2020, Extreme Heat, <https://thinkhazard.org/en/report/226-somalia>.



Annual Trends with Significance of Trend per Decade

Figure 8. Somalia: Days with Heat Index > 35°C.¹⁵⁶

Extreme heat events, directly and indirectly, affect ordinary citizens' lives. Since the heat makes people instantly feel physical suffering, the demand for health care and suitable infrastructure in terms of shelter and water supply becomes immediate. A weak state like Somalia cannot sufficiently meet these urgent needs. Poor public service further diminishes the social contract, erodes trust in state institutions, and spurs additional migration.

Heat also indirectly affects people by killing livestock and aggravating droughts. Although productive cattle breeds are adapted to Somalia's usual temperatures, extreme heat waves put additional pressure on the herds' water supply and may also directly kill animals in large numbers. Additionally, extreme heat exacerbates drought conditions. While droughts slowly destroy farmers' livelihoods, heat waves unleash destructive power on pastoralists and herders in the short term. The combination of environmental hazards creates complex challenges with multiple, mutually aggravating dynamics occurring at once.

¹⁵⁶ Source: World Bank Group, "Somalia."

2. Vulnerability

Somalia is one of the most vulnerable countries in the world to the effects of climate change. The combination of an economy extremely reliant on agriculture, adverse governance factors including the lack of state capacity to provide public goods or coordinate external aid, depleted reserves, ongoing conflict, and corruption make Somalia most vulnerable to the adverse effects of climate change just described. Somalia suffers from a cluster of mutually enforcing vulnerabilities.

An overwhelming dependency on agricultural livelihoods makes Somalia extremely susceptible to the adverse effects of climate change. The FGS describes the country's economy in the latest *National Development Plan 2020–2024* as being vulnerable based on a lack of diversification:

[Somalia having] an undiversified economy, reliant on livestock and crops, is disproportionately exposed to climate risk and disaster, with resulting higher poverty and displacement rates for the rural population.¹⁵⁷

World Bank data based on estimates from the International Labor Organization shows that agriculture makes up 80% of all employment in Somalia.¹⁵⁸ Livestock production, mainly exported to the Gulf states, makes up most of Somalia's exports.¹⁵⁹ The low value-added agriculture sector stands for 65% of Somalia's GDP.¹⁶⁰ Figure 9 shows a map of Somalia divided into livelihood zones. The capital of Mogadishu is the only area where livelihoods are based on urban economy. Besides the capital and some coastline-related fishery zones, almost all of the country's economy relies on agriculture.

¹⁵⁷ Ministry of Planning, Investment and Economic Development, "Somalia National Development Plan 2020 to 2024" (Mogadishu: Federal Government of Somalia, January 2020), 28, <http://mop.gov.so/wp-content/uploads/2019/12/NDP-9-2020-2024.pdf>.

¹⁵⁸ World Bank, "Employment in Agriculture (% of Total Employment) (Modeled ILO Estimate) (SLAGR.EMPL.ZS)," The World Bank Group, accessed March 5, 2023, <https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS?end=2019&locations=ML-SO&start=2005>.

¹⁵⁹ Tanya Boudreau et al., "Somalia Livelihood Profiles," FSNAU and FEWS NET, June 2016, 9–10, <http://www.fsnau.org/downloads/Somalia-Livelihood-Profiles-30-June-2016.pdf>.

¹⁶⁰ MECOMeter, "Somalia: GDP Composition Breakdown," MECOMeter - Macro Economy Meter, accessed March 7, 2023, <http://mecometer.com/infographic/somalia/gdp-composition-breakdown/>.

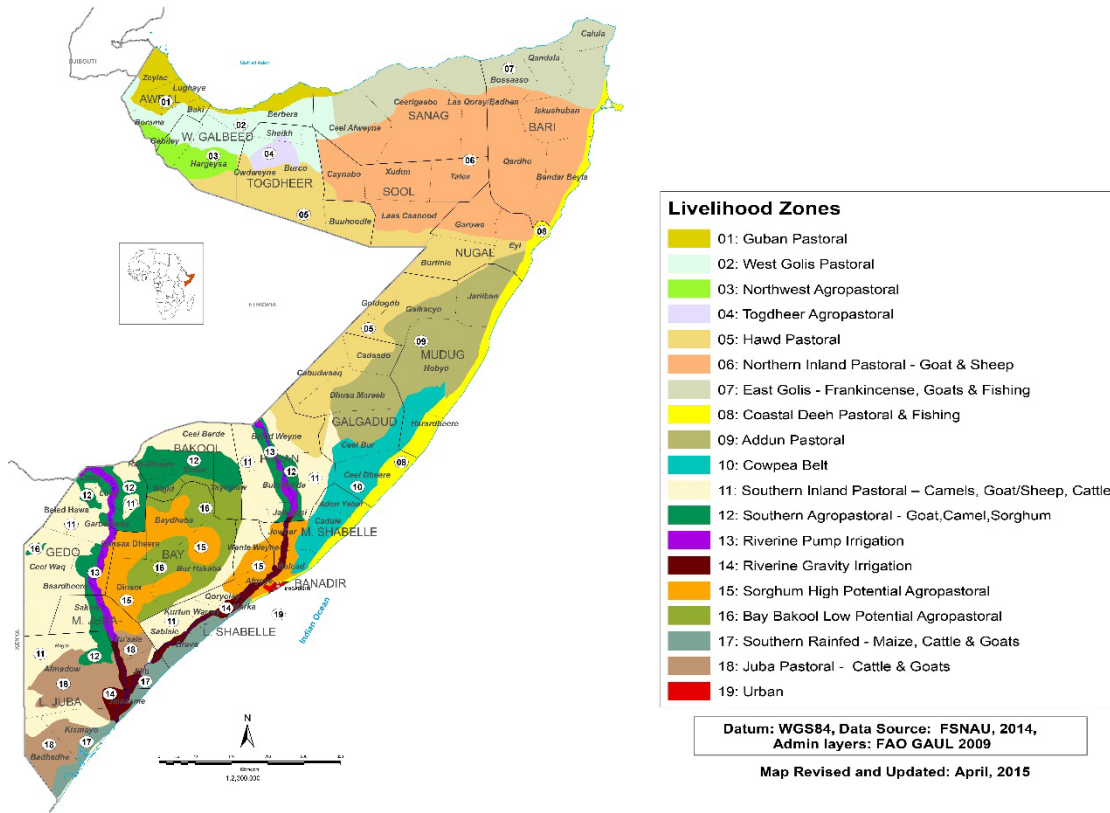


Figure 9. Somalia: Livelihood Zones.¹⁶¹

Droughts and locust plagues in combination with a weak state and an ongoing conflict in Somalia easily translate into desperate famine. Despite Somali's agricultural production, the country has to import around half of its food demand even in usual precipitation years.¹⁶² Due to its 80% arid or semiarid climate, Somalia is vulnerable to droughts.¹⁶³ When droughts occur, the state cannot afford to import sufficient food supplies and relies on external aid. Since 2000, Somalia has experienced a series of

¹⁶¹ Source: FSNAU, "Somalia Livelihood Zones," FSNAU and FEWSNET, April 2015, <https://fsnau.org/downloads/FSNAU-FEWSNET-Updated-Somalia-Livelihood-Zones-Map-April-2015.pdf>.

¹⁶² Boudreau et al., "Somalia Livelihood Profiles," 10.

¹⁶³ Michelle D. Gavin, "Climate Change and Regional Instability in the Horn of Africa," *Managing Global Disorder* No. 10 (New York: Council on Foreign Relations, November 2022), 6, <https://www.cfr.org/report/climate-change-and-regional-instability-horn-africa>.

protracted droughts.¹⁶⁴ Sources reporting the precise number of droughts vary depending on whether they count the number of failed rainy seasons or continuous periods of drought. Nonetheless, all sources agree that periods between droughts have shortened: OCHA, for example, considers 2015–2023 as one uninterrupted drought period.¹⁶⁵ While more capable governments may mitigate drought effects and prevent famine, Somalia’s weak government and dangerous security situation impede the distribution of external aid.¹⁶⁶ This can lead to aid being de-prioritized; in meetings with international aid agencies, government officials were sometimes more concerned about office supplies for their bureaus than about aid distribution. Even if distribution is officially coordinated, violent actors often prevent aid workers’ access to some areas, destroy aid goods, tax aid convoys, or sometimes even kill aid workers.¹⁶⁷ Mutually reinforcing effects of insufficient state capacity, armed conflict, and food insecurity make the country most vulnerable to environmental hazards that affect agricultural production and people’s food supply.

Three decades of intra-state conflict and recurring humanitarian crises have depleted the reserves of Somalia’s population. Whenever environmental hazards challenge its citizens, Somalia’s situation will likely deteriorate dramatically. People’s adaptability is exhausted. Somalia is among the world’s poorest countries; almost 70% of all Somalis live below the poverty line.¹⁶⁸ Without the immense diaspora remittances—financial resources from emigrated Somalis supporting their relatives in the homeland—the economic situation would be even worse.¹⁶⁹ The lack of reserves makes Somalia’s population more vulnerable to short-term environmental hazards like storms.

¹⁶⁴ United Nations Environment Programme, “Mapping the Devastation of Somalia’s Drought,” UNEP, January 30, 2018, <http://www.unep.org/news-and-stories/story/mapping-devastation-somalias-drought>.

¹⁶⁵ OCHA, “Somalia: Drought - 2015-2023,” Reliefweb, February 28, 2023, <https://reliefweb.int/disaster/dr-2015-000134-som>.

¹⁶⁶ Busby, *States and Nature*, 115–17.

¹⁶⁷ Anastasia Strouboulis et al., “Climate and Crisis in the Horn of Africa,” Rethinking Humanitarian Assistance, Center for Strategic and International Studies (CSIS), 2023, 8, <https://www.jstor.org/stable/resrep47049.4>.

¹⁶⁸ World Bank, “Somalia Country Environmental Analysis: Diagnostic Study on Trends and Threats for Environmental and Natural Resources Challenges,” 31–32.

¹⁶⁹ World Bank, 30.

Somalia is even less resilient due to the high rate of corruption in its institutions. Most effects of short-term environmental hazards may be mitigated by humanitarian aid. However, in Somalia, aid can either not be delivered as aid agencies cannot access insecure areas or aid is funneled to corrupt authorities. Local actors keep relief measures away from marginalized groups and channel them along clientelist networks.

Regarding climate change vulnerability and adaptation readiness, ND-GAIN ranks Somalia at 172 out of 182 countries.¹⁷⁰ This ranking combines Somalia's position as the second most vulnerable country and the 120th most ready in terms of its ability to leverage investments and convert them to climate change adaptation. The database relates Somalia's very high vulnerability to climate change to high exposure and low capacity of life-supporting sectors such as food, water, health, and infrastructure. Regarding readiness for adaptation to climate change, the extremely poorly rated governance stands out in addition to the poor economic situation. Although Somalia's long reliance on external aid has leveraged some capacity of aid implementation, poor governance factors indicate a likely misuse of financing not to the benefit of climate change adaptation. The country's extreme vulnerability makes these adaptations all the more necessary.

Environmental hazards create a mutually enforcing cluster of adverse effects in Somalia. The number of the hazards' occurrence, the long time without the possibility of rehabilitation, the security situation hindering external aid, and the lack of state capacity in Somalia maximize the country's vulnerability.¹⁷¹ Climate change simultaneously increasing Somalia's susceptibility to the described hazards fuels this vicious circle.

¹⁷⁰ Notre Dame Global Adaptation Initiative, "Rankings."

¹⁷¹ Moulid Hujale, "Displaced Somalis and Refugees Struggle to Recover as Climate Change Brings New Threats," United Nations High Commissioner for Refugees (UNHCR), August 17, 2021, <https://www.unhcr.org/news/stories/2021/8/611a2bca4/displaced-somalis-refugees-struggle-recover-climate-change-brings-new-threats.html>.

3. Mechanisms

In Somalia, we again see all five mechanisms of environmental conflict at work.¹⁷² In Somalia's highly agriculturally dependent economy, droughts, storms, livestock pests, and locust infestations easily translate into livelihood deprivation. In a 2018 report, the U.N. Secretary-General noted that "some 2.1 million people are now [2018] internally displaced, including 1 million newly displaced in 2017. Most of them largely depend on aid because they have lost their means of livelihood."¹⁷³ While Mali's divided geography partitions the country into sequentially affected areas, the cluster of environmental hazards in Somalia affects the whole country simultaneously. Prolonged environmental stress without recovery periods has turned agricultural collapse into serious food insecurity.

