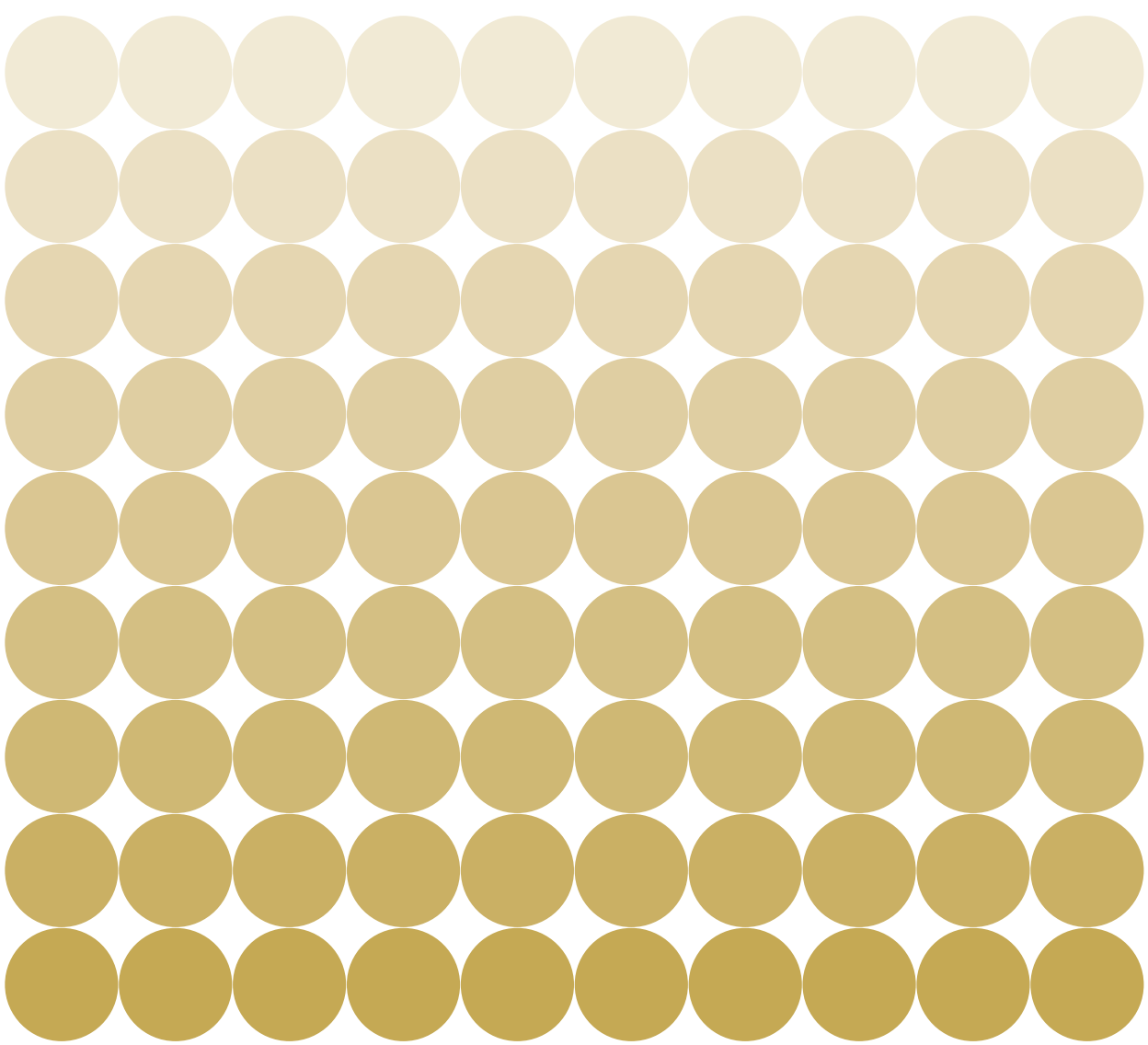


CLIMATE-RELATED SECURITY RISKS AND PEACEBUILDING IN MALI

**FARAH HEGAZI, FLORIAN KRAMPE
AND ELIZABETH SEYMOUR SMITH**



STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE

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**STOCKHOLM INTERNATIONAL
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Preface

The impacts of climate change are increasingly shaping global peace and security. Effective peacebuilding requires the incorporation of climate sensitivity into peacebuilding efforts so as to anticipate the challenges and respond to them in a timely way. Accordingly, some of the mandate renewals for United Nations peacekeeping and special political missions include calls to report on climate-related security risks and deploy appropriate risk management strategies.