Food insecurity in the face of Somalia's lack of state capacity has developed into dramatic famine. The U.N. Secretary-General reported that the "severe drought in the first half of 2017 ... led to large-scale food insecurity affecting more than 6 million people."¹⁷⁴ In the 2023 cycle of humanitarian needs overview on Somalia, OCHA counted 6.7 million people suffering from food insecurity, including 300,000 people facing catastrophic famine conditions.¹⁷⁵ Famine has a direct impact on migration patterns in Somalia, as people are forced to leave their homes in search of food, water, and other basic necessities. Many of these people end up in overcrowded refugee camps, where they face a host of other challenges, including poor living conditions, limited access to health care and education, and the risk of disease outbreaks.

People's immediate needs are often exploited by clan-militias and Islamist insurgents. In a 2022 journal article, quantitative analysis effectively correlated climate

¹⁷² Adelphi, "Addressing Conflict and Strengthening Stability in a Changing Climate," 21–22. The report identifies five mechanisms of environmental conflict: (1) endangered livelihood, (2) tensions over scarce resources, (3) reinforced marginalization and exclusion, (4) migration, and (5) increased terrorism and armed violence.

¹⁷³ United Nations Secretary General, *Report of the Secretary-General on Somalia*, S/2018/411 (New York, NY: United Nations, 2018), 13, <https://digitallibrary.un.org/record/1485880?ln=en>.

¹⁷⁴ United Nations Secretary General, 4.

¹⁷⁵ Humanitarian Action, "Humanitarian Needs Overview Somalia," 72.

change with an increase in terrorist acts.¹⁷⁶ When droughts result in resource scarcities, economic downturn leads to limited economic prospects, which can increase the likelihood of young men participating in political violence and engaging in illicit industries. A recent CSIS report drew a direct regional link between famine and violent action.¹⁷⁷ Besides causing massive migration (mostly IDPs, but also across Somalia's borders), environmental hazards also increased terrorism and armed conflict in Somalia.

Increasing demands from the loss of livelihoods and shelter, famine, and insufficient infrastructure place immense pressure on state capacity and state institutions. Compared to the case of Mali, in Somalia, tensions over scarce resources and increased marginalization appear not to be primarily about available land but directly about food supply and humanitarian aid. Somalia's exceptionally high numbers of IDPs relying on refugee camps indicate that many of these IDPs have at least temporarily given up looking for usable land and are first trying to secure their general survival.¹⁷⁸ The scarcity of state resources will likely result in supporting only privileged elites and further marginalizing suppressed groups. Climate change is multiplying security risks and adding to a cluster of insecurity in Somalia.

In Somalia, we see evidence of all five earlier mentioned UNDP mechanisms of environmental conflict. However, the situation differs from that in Mali by scarcity taking place on an even more existential level. The question of economic growth is higher up on the Somali citizens' pyramid of needs. However, economic growth still needs to be considered in peacebuilding efforts to build economic alternatives in the mid- and long-term and lift large segments of the population out of poverty.

¹⁷⁶ Joshua M. Regan and Sean K. Young, "Climate Change in the Horn of Africa: Causations for Violent Extremism," *Behavioral Sciences of Terrorism and Political Aggression*, May 4, 2022, 1–27, <https://doi.org/10.1080/19434472.2022.2061032>.

¹⁷⁷ Strouboulis et al., "Climate and Crisis in the Horn of Africa," 6.

¹⁷⁸ Jeff Drumtra, *Internal Displacement in Somalia* (Washington, DC: Brookings, 2014), <https://www.brookings.edu/wp-content/uploads/2016/06/Brookings-IDP-Study-Somalia-December-2014.pdf>.

C. UNSOM: HISTORY AND MANDATES

While there have been and still are other international missions with distinct focus and stakeholders in Somalia, this section concentrates on the analysis of the United Nations Assistance Mission in Somalia (or UNSOM). This mission is particularly suitable for comparative analysis with MINUSMA because, with UNSOM, the U.N. has tried to build peace over a nearly identical period in a comparable scenario. Like the corresponding section on MINUSMA in Chapter II, this section focuses on the analysis of UNSOM's mandates, including their evolution over time and the role that governance, economic growth, and climate change play in the mandates.

UNSOM was established in 2013 by the United Nations Security Council through Resolution 2102.¹⁷⁹ UNSOM's mandate was designed to provide political support and assistance to the FGS in its peace and state-building efforts, promote human rights and the rule of law, and support the humanitarian response in Somalia. Resolution 2012 explicitly denoted "peacebuilding and statebuilding," "governance," and "the development of a federal system."¹⁸⁰ Although blending into other phases of conflict management, UNSOM was designed to concentrate on peacebuilding.

Other missions in Somalia, particularly the 2007 African Union-initiated mission AMISOM, have focused on stabilizing the country and establishing a more secure situation.¹⁸¹ In contrast, with UNSOM, the international community was seeking to reestablish the formal Somali government. UNSOM's and AMISOM's activities and mandates overlap; for example, UNSOM was tasked with support activities for AMISOM.¹⁸² However, UNSOM's mandate was focused on peacebuilding. By the time of UNSOM's establishment, the security situation in Somalia still required engagement in

¹⁷⁹ United Nations Security Council, *Resolution 2102 (2013)*, S/RES/2102 (New York, NY: United Nations, 2013), <https://digitallibrary.un.org/record/748735>.

¹⁸⁰ United Nations Security Council, 2–3.

¹⁸¹ United Nations Security Council, *Resolution 1744 (2007)*, S/RES/1744 (New York, NY: United Nations, 2007), <https://digitallibrary.un.org/record/593199>; United Nations Security Council, *Resolution 2036 (2012)*, S/RES/2036 (New York, NY: United Nations, 2012), <https://digitallibrary.un.org/record/721243>.

¹⁸² United Nations Security Council, *Resolution 2102 (2013)*, 2.

the earlier, more kinetic phases of conflict management. However, UNSOM's mandate was established with a broader political approach than other missions, with a focus on supporting the development of Somali institutions, including the national army, police, and justice sector, and supporting the government's efforts to promote economic growth and development. AMISOM's assistance to Somali security forces in fighting insurgency continued. At the same time, UNSOM concentrated on non-kinetic assistance (i.e., building effective governance structures, promotion of human rights and the rule of law, and provision of humanitarian aid to the Somali population). In addition to its political mandate, UNSOM's institution building activities were related to Somalia's security sector reform, including supporting the development of the Somali National Army, the Federal Police, and other security institutions. However, UNSOM forces were not directly involved in fighting insurgency alongside Somalia's troops.

In the mission's early years, the UNSOM mandates focused on the justice system, human rights, democratic elections, and the rule of law. Before 2018, economic issues were not mentioned in UNSOM's mandate. Following the enactment of the 2030 Agenda for Sustainable Development, reform of the entire U.N. development system began in 2018.¹⁸³ With the U.N. focus shifting globally toward more sustainable development, UNSOM was tasked in 2018 to assist the FGS in scripting a National Development Plan and enacting economic reforms.¹⁸⁴ The subsequent mandates of 2019–2022 thus never explicitly referred to the promotion of economic growth or job creation; instead economic reforms were part of a systematic political, social, and constitutional reform of the federal

¹⁸³ United Nations, "UN Development System Reform 101," United to Reform, December 2018, <https://reform.un.org/content/un-development-system-reform-101#how-is-this-reform-different-from-previous-un-reforms>.

¹⁸⁴ United Nations Security Council, *Resolution 2408 (2018)*, S/RES/2408 (New York, NY: United Nations, 2018), 2, <https://digitallibrary.un.org/record/1479010>.

government system.¹⁸⁵ Although poverty and the lack of economic alternatives were problems in Somalia, UNSOM remained focused on strategic governmental reforms towards the reinstallation of the formal state rather than actively promoting the country's economic development.

In conjunction with the 2017 publication of the U.N. Strategic Framework Somalia (2017–2020), UNSOM's mandates began to refer to issues related to climate change.¹⁸⁶ With the new framework, the U.N. established more long-term perspectives on Somalia's peace and state building. Still very much focusing on federalism, institutions, and accountability, the framework introduced resilience and economic opportunities as additional priorities.¹⁸⁷ The framework's focus on resilience was aligned with 14 out of 17 of the U.N. Sustainable Development Goals.¹⁸⁸ Instead of repeatedly reacting to urgent humanitarian needs, the publication of the framework as a strategic document enabled engagement against the underlying roots of insecurity; "these include, inter alia, climate change, ... and unemployment, especially among youth and displaced populations."¹⁸⁹

From 2017 onward, the effects of climate change on Somalia's security situation were prominently included in UNSOM's mandates. Table 2 in Appendix C contains a compilation of the relevant paragraphs from the original mandate texts. The mandates of 2017 and 2018 mostly relate climate change to the humanitarian situation in Somalia by

¹⁸⁵ United Nations Security Council, *Resolution 2461 (2019)*, S/RES/2461 (New York, NY: United Nations, 2019), <https://digitallibrary.un.org/record/3798015>; United Nations Security Council, *Resolution 2516 (2020)*, S/RES/2516 (New York, NY: United Nations, 2020), <https://digitallibrary.un.org/record/3856396>; United Nations Security Council, *Resolution 2527 (2020)*, S/RES/2527 (New York, NY: United Nations, 2020), <https://digitallibrary.un.org/record/3866612>; United Nations Security Council, *Resolution 2540 (2020)*, S/RES/2540 (New York: United Nations, 2020), <https://digitallibrary.un.org/record/3879106>; United Nations Security Council, *Resolution 2592 (2021)*, S/RES/2592 (New York: United Nations, 2021), <https://digitallibrary.un.org/record/3938161>; United Nations Security Council, *Resolution 2632 (2022)*, S/RES/2632 (New York, NY: United Nations, 2022), <https://digitallibrary.un.org/record/3974909>.

¹⁸⁶ United Nations, *U.N. Strategic Framework Somalia (2017-2020)* (New York, NY: United Nations, 2017), <https://somalia.un.org/en/17090-un-strategic-framework-somalia-2017-2020>.

¹⁸⁷ United Nations, 20.

¹⁸⁸ United Nations, "Sustainable Development Goals," United Nations Sustainable Development, accessed April 1, 2023, <https://www.un.org/sustainabledevelopment/>.

¹⁸⁹ United Nations, *U.N. Strategic Framework Somalia (2017-2020)*, 29.

connecting drought and famine and expressing the need for humanitarian aid.¹⁹⁰ However, already the 2017 mandate identified internal migration in relation to droughts and thereby connected climate change to the Somali security situation.¹⁹¹ That connection became more prominent in 2019, when the mandate began to request “the United Nations and the Federal Government of Somalia and the Federal Member States to consider the adverse implications of climate change, other ecological changes and natural disasters, among other factors, in their programs in Somalia.”¹⁹² Although this request appeared only at the end of the document, it was very specific and linked to follow-up and reporting by the Secretary-General.

Climate change has been recognized as a significant threat to Somalia’s stability and development, and the need to address its impact was increasingly highlighted to UNSOM. In 2021, the mandate recommended that UNSOM maintain its emphasis on optimizing developmental funds utilization in Somalia, particularly in addressing the challenges of “climate change, flooding, drought, locusts, and the COVID-19 pandemic.”¹⁹³ The U.N. Secretary-General repeatedly expressed his concerns about climate change’s impacts on Somalia in his reports. In addition, in 2021, he reported on UNSOM delivering training to Somali government officials “on the interlinkages between climate change, ... peace and security.”¹⁹⁴ After 2018, UNSOM increasingly recognized the need for climate-resilient development and progressively integrated climate change considerations into all aspects of the country’s planning and decision-making processes.

UNSOM has been working with the Somali government and other stakeholders to develop strategies and programs to address climate change’s impacts on the country’s

¹⁹⁰ United Nations Security Council, *Resolution 2408 (2018)*, 3.

¹⁹¹ United Nations Security Council, *Resolution 2358 (2017)*, S/RES/2358 (New York, NY: United Nations, 2017), 5, <https://digitallibrary.un.org/record/1288933>.

¹⁹² United Nations Security Council, *Resolution 2461 (2019)*, 7.

¹⁹³ United Nations Security Council, *Resolution 2592 (2021)*, 6.

¹⁹⁴ United Nations Secretary General, *Situation in Somalia: Report of the Secretary-General*, S/2021/944 (New York, NY: United Nations, 2021), 11, <https://digitallibrary.un.org/record/3948238?ln=en>.

development.¹⁹⁵ Some of these strategies include improving water management, promoting renewable energy, and building climate-resilient infrastructure.¹⁹⁶ The Ministry of Energy and Water Resources in Somalia has developed a National Water Resource Strategy that aims to improve water management in the country.¹⁹⁷ While there is no comprehensive evaluation of these programs, it is clear that UNSOM promotes essential steps towards addressing the impact of climate change on Somalia's development.

A staff member specifically responsible for climate issues was appointed for the peacebuilding mission in Somalia in 2020. The U.N. appointed a dedicated professional to UNSOM to improve strategic connections between climate change adaptation and conflict intervention. Christophe Hodder was made UNSOM's climate and security advisor to adjust UNSOM's peacebuilding with better climate change-adapted methods while simultaneously including security aspects in CCA projects.¹⁹⁸ This was the first time the U.N. had named someone responsible for the implementation of mutual responses to insecurity and climate change at a peacebuilding mission.

Working in concert with AMISOM, UNSOM was able to focus more on the peacebuilding realm instead of being stuck in actively fighting against illegitimate violent actors. However, coordinating between UNSOM and AMISOM also set up some new challenges of coordinating international interests and efforts.

Overall, UNSOM's efforts to support the political, economic, and security situation in Somalia have emphasized the importance of institution building and climate resilience in the country's development. Directly triggering economic development was not so much

¹⁹⁵ Christophe Hodder, "Climate Change and Security in the United Nations Assistance Mission to Somalia," *Climate Diplomacy* (Adelphi, August 26, 2021), <https://climate-diplomacy.org/magazine/conflict/climate-change-and-security-united-nations-assistance-mission-somalia>.

¹⁹⁶ "Climate Finance Is the Lifeline Somalia Needs to Build a Resilient Future," UNDP Climate Promise, February 28, 2022, <https://climatepromise.undp.org/news-and-stories/climate-finance-lifeline-somalia-needs-build-resilient-future>.

¹⁹⁷ Ministry of Energy and Water Resources, *National Water Resource Strategy 2021-2025 - Roadmap to Implementation* (Government of Somalia, 2021), <https://reliefweb.int/report/somalia/somalia-ministry-energy-and-water-resources-national-water-resource-strategy-2021>.

¹⁹⁸ Hujale, "Displaced Somalis and Refugees Struggle to Recover as Climate Change Brings New Threats."

the focus. UNSOM paid more attention to creating institutional and environmental frameworks for sustainable development. At least since 2017, UNSOM and the whole U.N. country team integrated climate change issues into their work and acknowledged that climate change effects play an important role in building peace for Somalia. Compared to MINUSMA, UNSOM's mandates and activities are more attentive to climate change and include concrete measures to counter its effects.

D. EFFECTS OF UNSOM'S PRESENCE

The previous section showed that UNSOM made addressing climate change effects an integral part of its peacebuilding efforts in Somalia. The analysis in this section continues by examining how UNSOM's approach has translated into Somalia's development. Although the FGS still in many ways lacks capacity and legitimacy, with UNSOM's assistance, it has acknowledged that climate change is hampering the country's development and is exacerbating vulnerabilities, insecurity, and poverty. Taking the adverse effects of climate change into account on policy has helped to counter the mutually enlarging traps of fragility and resilience.¹⁹⁹ As in Chapter II, Section D, this section's analysis remains focused on institution building and economic development. It follows the same indirect approach to measure UNSOM's success.

In the last decade, Somalia's economy has slowly progressed. Still, this positive development remains fragile and vulnerable to environmental hazards. In Somalia's ninth National Development Plan, prepared with UNSOM's support, the FGS reports positive economic achievements.²⁰⁰ Figure 10 shows the relatively stable growth of Somalia's GDP. However, the graph also clearly displays the impacts of the 2016–17 drought, including minimized economic growth and maximized inflation caused by rising food prices. World Bank data confirms the same trend, although no data is available for 2013.²⁰¹ Nevertheless, despite the drought, Somalia's GDP still grew.

¹⁹⁹ World Bank Group, *Federal Republic of Somalia Systematic Country Diagnostic*, Report No. 123807-SO (Washington, DC: World Bank, 2018), 20, <https://doi.org/10.1596/30416>.

²⁰⁰ Ministry of Planning, Investment and Economic Development, "Somalia National Development Plan 2020 to 2024," 45–53.

²⁰¹ World Bank, "GDP Growth (Annual %) (NY.GDP.MKTP.KD.ZG)."



Figure 10. Somalia: Growth and Inflation (percent change).²⁰²

The World Bank connects Somalia’s moderately positive economic development to political stabilization following the successful democratic transitions in 2012 and 2017.²⁰³ Maladministration continues to undermine the resilience of the agricultural sector, on which most of the Somali economy is based.²⁰⁴ Nevertheless, early signs of political stabilization have opened a window for diversification and technologization of the Somali economy. Besides livestock exports, technology and service sectors represented by mobile networks, local electricity, and money transfer services have supported the economic growth.²⁰⁵ The World Bank recognizes that “three-quarters of Somalis older than 16 use mobile money.”²⁰⁶ Telecommunications and mobile money substitute for the establishment of a traditional banking sector, circumvent mistrust in formal institutions, and enable economic opportunities.

The Somali diaspora also plays a key role in the country’s economy. International remittances account for a fourth of Somalia’s GDP; they provide income safety nets against

²⁰² Source: Ministry of Planning, Investment and Economic Development, “Somalia National Development Plan 2020 to 2024,” 48.

²⁰³ World Bank Group, Federal Republic of Somalia Systematic Country Diagnostic, 1.

²⁰⁴ World Bank Group, 23–29.

²⁰⁵ World Bank Group, 14.

²⁰⁶ World Bank Group, 3.

shocks and account for some investment.²⁰⁷ Besides being a major source of social protection, the diaspora also accounts for human and entrepreneurial capital. Former expatriate refugees returning to Somalia bring along investment capital and education to rebuild the country's economy.²⁰⁸ The returnees boost the private sector which has assumed the forefront in generating both physical and human capital and harnessing Somalia's natural resources.²⁰⁹ The governance framework, including regulations on the use of natural resources, still needs further improvement to grant legal and statutory security for private investments. Better consideration of environmental issues in economic legislation will increase Somalia's resilience against climate-induced environmental hazards.

Somalia's moderate economic growth has not yet translated into generally improved living conditions for many Somalis. Due to insufficient data, Somalia's HDI could not be measured.²¹⁰ Several sources nevertheless identify unsatisfactory human development, as population growth eats up economic growth. Somalia remains one of the poorest countries in the world, with large numbers of IDPs who suffer from exclusion, marginalization, and limited access to basic services.²¹¹ A cluster of economic challenges that may easily be exacerbated by climate change still exists in Somalia.

In summary, UNSOM's efforts to help the FGS in promoting economic growth and implementing climate adaptive policies slowly seem to be bearing fruits. However, economic development remains fragile and needs better translation into improved living conditions.

²⁰⁷ World Bank Group, 14.

²⁰⁸ Somalia's Fight to Rebuild After War.

²⁰⁹ World Bank Group, Federal Republic of Somalia Systematic Country Diagnostic, 47.

²¹⁰ Gavin, "Climate Change and Regional Instability in the Horn of Africa," 3.

²¹¹ Ministry of Planning, Investment and Economic Development, "Somalia National Development Plan 2020 to 2024," 45; Saroja Koneru, "Ten Things You Need to Know About Poverty in Somalia," BORDEN, August 1, 2016, <https://www.borgenmagazine.com/10-facts-poverty-in-somalia/>; Gavin, "Climate Change and Regional Instability in the Horn of Africa," 4; World Bank Group, *Federal Republic of Somalia Systematic Country Diagnostic*, 8, 39, 44–45.

Institutional development in Somalia is evaluated differently by different bodies. Due to insufficient data, the World Bank's CPIA clusters cannot be used to measure Somalia's governance numerically. In its 2018 *Systematic Country Diagnostic*, the World Bank recognized Somalia's positive development in federalization, institution building, transparency, and accountability.²¹² The FGS adopted the World Bank's positive assessment into its *National Development Plan* verbatim:

Since 2012, there has been significant political progress. Federal institutions are being established. State formation has progressed significantly with the emergence of new Federal Member States. ... Several constitutional bodies necessary for consolidation of the transitional period are now in place. Transparency has increased and accountability for the use of resources has improved significantly.²¹³

UNSOM's focus on the reestablishment of formal state structures among Somalia's central government, support of the constitutional process, and assistance with governmental reforms bore fruit—at least from the perspective of the FGS.

Other bodies draw a different picture; some scholars even identify misguided institutionalization. Tobias Hagman has stated that international interventions and attempts at peace- and state-building in Somalia have led to institutionalized extraversion instead of creating sustainable state capacity.²¹⁴ The extraverted state structure has not only led to a break of the social contract (i.e., “the taxation protection relationship between citizen and state”²¹⁵), but it has enabled local actors to take control instead and install alternative institutions.²¹⁶ Even the World Bank draws a list of negative conclusions from the same country diagnostics that indicated Somalia's progress: (1) the FGS still represents weak

²¹² World Bank Group, Federal Republic of Somalia Systematic Country Diagnostic, 10.

²¹³ Ministry of Planning, Investment and Economic Development, “Somalia National Development Plan 2020 to 2024,” 44.

²¹⁴ Tobias Hagmann, *Stabilization, Extraversion and Political Settlements in Somalia* (London; Nairobi: Rift Valley Institute, 2016).

²¹⁵ Aisha Ahmad, Tanya Bandula-Irwin, and Mohamed Ibrahim, “Who Governs? State versus Jihadist Political Order in Somalia,” *Journal of Eastern African Studies* 16, no. 1 (January 2, 2022): 68–91, <https://doi.org/10.1080/17531055.2022.2075817>.

²¹⁶ Abdi Latif Dahir, “Somalia Elects New President, but Terrorists Hold True Power,” *The New York Times*, May 15, 2022, <https://www.nytimes.com/2022/05/15/world/africa/somalia-election-president.html>.

governance, lacking legitimacy and the ability to collect revenues; (2) the population's trust in the central government and its institutions has not improved; and (3) strong sub-state clan structures remain dominant stakeholders in the judiciary and local governance, putting minorities at high risk for marginalization.²¹⁷ While UNSOM seems to have improved some central and federal governmental structures, these structures remain disconnected from the realities of local governance.

Despite UNSOM's efforts, Somalia remains a very fragile state. Somalia's Fragile State Index decreased by 4.4 points on a scale of 120 points maximum over the last ten years; after being the most fragile state worldwide from 2008–13, it was surpassed by Yemen but is still ranked second most fragile.²¹⁸ At least some structural adaptations have been implemented. Because of the often devastating impact of environmental hazards on food supply, adaptation to climate change is considered crucial in Somalia. A *National Adaptation Programme of Action on Climate Change* was established parallel to UNSOM's deployment and has since been successively implemented.²¹⁹ The International Crisis Group reports positive examples where the FGS has successfully implemented climate adaptive policies, and CCA projects are implemented at the local level.²²⁰

E. SUMMARY OF THE SOMALI CASE

This case study chapter on UNSOM has presented the complex situation in Somalia and revealed a cluster of adverse climate change effects to which Somalia is particularly vulnerable through specific mechanisms. The analysis of UNSOM's mandates has also revealed that this mission is more attentive to climate change-related security impacts and includes environmental issues into peacebuilding more effectively than MINUSMA. Without comparing the Mali and Somalia situations in absolute terms, the evidence from

²¹⁷ World Bank Group, Federal Republic of Somalia Systematic Country Diagnostic, 1, 4–5, 52–55.

²¹⁸ Fund For Peace, "Fragile State Index (FSI)."

²¹⁹ Ministry of National Resources of the Federal Republic of Somalia, *National Adaptation Programme of Action on Climate Change (NAPA)* (United Nations Framework Convention on Climate Change, 2013), <https://unfccc.int/resource/docs/napa/som01.pdf>.

²²⁰ Moshiri, Nazanine and Mahmood, Omar, *Climate Change and Conflict in Somalia*, video, 4:47, International Crisis Group, 2022, <https://www.crisisgroup.org/africa/horn-africa/somalia/climate-change-and-conflict-somalia>.

this case study shows UNSOM integrating environmental aspects more effectively, making relative peacebuilding progress, and preventing setbacks from environmental hazards.

From a severe heritage of conflict, Somalia has started to make positive progress toward security and development. Still, the country is at the far end of many measurements and comparative data sets. But starting from there, the country has made at least a little progress. One may argue that for a country like Somalia, which has reached the very bottom, the only way to go is up. However, UNSOM and the FGS have implemented concrete measures to counter the adverse effects of climate change on the country's security situation and are beginning to shape progress. Perhaps the extreme suffering caused by environmental hazards in Somalia has fueled the realization that the issue of climate change must be considered in peacebuilding.

Two features of UNSOM have enabled this improved integration of climate change issues: (1) a more peacebuilding-focused mandate and (2) dedicated, experienced personnel for the direct and explicit implementation of climate-related U.N. Strategic Development Goals. As shown previously, UNSOM was deployed in parallel to other ongoing international missions in Somalia. AMISOM's focus on the security situation and the fight against insurgents allowed the U.N. to task UNSOM exclusively with traditional peacebuilding as the final phase of conflict management. UNSOM was therefore better able to take a comprehensive approach to environmental peacebuilding by being less caught in the squeeze between establishing security and promoting governance and development.