Focused on Mali, this policy paper is the second in a series that asks how climate change has affected UN peacebuilding efforts and how missions have responded. In 2018, UN Security Council Resolution 2423 acknowledged that climate change affects stability in Mali. It called on the Multidimensional Integrated Stabilization Mission in Mali (MINUSMA) to recognize and manage its potential negative environmental impacts, and called on the UN and the Malian Government to consider climate-related security risks in their work.

In Mali, both climate change and weak governance contribute to undermining human security and increasing people's grievances. Dependence on natural resources, rising temperatures, droughts and flooding affect the livelihoods of many, while weak governance and poor infrastructure make sustainable solutions elusive. This poses a sharp challenge to peacebuilding. This policy paper shows that the impacts of climate change limit livelihood options in Mali, thereby increasing people's susceptibility to recruitment into armed non-state groups. Climate change also influences the choice of routes taken by pastoralists with their herds, which often leads to increased tensions between them and farming communities. In addition, deficient or absent government responses to the effects of climate change contribute to local grievances against the state.

MINUSMA responds to the impacts of climate change in various ways. Its different divisions implicitly address climate-related security risks, with efforts often focusing on natural resource management: its Environment and Culture Unit expressly works to limit the mission's environmental impact. Yet MINUSMA also encounters limitations in addressing climate-related security risks, such as limited capacity and deficient prioritization, while there are challenges in coordination between the mission and the UN Country Team.

With its focus on Mali, but also broader potential applicability, this paper offers unique insight into the changing reality of contemporary peacebuilding efforts. It should be of considerable interest to policymakers, practitioners and researchers alike.

Dan Smith
Director, SIPRI
Stockholm, April 2021

Acknowledgements

This work is funded by the Swedish Ministry for Foreign Affairs as part of SIPRI's Climate Change and Security Project, with additional support from the Network for Education and Research on Peace and Sustainability, Hiroshima University, Japan. We are grateful for the access and facilitation provided by the United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA) and the UN Country Team in order to conduct interviews with current and former staff deployed in Mali. Lastly, we are indebted to the reviewers and editors for their help in improving early versions of the manuscript.

Summary

Climate-related security risks are transforming the security landscape in which multilateral peacebuilding efforts are taking place. Following a similar assessment of Somalia conducted in 2019, this study offers another glimpse into the future of peacebuilding in the time of climate change by providing an in-depth assessment of the United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA). To help future peacebuilding efforts become more climate sensitive, the study aims to produce practical knowledge on: (a) how climate change in Mali is challenging the successful implementation of MINUSMA's mandate; and (b) how MINUSMA has taken the challenges stemming from climate change into account in its ongoing operations. Mali is experiencing a multidimensional crisis, triggered by a rebellion in the north of the country in 2012. The northern and central regions are currently the most affected by violence and insecurity. Socio-economic exclusion, poor governance in peripheral areas and competition over natural resources are among the complex set of root causes of the current conflict. Combined with weak governance, climate change is further undermining people's human security. The dependence on natural resources for livelihoods makes large segments of the population in Mali vulnerable to the impacts of climate change, which are reshaping the social, political and economic context, and thereby potentially amplifying local grievances and marginalization.

The impacts of climate-related security risks on MINUSMA's peacebuilding efforts

This policy paper shows that climate change affects MINUSMA's operations and the implementation of its mandate along two broad dimensions: peace and security, and governance and society. In terms of peace and security, climate change negatively impacts people's livelihoods, which facilitates recruitment into criminal and extremist groups. In addition, delays and deficiencies in implementing a disarmament, demobilization and reintegration (DDR) programme, within a context of economic and climate pressures in northern Mali, have driven local actors to engage more in illicit activities such as trafficking. Finally, harsh weather patterns have been found to hinder MINUSMA's mobility.

In terms of governance and society, the interaction between climate change and weak governance affects the priority tasks of MINUSMA's mandate in three ways: (a) weakened local conflict resolution mechanisms exacerbate intercommunity conflict; (b) the absence of a government response to the impacts of climate change increases grievances against the state; and (c) MINUSMA's environmental impact aggravates existing environmental pressures, which leads to additional grievances against the mission.

MINUSMA's response to climate-related security risks

MINUSMA both explicitly and implicitly responds to climate-related security risks in its operations. Its Environment and Culture Unit works directly to anticipate and design responses to the mission's environmental impact (e.g. through waste management and water access), although there is indication of a lack of sustained commitment to follow through on this work across the mission. Several divisions within MINUSMA also respond implicitly to emerging climate-related security risks within their own mandated activities. While the mission's priority is conflict sensitivity rather than climate sensitivity, it notably includes activities linked to addressing issues surrounding natural resource management and access. A selection of responses from the Civil Affairs Division, the Office of Stabilization and Early Recovery, the Security Sector Reform (SSR) and DDR Section, the Mediation Unit, the Joint Mission Analysis Centre and the Joint Operations Centre all demonstrate approaches that in some way address climate-related security risks.