Better implementation of climate change-related Sustainable Development Goals in UNSOM peacebuilding was achieved with the appointment of an officer for improved strategy connecting climate change and security. With the commissioner's experience in environmental security, it has been possible to realize effective mutual consideration of climate and security issues in policy reforms. Although many of these reforms still need to translate to a local policy reality, a strategic framework for security that is adaptive to climate change has been established.

In summary, UNSOM has recognized the need for and implemented climate-resilient development in peacebuilding. The mission has started to integrate climate change considerations into all aspects of the country's planning and decision-making processes. Thereby, UNSOM has helped the FGS build resilience against climate change-related security risks and prevent significant backsliding.

The evidence on UNSOM and Somalia does not prove that the consideration of the impacts of climate change in peacebuilding efforts is a sufficient condition for the success of building positive peace. However, it suggests that addressing climate change in peacebuilding may be a necessary condition to prevent significant relapses in Somalia's environmental conflict. Many security issues must be solved to build sustainable peace in Somalia. Besides that, UNSOM has developed an understanding that climate change would undermine its attempt to build peace if the mission did not address climate change's effects, too.

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IV. CLIMATE CHANGE AND OPERATIONAL CHALLENGES

Chapters II and III approached the cases of MINUSMA and UNSOM on the strategic level of a peacebuilding enterprise. They assessed both missions regarding this thesis's first hypothesis and explained how climate change undermines achieving the strategic goals of both missions. This chapter focuses on the second hypothesis considered in this thesis. It evaluates the effects of climate change on the execution of peacebuilding operations. Climate change produces more unpredictable and extreme weather events, creating challenging environmental conditions for peacebuilding operations.

Although MINUSMA and UNSOM are differently structured, staffed, and equipped missions, climate change affects them similarly. The following sections explain the U.N. force generation process and deliver a brief overview of MINUSMA's and UNSOM's operational forces. The similarities in both missions' force generation and capability requirements allow the joint analysis of both cases and argue for the transferability of the results to the peacebuilding enterprise as a whole. The third section then analyzes how droughts, floods, and storms affect core tasks and capabilities. These environmental hazards bring operational limitations and create capability gaps that leading U.N. troop contributors will not be able to bridge.

A. U.N. FORCE GENERATION AND CAPABILITY MANAGEMENT

The U.N. does not have a standing army or military force. Instead, it relies on the deployment of member states' military and police forces for peacekeeping troops and missions. Before this chapter examines how climate change affects U.N. peacebuilding operations in Mali and Somalia, this section explains how the U.N. generates forces and manages its forces' necessary capabilities. By doing so, the section explains the shortfalls of the process in providing the necessary capacity to adapt to climate-related operational challenges. This dynamic is not limited to the missions analyzed in this chapter but generalizable to other larger U.N.—if not all military—interventions. The subsequent section looks more specifically into the components, capabilities, and tasks of MINUSMA's and UNSOM's forces. Through this approach, the two sections together

deliver the setup for the specific analysis of climate change's effects on U.N. forces and the forces' ability to cope with these effects.

The international peace missions in Mali and Somalia are among the most heavily staffed U.N. missions.²²¹ In 2021, MINUSMA and UNSOM totaled roughly 24,000 blue helmets, not counting around another 20,000 African Union (AU) uniformed personnel in Somalia.²²² As troop-contributing countries (TCC), U.N. member states provide personnel, equipment, and other resources to these U.N. missions. The U.N. has established guidelines and procedures for generating and managing these forces.²²³ The process of generating forces typically involves the U.N. assessing the requirements of a specific mission, such as the number of troops needed, their expertise, and equipment, and then inviting member states to contribute. This process is known as force generation. The sheer size of the missions already challenges the force generation process to serve the numerous demands.

The U.N.'s capability management system is responsible for ensuring that the deployed forces have the necessary resources, equipment, and support to carry out their mandate effectively. This system involves the identification of capability gaps, assessing the contributions of TCCs, and prioritizing areas for improvement. The U.N.'s Department of Peace Operations (DPO)²²⁴ is responsible for capability management and works with TCCs to ensure they provide the necessary capabilities and resources for the mission's success. In recent years, the DPO has claimed increasing capability gaps in areas with high-

²²¹ United Nations, "Troop and Police Contributors," United Nations Peacekeeping, accessed March 21, 2023, <https://peacekeeping.un.org/en/troop-and-police-contributors>.

²²² Beat Bumbacher, "Streit um Uno-Blauhelme: wer sie sind, was sie bewirken können und warum sie kritisiert werden" [Controversy over U.N. blue helmets: who they are, what they can achieve and why they are criticized], *Neue Zürcher Zeitung*, June 29, 2021, <https://www.nzz.ch/international/uno-blauhelme-wer-sie-sind-was-sie-bewirken-koennen-und-warum-sie-kritisiert-werden-ld.1632966>.

²²³ United Nations Peacekeeping Capability Readiness System (PCRS), *United Nations Manual for the Generation and Deployment of Military and Formed Police Units to Peace Operations* (New York, NY: United Nations, 2021), [https://pcrs.un.org/Lists/Resources/04-%20Force%20and%20Police%20Generation%20Process/Force%20Generation%20Documents%20\(Military\)/2021.05%20Manual%20for%20Generation%20and%20Deployment%20of%20MIL%20and%20FPU.pdf?Web=1](https://pcrs.un.org/Lists/Resources/04-%20Force%20and%20Police%20Generation%20Process/Force%20Generation%20Documents%20(Military)/2021.05%20Manual%20for%20Generation%20and%20Deployment%20of%20MIL%20and%20FPU.pdf?Web=1).

²²⁴ In 2019 the U.N. Department of Peace Operations (DPO) was established as a restructured successor of the Department of Peacekeeping Operations (DPKO), originally established in 1992 in accordance with the Secretary-General's 1992 *Agenda For Peace*.

cost equipment such as helicopters, transport aircraft, and reconnaissance drones.²²⁵ DPO points out that “aviation is one of the most critical specialized capabilities deployed to peacekeeping.”²²⁶ Climate change exacerbates these shortfalls in critical capabilities by causing extreme weather events that limit aviation operations.

Financial contributions are also a critical aspect of U.N. operations. The organization assesses the costs of missions and requires TCCs to provide financial contributions to cover these costs. Many financially weaker states may find it challenging to meet these financial obligations. To address this issue, the U.N. uses its Peacekeeping Capability Readiness System (PCRS), which allows TCCs to offset their financial contributions by providing troops and equipment to peacekeeping missions. This system is meant to ensure that missions have the necessary resources and capabilities while simultaneously reducing the financial burden on financially weaker states. In effect, Bangladesh, Nepal, India, Rwanda, and Pakistan are the top five TCCs contributing the most personnel.²²⁷ Thus, the system encourages poorer states to deploy their militaries to U.N. missions, while wealthier states can afford to buy off their troops from deployments. Consequently, U.N. troops are often staffed by poorly trained and disappointingly equipped personnel.

In summary, the U.N. relies on deploying blue helmets from member states’ armed forces to carry out its peacekeeping and peacebuilding efforts. The organization’s capability management system and PCRS mechanism aim to ensure that deployed forces

²²⁵ U.N. Department of Peace Operations, “Uniformed Capability Requirements for United Nations Peacekeeping” (United Nations, September 2022), https://pcrs.un.org/Lists/Resources/03-%20Uniformed%20Capability%20Requirements%20for%20UN%20Peacekeeping/2022/Uniformed%20Capability%20Requirements%20for%20UN%20Peacekeeping_Sep_22_Final.pdf; U.N. Department of Peace Operations, “Uniformed Capability Requirements for United Nations Peacekeeping” (United Nations, September 2021), https://peacekeeping.un.org/sites/default/files/uniformed_capability_requirements_for_un_peacekeeping_sep_21_for_release.pdf; U.N. Department of Peace Operations, “Current and Emerging Uniformed Capability Requirements for United Nations Peacekeeping” (United Nations, April 2020), https://pcrs.un.org/Lists/Resources/03-%20Uniformed%20Capability%20Requirements%20for%20UN%20Peacekeeping/2020/Uniformed%20Capability%20Requirements%20for%20UN%20Peacekeeping_April_2020.pdf.

²²⁶ U.N. Department of Peace Operations, “Uniformed Capability Requirements for United Nations Peacekeeping,” September 2022, 5.

²²⁷ United Nations, “Troop and Police Contributors.”

have the necessary resources and capabilities to carry out their mandate effectively. However, the result of encouraging financially weaker states to contribute troops and equipment to fulfill their financial obligations to the U.N. is that missions tend to be staffed and equipped by countries with less developed militaries.

Comprised of less well-developed and equipped military troops, and already facing deficits in critical high-cost equipment capabilities, U.N. forces will likely fall short on operating in more demanding climate situations and dealing with environmental hazards. In contrast, more technologically sophisticated Western countries like the United States have developed strategies to navigate environmental challenges. For example, the United States Army Environmental Command is “committed to delivering environmental solutions in support of U.S. Army readiness and sustainability.”²²⁸ Still, the United States acknowledges that the “impacts of climate change will strain our military forces in the coming decades.”²²⁹ Most U.N. TCCs’ militaries have not adapted to climate change effects yet, possibly resulting in more adverse effects on U.N. operations.

B. MINUSMA AND UNSOM OPERATIONAL FORCES

The U.N. has deployed thousands of soldiers, police officers, and civilians to Mali and Somalia. Operating in areas of responsibility (AOR) that spread thousands of kilometers, these U.N. forces are tasked with a wide range of operations, from advisory support to kinetic military action. In both Mali and Somalia, the U.N. forces work to provide security and stability, facilitate political processes, fight violent groups, and support the development of national institutions.

As of December 2022, MINUSMA’s forces comprise 12,388 military, 1,598 police, and 1,792 civilian personnel.²³⁰ The military personnel derive from 57 countries, the police from 26; these forces are spread among various installations across the country (See Figure

²²⁸ Ali and Pincus, “The Role of the Military in Environmental Peacebuilding,” 309.

²²⁹ CNA Military Advisory Board, National Security and the Accelerating Risks of Climate Change, 3.

²³⁰ MINUSMA, “MINUSMA’s Personnel,” MINUSMA, United Nations, December 2022, <https://minusma.unmissions.org/en/personnel>.

11, Appendix A). These extensive military, police, and civilian forces, drawn from various parts of the world, cover a wide operational spectrum.²³¹ This spectrum requires unrestricted, far-reaching mobility on land and in the air and requires a functioning, far-reaching logistical supply chain.

Although UNSOM differs from MINUSMA in numbers, structure, and tasks, similar requirements apply. UNSOM's staffing numbers vary slightly over time; however, on average between 2014 and 2022, UNSOM forces in Somalia comprised around 1,700 blue helmets.²³² Although UNSOM is less involved in fighting insurgency than MINUSMA, even UNSOM consists of military, police, and civilian personnel. The UNSOM website summarizes the mission's components, capabilities, and tasks.²³³

The international operational forces in Somalia comprise UNSOM staff and AMISOM uniformed police and military personnel. AMISOM is not further analyzed in this chapter because its forces are generated by AU members along with AU Peace and Security Council resolutions and AU standards and procedures.²³⁴ In contrast to MINUSMA, kinetic operations are not part of UNSOM's portfolio; that is AMISOM's responsibility. Nevertheless, UNSOM is tasked to support AMISOM in several ways including transportation, surveillance and reconnaissance, and logistics. Therefore, UNSOM requires similar capabilities to MINUSMA regarding land and air mobility, and logistics. Additionally, although UNSOM does not carry out attacks on armed groups, the security environment in Somalia requires the same level of armored vehicles and medical support as in MINUSMA. UNSOM forces face similar threats and need the same protection during their peacebuilding engagements with Somalia's political entities. UNSOM

²³¹ MINUSMA, "Military," MINUSMA, United Nations, September 3, 2014, <https://minusma.unmissions.org/en/military>; MINUSMA, "Police," MINUSMA, United Nations, February 10, 2015, <https://minusma.unmissions.org/en/police>; MINUSMA, "Civil Affairs," MINUSMA, United Nations, September 3, 2014, <https://minusma.unmissions.org/en/civil-affairs>.

²³² United Nations Secretary General, "Secretary-General's Reports," UNSOM (United Nations), accessed March 22, 2023, <https://unsom.unmissions.org/secretary-generals-reports>. Numbers averaged among the reported U.N. presence in 23 U.N. Secretary-General Reports from S/2014/140 to S/2022/665.

²³³ UNSOM, "About UNSOM," UNSOM (United Nations), accessed March 22, 2023, <https://unsom.unmissions.org/about>.

²³⁴ African Union, *African Union Handbook 2022* (Adis Ababa, Ethiopia: African Union Commission, 2022), <https://au.int/en/handbook>.

operations, therefore, require similar capabilities as MINUSMA regarding mobility, protection, transport, and logistics.

The transportation and logistics of a peacebuilding mission are challenging even without extreme environmental hazards. Both missions, MINUSMA and UNSOM, comprise thousands of personnel to deliver the full spectrum of military and police operations, from fighting insurgency to delivering humanitarian aid. Due to the countries' geographic extent and limited ground transportation infrastructure, the two missions rely heavily on air mobility in their supply chain and troop movements. Personnel contingent rotation and material transportation in and out of the AOR is done via commercial or military aircraft, depending on the security and availability. Intra-theatre airlift comprises a combination of airplanes and helicopters. Due to the security situation, land mobility is mainly limited to armored vehicles. The enormous weight of those vehicles can significantly affect mobility on poor roads and bring land transport to a standstill despite using off-road vehicles. These challenges require a lot of highly sophisticated equipment.

C. CLIMATE CHANGE IMPOSES CHALLENGING CONDITIONS

The environmental hazards occurring in Mali and Somalia have been described earlier in this thesis (See Chapter II, Section B.1 and Chapter III, Section B.1). It was shown that climate change increases the frequency and intensity of these hazards' occurrence. As a general trend, climate change makes adverse weather effects less predictable; consequently, environmental hazards become nearly unpredictable in their intensity and local extent, and they will likely have more intense impacts. This section focuses on three categories of climate change-related environmental hazards: droughts, floods, and storms. After introducing key affected capabilities, each subsection shows how the particular hazard impedes the execution of operations. To analyze the implications on U.N. missions, this chapter does not distinguish droughts, storms, and floods between Mali and Somalia. Although there might be a difference, particularly regarding storms, this simplification is admissible because the storms' effects on U.N. forces' land and air mobility will be similar whether they are sandstorms in Mali's desert or cyclones along Somalia's coastline.

1. Droughts Jeopardize Drinking and Freshwater Supply

During times of drought, deployed troops, as well as local populations, rely heavily on a steady supply of fresh water, as emphasized by several news reports. While insufficient water supplies endanger the execution of operations and may put troops in life-threatening conditions, suitably equipped peacebuilding forces can positively impact water availability.

A 2018 DefenceWeb blogpost discussed the challenges posed by water scarcity in Mali, including the impact on the local population, the effects on agriculture and livestock, and the difficulties faced by security forces operating in the region.²³⁵ The article noted that the lack of water was not only affecting the local population but also hindered the operations of security forces in the area, including MINUSMA. In one example, MINUSMA patrols were forced to turn back due to a lack of water and soldiers suffering from dehydration. Addressing water scarcity is critical for both the local population and the success of security operations in the region.

On the other hand, mobile and self-sustaining military equipment can help mitigate water shortages. A news report on the Bundeswehr website in 2019 illustrates the efforts of the German MINUSMA contingent to provide clean drinking water to the local population by extracting it from the Niger River.²³⁶ The German contingent deployed a water purification unit that can produce up to 250,000 liters of drinking water per day, which was distributed to local communities in need. The article highlights the importance of providing access to clean drinking water in the conflict-affected region and emphasizes the positive impact of the peacebuilding mission's humanitarian efforts. Nevertheless, such efforts are limited to natural reservoirs and cannot supply large parts of the country. When natural reservoirs become dry during droughts, peacebuilding forces will struggle to sustain their own water supplies much less be able to assist the local population.

²³⁵ "Water Scarcity in Mali's Northern Regions Hampers Security Operations," *DefenceWeb* (blog), February 12, 2018, <https://www.defencweb.co.za/security/human-security/water-scarcity-in-malis-northern-regions-hampers-security-operations/>.

²³⁶ Ritter, "Operation Neptun in Mali."

When climatic conditions limit natural reservoirs and concentrate the local population and foreign troops to the same reserves, peacebuilding forces can devastate the local water supply. Although unrelated to Mali or Somalia, in 2010, the BBC reported that over 2,000 Haitians died from cholera when a U.N. camp inadvertently contaminated a nearby river with a bacterial strain carried by foreign soldiers.²³⁷ The locally concentrated use of overlapping water supplies and sanitation had serious consequences. Additionally, the issue of U.N. forces overdrawing on limited freshwater supplies can exacerbate water scarcity for local populations. In Mogadishu, the U.N. has proactively considered the water footprint of its camp and reduced its freshwater consumption by 42% through the installation of economical toilets and showers.²³⁸ Nevertheless, the high number of stationed soldiers puts a strain on local water resources.

In summary, climate change increases the concerns about sufficient fresh-water supplies in peacebuilding AORs. While, on the one hand, water-related environmental hazards can hamper the execution of operations, properly equipped U.N. forces can mitigate these effects with spillovers for the local population.

2. Floods Restrict Land Mobility

U.N. peacebuilding operations require a basic traffic infrastructure adequate for supporting heavy vehicles. In reaction to the threat of improvised explosive devices, both missions' mandates and situation reports often refer to armored personnel carriers as scarce but necessary equipment.²³⁹ Where these armored vehicles weighing tons cannot go, despite off-road capabilities, U.N. operations will not drive.

²³⁷ "Haiti Cholera: UN Peacekeepers to Blame, Report Says," *BBC News*, December 7, 2010, <https://www.bbc.com/news/world-latin-america-11943902>.

²³⁸ Environmental Cooperation for Peacebuilding Programme, "ECP Final Report 2016," 32.

²³⁹ United Nations Secretary General, *Report of the Secretary-General on Somalia*, S/2018/800 (New York: United Nations, 2018), 9, <https://digitallibrary.un.org/record/1640260?ln=en>; United Nations Secretary General, *Situation in Somalia: Report of the Secretary-General*, S/2021/154 (New York, NY: United Nations, 2021), 14, <https://digitallibrary.un.org/record/3901315?ln=en>; United Nations Security Council, *Resolution 2364 (2017)*, S/RES/2364 (New York, NY: United Nations, 2017), 12, <https://digitallibrary.un.org/record/1290877?ln=en>.

As a result of changes in precipitation, increasingly heavy rains and local flooding severely impact the land mobility of U.N. troops. An OCHA report on floods in Somalia demonstrates how severe these impacts on traffic infrastructure can be.²⁴⁰ When heavy rains trigger flash floods, vehicles are washed away, roads and bridges are damaged or become impassable, and the distribution of goods gets interrupted. Heavy military vehicles easily get stuck on unpaved, soggy roads. In urban areas, even locally limited flooding can have severe impacts for a city's whole transportation network.²⁴¹ Reports from Mali confirm the same effects in major cities like Bamako as in Somalia.²⁴² Since major U.N. installations are usually located in bigger cities with connections to an airport, urban flooding will negatively affect the troops' mobility. During times when immediate delivery of humanitarian aid is the most necessary, U.N. troops are themselves significantly limited in their mobility and thus in their operations.

Floods also hinder peacebuilders' mobility in rural areas. A MINUSMA news report showed how devastating the effect of heavy rain can be for peacebuilding operations: In one instance, it took over 24 hours for a MINUSMA convoy to reach its destination only 174 km away when it was hit by torrential downpour and armored vehicles got stuck.²⁴³ Weather advisors in the field report how quickly roads become impassable during thunderstorms and how that must be factored into operations planning.²⁴⁴ Military vehicles

²⁴⁰ OCHA, "Somalia: 2021 Gu' Season Floods Update #1," United Nations Office for the Coordination of Humanitarian Affairs (OCHA), May 9, 2021, 2, <https://reliefweb.int/report/somalia/somalia-2021-gu-season-floods-update-1-9-may-2021>.

²⁴¹ Yiyi He, Jun Rentschler, and Paolo Avner, "Mobility and Resilience: A Global Assessment of Flood Impacts on Urban Road Networks," *World Bank Blogs* (blog) (The World Bank Group, June 1, 2022), <https://blogs.worldbank.org/developmenttalk/mobility-and-resilience-global-assessment-flood-impacts-urban-road-networks>.

²⁴² "MALI Torrential Rains Batter Bamako," CARE International, August 30, 2013, <https://www.care-international.org/stories/mali-torrential-rains-batter-bamako>; Médoune Samb, "15 Killed in Floods Following Heavy Rains in Bamako," Panafrican News Agency, May 16, 2019, https://www.panapress.com/15-killed-in-floods-following-he-a_630588461-lang2.html.

²⁴³ "Inside a MINUSMA Convoy for 24 Hours," MINUSMA, September 30, 2022, <https://minusma.unmissions.org/en/inside-minusma-convoy-24-hours>.

²⁴⁴ Josefine U., "Ich bin iM EINSatz: Wetterberaterin in der Sahelzone" [I'm on deployment: weather advisor in the Sahel zone], August 31, 2020, <https://www.bundeswehr.de/de/einsatze-bundeswehr/ich-bin-im-einsatz/ich-bin-im-einsatz-in-mali/mein-einsatz-wetterberaterin-sahelzone-minusma-reservisten-1654030>.

bogged down in sodden roads not only take an inordinate amount of time to reach their destination, but they also create an easy target for potential insurgent attacks—a situation into which no planner wants to send any troops. Extreme rainfall jeopardizes not only the achievement of an operation’s objectives but also the deployed forces themselves.

3. Storms Endanger Air Rescue, Supply Transportation, and Aid Delivery

Peacebuilding operations in less developed countries heavily rely on air mobility. Air transportation of material and personnel is a cornerstone of necessary capabilities in any deployed military operation, including U.N. peacebuilding. Even without considering climatic limitations, insufficient provision of aviation assets by TCCs results in severe capability limitations in U.N. missions.²⁴⁵ When environmental hazards further restrict this already limited capability, the whole operation soon stands still. When weather conditions such as desert sandstorms or tropical storms prevent rotary and fixed-wing flights, the rescue chain is disrupted, surveillance flights get grounded, material supplies and contingent personnel rotation are jeopardized, and distribution of relief supplies is nearly impossible. Since the U.N. DPO’s Uniformed Capability Requirements papers do not explain specific details, this subsection first explains the general mechanics of affected capabilities in more detail before concluding their limitations posed by climate change in Mali and Somalia.

The availability of rotary-wing transportation is a necessary condition for a reasonable operational radius of military operations, just as it is in a U.N. deployment. Rapid evacuation to an adequate trauma-care facility is a cornerstone of medical support for soldiers wounded in action. This requirement for immediate medical care results in a widely applied rule for deployed military units to operate within a one-hour distance of a

²⁴⁵ U.N. Department of Peace Operations, “Uniformed Capability Requirements for U.N. Peacekeeping,” 6.

so-called Role III care facility.²⁴⁶ The rule is commonly referred to as “the golden hour.”²⁴⁷ It describes the crucial period immediately following a traumatic injury during which prompt medical attention can significantly improve a patient’s chances of survival and recovery.

Land transport is usually very slow in the AOR of a peacebuilding operation. As a result, only helicopter flights can ensure the evacuation of injured soldiers within the golden hour. Without those flights, the forces’ operational radius would be limited to the reach of a single-hour land transport around a Role III facility, which usually equals the limited AOR of a few miles around a single U.N. camp in a province, if not in the whole country.

Fixed-wing air transportation is needed for material transportation and personnel rotation. Although contingents are self-sustainable for a few days, limitations on plane flights will quickly hamper sustaining operations. Most spare parts for highly sophisticated military equipment are not available for purchase in less-developed countries of a peacebuilding mission’s AOR. And even if the personnel contingents have deployment periods of months, the functioning flight connection to the home countries and the thus secured, scheduled personnel rotation is essential for the endurance and morale of the troops. The problems caused by a lack of flights were demonstrated in Mali in 2022, when diplomatic difficulties led to the cancellation of flights to and from Mali.²⁴⁸ Even if these

²⁴⁶ ROLE III describes a medical treatment facility typically located inside a military AOR and is designed to provide comprehensive medical care. These facilities are capable of providing advanced medical procedures and surgery, as well as critical care for patients with life-threatening injuries. ROLE III facilities are staffed by highly trained medical personnel, including surgeons, physicians, nurses, and other healthcare professionals. They are equipped with advanced medical equipment to provide rapid and comprehensive medical care, including intensive care. These facilities play a critical role in military medicine, helping to save the lives of soldiers and other military personnel who are injured in combat or other military operations.

²⁴⁷ Joseph James Hudak III, “The Origins of the Golden Hour of Medical Care and Its Applicability to Combat Medicine” (master’s thesis, Fort Leavenworth, Kansas, U.S. Army Command and General Staff College, 2015), <https://apps.dtic.mil/sti/citations/ADA624140>.

²⁴⁸ Marina Kormbaki and Matthias Gebauer, “Mali: Bundeswehr darf nun doch Soldaten ein- und ausfliegen” [Mali: Bundeswehr now allowed to fly soldiers in and out after all], *Der Spiegel*, August 18, 2022, <https://www.spiegel.de/politik/deutschland/mali-bundeswehr-darf-nun-doch-soldaten-ein-und-ausfliegen-a-b403bb94-bcbb-43b9-8c79-527f1f728734>.

flights were not canceled due to storms, the forces' dependence on transport flights becomes clear.

The provision of humanitarian aid also relies on transportation aircrafts. In Somalia, the already precarious humanitarian situation has worsened several times in connection with flooding and cyclones, to the point that the U.N. or E.U. has had to establish an airlift to distribute relief supplies.²⁴⁹ While airlifts can only be built after the storms have subsided, the ensuing floods make roads impassable, further increasing the need for airlift. Regions in particular need are then also the hardest to reach.

Negative effects on air transportation are not limited to UNSOM and cyclones in Somalia. In Mali, harsh weather patterns also hinder MINUSMA's mobility. Based on on-site interviews with MINUSMA officers, SIPRI illustrated the severe impacts of sandstorms and floodings on MINUSMA's operations: when helicopters could not take off for several days, troops' and civilian staff's mobility was completely cut off in the Mopti region; situational awareness in and around the U.N. installations was reduced when surveillance balloons and drones were grounded; and armed overwatch on patrol convoys was not possible when attack helicopters and drones could not fly.²⁵⁰

The SIPRI report also highlighted the operational advantage of local armed actors in harsh conditions. One MINUSMA official explained that local fighters are much better adapted to extreme heat and storms, both physically and tactically.²⁵¹ Local insurgents who are more used to fighting in adverse climate conditions increase operational risks for U.N. troops. Climate change shifts this ratio more in favor of the insurgents.

When sandstorms trap U.N. troops inside their camps, protection of civilians from armed assault cannot be assured. In northern Mali, thunderstorms produce hurricane-like

²⁴⁹ Hujale, "Displaced Somalis and Refugees Struggle to Recover as Climate Change Brings New Threats"; Directorate-General for European Civil Protection and Humanitarian Aid Operations (ECHO), "Somalia: EU Sends Humanitarian Air Bridge to Deliver Life-Saving Aid," European Commission, July 6, 2022, https://civil-protection-humanitarian-aid.ec.europa.eu/news-stories/news/somalia-eu-sends-humanitarian-air-bridge-deliver-life-saving-aid-2022-07-06_en.

²⁵⁰ Hegazi, Krampe, and Smith, "Climate-Related Security Risks and Peacebuilding in Mali," 29–30.

²⁵¹ Hegazi, Krampe, and Smith, 30.

sandstorms every three to five days during the rainy season.²⁵² While the hundreds of meters high, dirty brown clouds sweep over the camp, the operations come to a complete standstill. The forces try to avoid getting caught in such storms outside the operational bases by adjusting operational planning to weather forecasts. Although storms sometimes last only a few hours, operational activity may be curtailed for much longer as a hedge against inaccurate forecasts.

Although located in a different part of the world, another example of storms affecting U.N. forces occurred when hurricanes hit the United Nations Stabilization Mission in Haiti. In 2008, a series of four hurricanes struck Haiti within a span of three weeks, causing widespread flooding, landslides, and infrastructure damage.²⁵³ The U.N. peacekeeping forces in Haiti were heavily impacted by the storms, as their base camps and equipment were damaged or destroyed.²⁵⁴ Additionally, the peacekeepers themselves were exposed to the harsh weather conditions and faced difficulties in delivering aid to affected communities. When storms create an immediate demand for humanitarian aid, they also limit U.N. forces in terms of operating in extreme weather conditions and in the resilience of their infrastructure and equipment.

D. SUMMARY OF CLIMATE CHANGE’S OPERATIONAL IMPACTS

This chapter has provided an overview of the U.N. force generation and capability management system. Further, it briefly portrayed MINUSMA’s and UNSOM’s operational peacebuilding forces. By explaining the force structure, tasks, and components, the chapter has shown the broad variety of necessary capabilities the U.N. has to assemble for the spectrum of both peacebuilding operations. By connecting these capabilities to environmental hazards caused by climate change, this chapter explained the adverse effects of such conditions on the execution of operations.

²⁵² Lenz, “Stockdunkel mitten am Tag – Sandsturm über Camp Castor.”

²⁵³ Joseph Guyler Delva, “Haiti, U.N. Overwhelmed by Disaster,” *Reuters*, September 18, 2008, <https://www.reuters.com/article/us-storms-haiti-idUSN1833381820080918>.

²⁵⁴ “Haiti: Peacekeepers Brace for Storm Season,” *BBC News*, May 28, 2009, <https://www.bbc.com/news/world-latin-america-13555927>.

In conclusion, climate change is increasingly imposing challenging conditions on U.N. peacekeeping missions in Mali and Somalia. Droughts jeopardize the supply of drinking water, which is crucial for both troops and local populations. Floods restrict land mobility, limiting the effectiveness of operations and aid delivery. Storms, including sandstorms and tropical storms, endanger air mobility, which is essential for reconnaissance and transporting personnel and supplies. In short, climate change is making environmental hazards more intense and less predictable, making it challenging to plan and execute successful peacebuilding operations.

The available evidence is anecdotal and not yet sufficient to scientifically analyze climate change's effects on operations in detail. So far, climate change seems to negatively affect the execution of U.N. operations, particularly in times of increased demand for humanitarian aid and disaster relief. To analyze this more deeply and derive specific capability adjustments, further research is needed, probably in the form of on-site surveys in different missions over longer periods than this study allowed. The example of MINUSMA providing clean water to the local population shows that well-equipped peacebuilding forces can have positive impacts toward CCA. Nonetheless, the individual events described demonstrate that deteriorating environmental conditions not only cause the population to suffer but challenge auxiliary forces beyond their limits of peacebuilding.

Although the evidence based on news reports may be anecdotal, statements in official U.N. documents indicate how significantly climate change challenges U.N. operations and how much the U.N. is concerned. In the MINUSMA mandate, the U.N. explicitly “calls upon member states to provide troops and police with adequate capabilities and equipment in order to enhance the capacity ... to operate”²⁵⁵ in the “specific operational environment.”²⁵⁶ In this case, the term ‘environment’ refers to a challenging and complex situation where peacekeepers are required to operate in hostile or unstable conditions. This may include dealing with armed conflict, instability, terrorism, and other security threats, as well as rugged terrain, extreme weather conditions, and limited

²⁵⁵ United Nations Security Council, *Resolution 2100 (2013)*, 6.

²⁵⁶ United Nations Security Council, *Resolution 2227 (2015)*, S/RES/2227 (New York, NY: United Nations, 2015), 8, <https://digitallibrary.un.org/record/795674>.

infrastructure. The mandates are often not definitive about whether they refer to the natural or the security environment. Still, the explicitly expressed call for adequate forces signals the U.N.'s concerns, including adverse climatological conditions.

UNSOM's mandate does not include a paragraph on troop-contributing requirements and capabilities. Instead, requirements are stated in the U.N. Secretary-General's reports on the country's situation. Since these reports are more frequently issued than the renewal of the mission's mandate, this approach allows for updating requirements more quickly and reactively to a developing situation.

The U.N. Secretary-General's reports on both missions provide evidence that there might be negative operational impacts deriving from environmental hazards. In 2014, climate impacts on operations' execution were reported in Mali:

35. Construction efforts in northern Mali are hindered by security and climate conditions, which limit the capacity of key enablers and contractors. Adverse weather conditions affect the air and road movements of the Mission. Travel time by road to destinations in northern Mali increases on average by 50 per cent during the rainy season, prolonging the commitment of the Force for the protection of convoys.²⁵⁷

References to challenging climatic conditions also appeared in reports on the situation in Somalia:

Poor road conditions continued to hinder the delivery of mission-enabling units to 19 locations. Meanwhile, field defense stores and other materiel were pre-positioned at eight forward operating bases, awaiting improved weather conditions to recommence work.²⁵⁸

Given that the U.N. Secretary-General is the highest reporting authority on peacebuilding missions, these few examples demonstrate that climate conditions are already having such a negative impact on operations that these issues are reaching the highest levels of the chain of command. Since climate change makes environmental

²⁵⁷ United Nations Secretary General, *Report of the Secretary-General on the Situation in Mali*, S/2014/692 (New York, NY: United Nations, 2014), 9, <https://digitallibrary.un.org/record/780163?ln=en>.

²⁵⁸ United Nations Secretary General, *Situation in Somalia: Report of the Secretary-General*, S/2020/398 (New York, NY: United Nations, 2020), 14, <https://digitallibrary.un.org/record/3861971?ln=en>.

conditions more hazardous, operations will likely be more often and severely affected negatively.

To carry out their missions effectively, U.N. peacebuilding forces must be able to adapt to changing climate conditions in the areas in which they operate, and they must be able to implement climate resilience strategies. When implemented properly, those strategies and best practices may spill over into the respective AOR and translate into climate change adaptation.

V. CONCLUSIONS

MINUSMA and UNSOM, the U.N. missions examined in this thesis, have shaped the developments in Mali and Somalia in different ways, including through their different levels of consideration of climate change. After briefly reviewing the previous chapters and putting together the different components of the analysis, the subsequent sections of this chapter synthesize the thesis's main findings and derives implications for U.N. peacebuilding. The chapter concludes with suggestions for additional research that will further shape the understanding of climate change's impacts on U.N. peacebuilding missions and support necessary adaptation.

A. FINDINGS

In the introduction, this thesis raised the question of how climate change affects peacebuilding missions. Climate change is increasingly impacting global security, and environmental factors are nowadays widely accepted as conflict drivers and multipliers. This thesis began by narrowing the broad environmental security discussion to the peacebuilding realm, with a focus on sub-Saharan Africa, a region particularly affected by climate change and where significant U.N. missions are engaged in peacebuilding.

Although the thesis showed the U.N.'s growing concerns about taking climate change's effects into account in peacebuilding activities, Chapter I still identified a gap in the related research. The literature lacks a link between understanding how climate change drives insecurity and how that connects to peacebuilding endeavors for consolidated security and positive peace. By examining relevant literature on environmental security and peacebuilding, the thesis developed two hypotheses: (1) U.N. missions that fail to adequately address or effectively integrate the security impacts of environmental hazards into their peacebuilding efforts will not successfully build positive peace, and (2) climate change reveals a growing capability gap among U.N. troops that undermines the execution of peacebuilding operations.

Chapters II and III examined the first hypothesis in two case studies. The U.N. missions MINUSMA in Mali and UNSOM in Somalia were studied to determine how

climate change affected both missions through the environmental hazards it created. The direct impacts of climate change on both missions were studied by analyzing mission-specific U.N. documents. Based on the findings from the peacebuilding literature, an additional indirect connection between climate change and the achievement of the missions' goals was established via the intermediate variables of institutionalized good governance and economic growth. While both missions faced increasing impacts of climate change on security in their respective area of operations, there were differences in their reactions and outcomes. Differences between the two missions' mandates, structure, adaptation to climate change, and ultimately in their progress allowed conclusions about how peacebuilding missions more successfully counter climate change's implications.

In both cases, climate change had adverse impacts on the respective country's security situation. Mali and Somalia have experienced severe environmental hazards that undermined people's livelihoods. Deprived of their economic base, the population became more dependent on state structures that were dysfunctional or non-existent in both states. The lack of services provided by the respective government undermined the social contract and trust in state institutions and opened spaces for malign non-state actors.

In Somalia, UNSOM has reacted more effectively to climate change and incorporated more resilient peacebuilding strategies than did MINUSMA in Mali. The varying degrees to which each mission's response to climate change was implemented in the respective mandates reveal multiple conclusions. Following global changes in the U.N. system toward more sustainable development, both missions adapted their mandates. Yet, depending on the severity of the suffering caused by climate change for the affected populations, the missions considered climate change in their mandates to different extents. After 2018, the reform of the U.N. system in line with the Sustainable Development Goals led to a change in both missions' mandates toward incorporating consideration of the effects of climate change. However, climate change's more life-threatening effects on Somalia's population created a stronger incentive, resulting in only UNSOM's implementation of concrete adaptation measures in its peacebuilding efforts. In addition, UNSOM's narrower focus on traditional peacebuilding tasks appears to have translated into better consideration of climate change impacts in its peacebuilding policies. While

MINUSMA struggled with fighting insurgency, it consequently failed to address climate change's contribution to the conflict's root causes. Meanwhile, UNSOM was able to appoint specialized personnel to establish the mutual implementation of climate change adaptation and security promotion. Although several other issues must still be overcome in Somalia, UNSOM has successfully set conditions to prevent significant climate-related setbacks to peacebuilding.

Generally, the study of the selected cases along the thesis's first hypothesis discovered a two-pronged effect of climate change on peacebuilding missions. First, the analysis found that climate change is directly affecting the U.N. missions' mandates to varying degrees. Second, the thesis demonstrated that climate change impedes the mission's attempts to build institutionalized good governance and stimulate economic growth; by exacerbating environmental hazards, climate change multiplies setbacks to both proxies, and thereby it indirectly undermines the missions' goals. By addressing climate change effects along with economic and institutional peacebuilding strategies, a peacebuilding mission may prevent those setbacks to some extent.

Chapter IV added another layer to the analysis. By examining the effects of climate change on the environmental conditions and their subsequent impact on military operations, that chapter explored the thesis's second hypothesis. Based on the impact of climate change on cross-mission mandatory military core functions, both cases of the previous chapters were considered collectively. Due to the non-mission-specific nature of these functions, it was also possible to derive the applicability of the findings to U.N. missions in general. The chapter added a third dimension to this thesis's findings: various environmental hazards complicate the execution of U.N. missions' operations.

In the operational dimension, the evidence suggests that many U.N. troops are inadequately prepared and equipped to deal with climate change-related aggravations. Operations are hampered, especially in times when catastrophic conditions make the troops' engagement in disaster relief all the more urgent. Since most of the findings relate to climate change's general effects on core military capabilities, the conclusions are not limited to a specific U.N. mission. While the thesis included examples of highly sophisticated Western militaries already adapting to more demanding climatic conditions,

the thesis demonstrated that this is not the case among leading U.N. troop contributors and revealed a growing capability gap among U.N missions.

Climate change affects the execution of operations along three lines. First, climate change's effects on military capabilities and equipment hinder essential functions of peacebuilding operations. Second, extreme weather events severely undermine the provision of security and humanitarian aid to the population. Third, where equipment is suitable, U.N. forces can create positive spillovers to CCA, particularly on water supplies. However, the U.N. force generation process generally falls short of providing the necessary capabilities and equipment to cope with climate change's adverse effects. Leading TCCs lack essential capabilities and do not sufficiently adapt their forces to the new challenges posed by climate change.

Overall, this thesis has demonstrated that climate change has a significant impact on peacebuilding missions, particularly in sub-Saharan Africa, where the effects of climate change are already clearly evident. The findings have shown that failing to adequately plan for or integrate an effective response to the security impacts of environmental hazards in peacebuilding efforts impedes the missions' goals of building positive peace. Moreover, the study has revealed a capability gap among U.N. troops, which further undermines the execution of peacebuilding operations. The next section explores the implications of these findings and discusses potential ways forward to address the challenges in the peacebuilding realm.

B. IMPLICATIONS

The findings of this thesis strongly support Florian Krampe's 2019 assessment that "multilateral peacebuilding efforts are underprepared for the fact that climate change is already affecting key elements of their mandates."²⁵⁹ While his research, also partly based on the study of Somalia, called for peacebuilding to be "more climate sensitive,"²⁶⁰ the

²⁵⁹ Florian Krampe, "Climate Change, Peacebuilding, and Sustaining Peace," *IPI Global Observatory* (blog), September 13, 2019, 7, <https://theglobalobservatory.org/2019/09/climate-change-peacebuilding-and-sustaining-peace/>.

²⁶⁰ Krampe, "Climate Change, Peacebuilding and Sustaining Peace."

results of this thesis pave the way for further, more concrete adjustments. As shown in the case of MINUSMA, merely recognizing and assessing the risks of climate change are not sufficient. Effects and risks nowadays are well studied and understood by environmental security research. The conflicting interrelation of climate change and peacebuilding on security must be actively addressed in the efforts to achieve good governance and economic growth. With a better understanding of the mutual effects of climate change and security in the U.N. peacebuilding and development system, the missions need to integrate reciprocal supporting measures in peacebuilding and development programs. Without a doubt, primary efforts must be devoted to climate change mitigation. However, where climate change's effects have a tangible impact on peace, U.N. peacebuilding must develop new practices. Clearer focus and personnel dedicated to climate-related peacebuilding, like in the Somali case, facilitates the more direct and explicit implementation of climate-related U.N. Strategic Development Goals towards positive peace.

Ongoing changes in the U.N. system toward a greater recognition of climate change need to be more intentionally implemented in U.N. peacebuilding activities. At the time of this thesis's completion, the future of MINUSMA is uncertain while Germany, the last remaining Western participant in the mission, has begun withdrawing its troops from Mali. Nonetheless, the uncertain outlook could also be seen positively as a turning point and possibility for change. Climate change literally changes the security realm, so peacebuilding must change as well. In the *Routledge Handbook of Environmental Conflict and Peacebuilding*, David Jensen and Amanda Kron identified 2010 as a turning point in the U.N.'s consideration of climate change in peacebuilding when the U.N. Secretary-General called "on Member States and the United Nations system 'to make questions of natural resource allocation, ownership and access an integral part of peacebuilding strategies' (UNGA and UNSC 2010)." ²⁶¹ Yet, little of this has effectively manifested in MINUSMA and UNSOM. Even the fundamental change deriving from the U.N.'s 2030 Agenda for Sustainable Development has not consequently translated into substantial

²⁶¹ Joakim Öjendal and Ashok Swain, eds., *Routledge Handbook of Environmental Conflict and Peacebuilding*, Routledge Handbook (Abingdon, Oxon; New York, NY: Routledge, 2018), 125, <https://doi.org/10.4324/9781315473772>.

changes of peacebuilding missions.²⁶² It seems useful here to refer again to the director of SIPRI's Climate Change and Risk Program Florian Krampe, who has assessed:

The U.N. Security Council cannot ignore climate change and its impacts on U.N. peace operations. Not only do operations need to better inform the Security Council about the climate-related security risks they face, but the Security Council needs urgently to identify what additional measures, authorities or partnerships are required in order to properly plan for and address climate-related security risks in mission contexts.²⁶³

To effectively build peace, the U.N. peacebuilding architecture must acknowledge that climate change is not a peripheral concern in sustainable development policies but rather a central aspect that impacts the interconnected systems of sustainable development, institution building, peace, and security. Consequently, the peacebuilding architecture must remain vigilant, draw on detailed analyses of the security ramifications of climate-related hazards, and translate those findings into adaptive climate change activities. The United Nations should prioritize climate security issues by assigning personnel to address these issues in particularly affected sub-Saharan Africa. Additionally, the peacebuilding architecture should assist vulnerable nations like Mali and Somalia in implementing proactive measures to adapt to the effects of climate change in order to prevent prolonged periods of instability.

Furthermore, in the operational dimension, the evidence suggests that U.N. force generation and capability management within the U.N. PCRS requires strategies for adapting to climate change. The significant shortfalls of U.N. missions in core capabilities that manifest in demanding climate conditions must be adequately addressed. If leading TCCs cannot provide sufficient adaptive means and capabilities, the U.N. must encourage better-adapted nations to contribute improved capabilities or develop their own standing enabling forces to deploy core capabilities in demanding climate zones.

²⁶² United Nations General Assembly, "Transforming Our World: The 2030 Agenda for Sustainable Development," A/RES/70/1 (New York: United Nations, October 21, 2015), <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N15/291/89/PDF/N1529189.pdf?OpenElement>.

²⁶³ Florian Krampe, "Why United Nations Peace Operations Cannot Ignore Climate Change," Stockholm International Peace Research Institute (SIPRI), February 22, 2021, <https://sipri.org/commentary/topical-background/2021/why-united-nations-peace-operations-cannot-ignore-climate-change>.

C. SUGGESTIONS FOR FURTHER RESEARCH

This thesis presented two case studies of U.N. peacebuilding missions chosen for having the greatest similarities. However, the cases also showed structural and parametric differences that affected their ability to address the impacts of climate change on peacebuilding. Further research is necessary to gain a more comprehensive understanding of the factors that shape a U.N. mission's effectiveness in addressing climate change impacts on peacebuilding. One potential avenue for future research could involve selecting additional case studies that vary some of the parameters highlighted here, such as varying the geographic location to a more or less climate change-affected country or incorporating other U.N. missions with varying levels of structural focus on peacebuilding versus other phases of conflict management. Additionally, researchers could further explore the impact of structural changes in the U.N. system on U.N. mission mandates, planning, and execution. Such research could provide valuable insights into the factors that most influence U.N. mission effectiveness in addressing the impact of climate change on peacebuilding.

In addition to the need for further research on the factors that shape U.N. missions' effectiveness in addressing the effects of climate change on peacebuilding, there is also a need for research on how better to coordinate international aid on development and U.N. peacebuilding to implement CCA measures mutually. Further research could explore improving coordination among international organizations, governments, and civil society actors to ensure that development, governance, and security sector initiatives align with CCA goals. By identifying strategies to better coordinate international aid on development and peacebuilding to implement CCA mutually, this research could help enhance the effectiveness of efforts to address the impacts of climate change.

Another crucial area for further research is the impact of climate change on the execution of U.N. operations and how best to prepare and equip U.N. forces for operations in increasingly demanding climate conditions. As the effects of climate change become more severe over time, U.N. operations are likely to face new and complex challenges, ranging from extreme weather events to changes in resource availability. Further research could explore how best to develop training and capacity-building programs for U.N. forces

to operate in these changing conditions, including how to incorporate climate change adaptative measures into U.N. force generation and operational planning. Additionally, researchers could examine how best practices developed by U.N. forces for operating in demanding climate conditions can be shared with and adopted by local communities, promoting spillovers in implementing CCA measures. Such research could help ensure that U.N. operations remain effective in the face of climate change while also promoting broader adoption of CCA measures in local communities.

APPENDIX A. MAP OF MINUSMA



Figure 11. Map of MINUSMA.²⁶⁴

²⁶⁴ Source: United Nations Geospatial Information, *MINUSMA December 2020* (New York: United Nations Geospatial, 2020), <https://digitallibrary.un.org/record/3895418>.

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APPENDIX B. MAP OF SOMALIA



Figure 12. Map of Somalia.²⁶⁵

²⁶⁵ Source: United Nations Secretary General, *Situation in Somalia: Report of the Secretary-General*, S/2021/723 (New York: United Nations, 2021), 16, <https://digitallibrary.un.org/record/3935730?ln=en>.

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APPENDIX C. REFERENCES TO CLIMATE AND ENVIRONMENT IN U.N. MANDATES

The tables in this appendix show excerpts of U.N. Security Council resolutions of U.N. peacebuilding missions in Mali and Somalia. The listed paragraphs were extracted from the respective resolutions as published in the U.N. digital library.²⁶⁶ Listed in chronological order, the collection of all climate and environment related paragraphs of each mission's mandates enables a first-hand overview of when the respective document addressed which aspects of climate and environment, and to whom they were aimed. The scope and position of the sections in the mandates, together with the nuance of the verbs used, reflect the importance attached to climate and environmental aspects in each case.

Table 1. References to Climate and Environment in U.N. Security Council Resolutions on MINUSMA's Mandate

Resolution	Reference
Resolution 2100 25 APR 2013	32. <i>Requests</i> the Secretary-General to consider the environmental impacts of the operations of MINUSMA when fulfilling its mandated tasks and, in this context, encourages MINUSMA to manage them, as appropriate and in accordance with applicable and relevant General Assembly resolutions and United Nations rules and regulations, and to operate mindfully in the vicinity of cultural and historical sites (p. 11)
Resolution 2164 25 JUN 2014	19. <i>Requests</i> the Secretary-General to consider the environmental impacts of the operations of MINUSMA when fulfilling its mandated tasks and, in this context encourages MINUSMA to manage them, as appropriate and in accordance with applicable and relevant General Assembly resolutions and United Nations rules and regulations, and to operate mindfully in the vicinity of cultural and historical sites (p. 8-9)
Resolution 2227 29 JUN 2015	25. <i>Requests</i> MINUSMA to consider the environmental impacts of its operations when fulfilling its mandated tasks and, in this context, to manage them as appropriate and in accordance with applicable and relevant General Assembly resolutions and United Nations rules and regulations, and to operate mindfully in the vicinity of cultural and historical sites (p. 9)
Resolution 2295 29 JUN 2016	Environmental impact of MINUSMA's operations

²⁶⁶ United Nations, "United Nations Digital Library."

Resolution	Reference
	39. <i>Requests</i> MINUSMA to consider the environmental impacts of its operations when fulfilling its mandated tasks and, in this context, to manage them as appropriate and in accordance with applicable and relevant General Assembly resolutions and United Nations rules and regulations, and to operate mindfully in the vicinity of cultural and historical sites (p. 13)
Resolution 2364 29 JUN 2017	Environmental impact of MINUSMA's operations 41. <i>Requests</i> MINUSMA to consider the environmental impacts of its operations when fulfilling its mandated tasks and, in this context, to manage them as appropriate and in accordance with applicable and relevant General Assembly resolutions and United Nations rules and regulations, and to operate mindfully in the vicinity of cultural and historical sites (p. 13)
Resolution 2423 03 JUL 2018	<i>Recognizing</i> the adverse effects of climate change, ecological changes and natural disasters, among other factors, on the stability of Mali, including through drought, desertification, land degradation and food insecurity, and emphasizing the need for adequate risk assessment and risk management strategies by the government of Mali and the United Nations relating to these factors (p. 4) Environmental issues 67. <i>Requests</i> MINUSMA to consider the environmental impacts of its operations when fulfilling its mandated tasks and, in this context, to manage them as appropriate and in accordance with applicable and relevant General Assembly resolutions and United Nations rules and regulations, and to operate mindfully in the vicinity of cultural and historical sites; 68. <i>Notes the importance</i> for the Government of Mali and the United Nations to take into consideration, as appropriate, the security implications of the adverse effects of climate change and other ecological changes and natural disasters, among other factors, in their activities, programs and strategies in Mali (p. 17)
Resolution 2480 02 JUL 2019	<i>Emphasizing</i> the need for adequate risk assessment and risk management strategies, by the government of Mali and the United Nations, of ecological changes, natural disasters, drought, desertification, land degradation, food insecurity, energy access, climate change, among other factors, on the security and stability of Mali (p. 2) Environmental issues 61. <i>Requests</i> MINUSMA to consider the environmental impacts of its operations when fulfilling its mandated tasks and, in this context, to manage them as appropriate and in accordance with applicable and relevant General Assembly resolutions and United Nations rules and regulations (p. 14-15)
Resolution 2531 10 JUL 2020	<i>Emphasizing</i> the need for adequate risk assessment and risk management strategies, by the Government of Mali and the United Nations, of ecological changes, natural disasters, drought, desertification, land degradation, food insecurity, energy access, climate change, among other factors, on the security and stability of Mali (p. 3) Environmental issues 59. <i>Requests</i> MINUSMA to consider the environmental impacts of its operations when fulfilling its mandated tasks and, in this context, to manage them as appropriate and in accordance with applicable and relevant General Assembly resolutions and United Nations rules and regulations (p. 16)

Resolution	Reference
Resolution 2584 30 JUN 2021	<i>Emphasizing</i> the need for adequate risk assessment and risk management strategies, by the Government of Mali and the United Nations, of ecological changes, natural disasters, drought, desertification, land degradation, food insecurity, energy access, climate change, among other factors, on the security and stability of Mali (p. 3) Environmental issues 58. <i>Requests</i> MINUSMA to consider the environmental impacts of its operations when fulfilling its mandated tasks and, in this context, to manage them as appropriate and in accordance with applicable and relevant General Assembly resolutions and United Nations rules and regulations (p. 17)
Resolution 2640 02 JUL 2022	<i>Emphasizing</i> the need for adequate risk assessment and risk management strategies, by the Transition Government of Mali and the United Nations, of ecological changes, natural disasters, drought, desertification, land degradation, food insecurity, energy access, climate change, among other factors, on the security and stability of Mali (p. 3) Environmental issues 53. <i>Requests</i> MINUSMA to consider the environmental impacts of its operations when fulfilling its mandated tasks and, in this context, to manage them as appropriate and in accordance with applicable and relevant General Assembly resolutions and United Nations rules and regulations; 54. <i>Underscores</i> that the sustainability of peace and security support is improved by the implementation of the United Nations Department of Operational Support's Environment Strategy (phase II), which emphasizes good stewardship of resources and a positive legacy of the mission, and identifies the goal of expanded renewable energy use in missions to enhance safety and security, save costs, offer efficiencies and benefit the mission (p. 16)

Table 2. References to Climate and Environment in U.N. Security Council Resolutions on UNSOM's Mandate

Resolution	Reference
Resolution 2102 02 MAY 2013	- (no reference to the terms climate, environment, ²⁶⁷ drought, famine, flood, storm, locusts, or heat)
Resolution 2158 29 MAY 2014	- (no reference to the terms climate, environment, drought, famine, flood, storm, locusts, or heat)
Resolution 2221 26 MAY 2015	- (no reference to the terms climate, environment, drought, famine, flood, storm, locusts, or heat)
Resolution 2275 24 MAR 2016	- (no reference to the terms climate, environment, drought, famine, flood, storm, locusts, or heat)
Resolution 2346 23 MAR 2017	- (no reference to the terms climate, environment, drought, famine, flood, storm, locusts, or heat)
Resolution 2358 24 JUN 2017	<i>Expressing</i> grave concern at the credible and renewed risk of famine in Somalia as a result of the severe drought in the context of ongoing conflict, welcoming the Federal Government of Somalia's response to the humanitarian crisis, and encouraging further cooperation with international and national humanitarian actors to relieve immediate need and build longer term resilience, including for internally displaced persons, <i>Welcoming</i> the generous support of donors to the Somali authorities and the Humanitarian Response Plan, encouraging further contributions to humanitarian assistance efforts, and welcoming United Nations' efforts to coordinate the drought response and support the Somali authorities (p. 2) 22. <i>Reiterates</i> its concern at the high number of refugees and internally displaced persons (IDPs), including persons newly displaced by the drought, expressing its serious concern at the ongoing forced evictions of IDPs in Somalia, stresses that any eviction should be consistent with relevant national and international frameworks, calls upon the Federal Government of Somalia and all relevant actors to strive to provide concrete durable solutions for internal displacement, and further calls upon the Federal Government of Somalia and all relevant actors to strive to create the conditions conducive to the voluntary, safe, dignified and sustainable return of refugees and IDPs with the support of the international community; 23. <i>Expresses</i> grave concern at the worsening humanitarian crisis and renewed risk of famine in Somalia and its impact on the people of Somalia, commends the efforts of the United Nations humanitarian agencies and other humanitarian actors and donors to call the possible famine early and scale up lifesaving assistance to vulnerable populations, condemns any misuse or obstruction of humanitarian assistance, reiterates its demand that all parties allow and facilitate full, safe, rapid and unhindered access for the timely delivery of aid

²⁶⁷ The term 'environment' was counted as a reference only if it was meant in relation to climate and not if it was related to the operational or security environment.

Resolution	Reference
	to persons in need across Somalia, including by dismantling illegal checkpoints and removing administrative hurdles, and in line with the humanitarian principles, underlines the importance of proper accounting in international humanitarian support, and encourages national disaster management agencies in Somalia to scale up capacity with support from the United Nations to take a stronger coordination and leadership role (p. 5)
Resolution 2408 27 MAR 2018	<i>Expressing</i> grave concern at the credible and continued risk of famine in Somalia as a result of the severe drought in the context of ongoing conflict and environmental factors, <i>welcoming</i> the Federal Government of Somalia's response to the humanitarian crisis, and <i>encouraging</i> further cooperation with international and national humanitarian actors to relieve immediate need and build longer-term resilience, including for internally displaced persons, <i>Recalling</i> its Presidential statement S/PRST/2011/15, <i>recognising</i> the adverse effects of climate change, ecological changes and natural disasters among other factors on the stability of Somalia, including through drought, desertification, land degradation, and food insecurity, and <i>emphasising</i> the need for adequate risk assessments and risk management strategies by governments and the United Nations relating to these factors; <i>Welcoming</i> the generous support of donors to the Somali authorities and the Humanitarian Response Plan, encouraging further contributions to humanitarian assistance efforts, and welcoming United Nations' efforts to coordinate the drought response and support the Somali authorities (p. 3)
Resolution 2461 27 MAR 2019	<i>Expressing</i> grave concern at the ongoing humanitarian crisis in Somalia as a result of the drought and protracted conflict, <i>expressing</i> further concern about the number of refugees and internally displaced persons (IDPs), <i>condemning</i> in the strongest terms attacks against humanitarian and medical personnel, <i>welcoming</i> the efforts by the Federal Government of Somalia, Federal Member States, the United Nations and the response and generous support by donors to the humanitarian crisis and continued support to the humanitarian response plan, <i>encouraging</i> further cooperation with international and national humanitarian actors to relieve immediate need and contribute to the strengthening of resilience, including for IDPs (p. 2) <i>Recognising</i> the adverse effects of climate change, ecological changes, natural disasters among other factors on the stability of Somalia, including through drought, desertification, land degradation and food insecurity, and <i>emphasising</i> the need for adequate risk assessments and risk management strategies by governments and the United Nations relating to these factors, and recalling its Presidential statement S/PRST/2011/15 (p. 3) 21. <i>Requests</i> the United Nations and the Federal Government of Somalia and the Federal Member States to consider the adverse implications of climate change, other ecological changes and natural disasters, among other factors, in their programmes in Somalia, including by undertaking risk assessments and risk management strategies relating to these factors and further requests the Secretary-General to provide information of such assessments in mandated reporting as appropriate (p. 7)
Resolution 2540 28 AUG 2020	<i>Expressing</i> grave concern at ongoing humanitarian crises in Somalia as a result of the protracted conflict and recurring events including drought, flooding and the locust infestation (...) (p. 3)

Resolution	Reference
	<i>Further recognising</i> the adverse effects of climate change, other ecological changes, natural disasters, among other factors, on the stability of Somalia, including through drought, desertification, land degradation and food insecurity, and recalling its Presidential Statement S/PRST/2011/15 (p. 4) 13. <i>Requests</i> the United Nations, the FGS and the FMS to consider the adverse implications of climate change, other ecological changes, natural disasters, among other factors, in their programmes in Somalia, including by undertaking risk assessments and risk management strategies relating to these factors, and <i>requests</i> the Secretary-General to provide an update in mandated reporting as appropriate (p. 8)
Resolution 2592 30 AUG 2021	<i>Reiterating</i> that the successful and peaceful conduct of elections in 2021 as planned and agreed can enable Somalia to refocus on addressing pressing problems, including among other things, humanitarian needs, the threat posed by Al-Shabaab, trafficking of weapons and ammunition, floods, drought, and COVID -19 and enable all parties to advance Somalia's national priorities (p. 1) <i>Expressing</i> grave concern at ongoing humanitarian crises in Somalia as a result of protracted conflict, recurring events including drought, flooding and locust infestation, and recognising that the COVID-19 pandemic presents an additional and profound challenge to Somalia's health system, socioeconomic and humanitarian situation, and social cohesion (p. 3) <i>Further recognising</i> the adverse effects of climate change, environmental degradation, other ecological changes, natural disasters, among other factors, on the stability of Somalia, including through floods, drought, desertification, land degradation, and food insecurity, and recalling its Presidential Statement S/PRST/2011/15 (p. 4) 6. <i>Further decides</i> that UNSOM should continue to coordinate United Nations efforts, maximising joint approaches and joint programming in relevant areas, in full cooperation with the FGS and FMS, and with a particular focus on the following tasks: (m) (...) promote cooperation with relevant partners, with a view to making maximum use of development financing in Somalia, including in response to climate change, flooding, drought, locusts and the COVID-19 pandemic, including the safe, effective and equitable distribution of vaccines (p. 4, 6) 15. <i>Requests</i> the United Nations, the FGS and FMS to consider the adverse implications of climate change, environmental degradation, other ecological changes and natural disasters, among other factors, in their programmes in Somalia, including by undertaking comprehensive risk assessments and risk management strategies relating to these factors, and <i>requests</i> the Secretary-General to provide an update in mandated reporting as appropriate (p. 8)
Resolution 2657 31 OCT 2022	<i>Highlighting</i> the importance of FGS and FMS coordination with OCHA to ensure a needs-based distribution of humanitarian aid, including in-kind food aid, and appropriate targeting of marginalised groups, which may face specific barriers in accessing assistance and protection, in support of the UN Famine Prevention Plan, and collaboration with the UN to develop an inter-ministerial strategy for enabling proper adaptation, reducing the risks and mitigating the impacts of climate change in Somalia, <i>Recognising</i> the adverse effects of climate change, environmental degradation, other ecological changes, natural disasters, among other factors on the stability of Somalia, including through floods, drought, desertification, land degradation and food insecurity and recalling

Resolution	Reference
	its Presidential Statement S/PRST/2011/15, the United Nations Framework Convention on Climate Change and the Paris Agreement (p. 2) 5. <i>Notes</i> the United Nations Department of Operational Support’s Environment Strategy (Phase II), which emphasises good stewardship of resources and a positive legacy of the mission, and identifies the goal of expanded renewable energy use in missions to enhance safety and security, save costs, offer efficiencies and benefit the mission (p. 3) 11.a. demands that all parties allow and facilitate, in accordance with applicable international humanitarian law, full, safe, rapid and unhindered access for the timely delivery of aid to persons in need across Somalia in line with the humanitarian principles, including for the implementation of the Drought Response and Famine Prevention Plan and revised Humanitarian Response Plan (p. 5) 14. <i>Highlights</i> the importance of the United Nations, the FGS and FMS considering the adverse implications of climate change, environmental degradation, other ecological changes and natural disasters, among other factors, in their programmes in Somalia, including by undertaking comprehensive risk assessments and risk management strategies relating to these factors, acknowledging the United Nations Framework Convention on Climate Change and the Paris Agreement (p. 6)

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