Limitations and recommendations going forward

MINUSMA faces three notable limitations in addressing climate-related security risks in its operations: (a) climate-related security risks are not a priority for the mission; (b) the mission lacks the capacity to address climate-related security risks; and (c) coordination between the mission and the UN Country Team is weak. While there are implications for MINUSMA and the UN in Mali, there are also implications for other missions in locations of high climate change exposure and for the wider UN system.

MINUSMA and the UN Country Team must adapt to a changing climate and its potential security risks. In the short term, MINUSMA should implement training courses on climate security analysis and response across the mission. In the longer term, the mission and the UN Country Team should include climate security in the Integrated Strategic Framework, which outlines how the two work together. To support both increasing the priority of climate-related security risks and improving the capacity to address it, MINUSMA should appoint an environmental security advisor, who would also work with the UN Country Team.

Missions in other locations of high climate change exposure have the opportunity to map awareness of climate-related security risks among staff to better understand knowledge gaps and how they apply to their respective contexts. UN Department of Political and Peacebuilding Affairs (DPPA) regional offices and the UN Climate Security Mechanism (CSM) could be key partners in mapping and anticipating regional climate-related security risks. Understanding these knowledge gaps early on allows for opportunities in training and capacity building, such as staff training in integrating climate security risks into analysis and reporting. It can also allow for the implementation of appropriate responses to pre-empt negative impacts on the mission's mandate.

Climate change and its related security risks require long-term solutions that may not be compatible with short-term funding cycles and time frames. Therefore, the wider UN system can prepare itself for addressing climate-related security risks in mission contexts by providing long-term and flexible funding streams. These should be centrally embedded in mission budgets and able to cut across UN agencies with different mandates, in order to improve coordination in addressing risks. Building knowledge and awareness within the DPPA and the UN Department of Peace Operations (DPO) of climate-related security risks is a further imperative, given that such risks impact the DPPA's focus areas and the DPO's missions. The CSM can also support the exchange of knowledge between missions.

Abbreviations

ADDR-I	Accelerated DDR/integration programme
CAD	Civil Affairs Division
CSM	UN Climate Security Mechanism
CVR	Community violence reduction
DDR	Disarmament, demobilization and reintegration
DPPA	UN Department of Political and Peacebuilding Affairs
DPO	UN Department of Peace Operations
DSRSG	Deputy special representative of the secretary-general
ECOWAS	Economic Community of West African States
FAMA	Forces Armées Maliennes (Malian Armed Forces)
HC	Humanitarian coordinator
IDP	Internally displaced person
ISGS	Islamic State in the Greater Sahara
ISF	Integrated Strategic Framework
JMAC	Joint Mission Analysis Centre
JNIM	Jama'a Nusrat ul-Islam wa al-Muslimin (Group to Support Islam and Muslims)
JOC	Joint Operations Centre
MDSF	Malian Defense and Security Forces
MINUSMA	United Nations Multidimensional Integrated Stabilization Mission in Mali
MNLA	Mouvement National pour la Libération de l'Azawad (National Movement for the Liberation of Azawad)
MUJAO	Mouvement pour l'unification et le jihad en Afrique de l'Ouest (Movement for Unity and Jihad in West Africa)
AQIM	al-Qaeda in the Islamic Maghreb
QIP	Quick impact project
RC	Resident coordinator
SRSG	Special representative of the secretary-general
SSR	Security sector reform
UN	United Nations

1. Introduction

Climate-related security risks are transforming the security landscape in which multilateral peacebuilding efforts take place. Indeed, as of December 2020, 80 per cent of United Nations multilateral peace operations personnel were deployed in countries ranked as most exposed to climate change.¹ While the human security risks of today are increasingly becoming the hard security challenges of tomorrow, the solutions are not solely or even primarily military. As such, there is an urgent need to identify what additional measures, authorities or partnerships are required to plan for and address climate-related security risks in mission contexts. However, other than focusing on ‘greening the blue helmets’ (i.e. reducing mission footprints on the environment), international efforts to build and maintain peace have not yet taken into account the broader climate-related security risks. This is concerning, because the double burden that societies experience from climate change and violent conflict potentially prolongs the peacebuilding process and increases the human costs of war.²

Following a similar assessment of Somalia in 2019, this study offers another glimpse into the future of peacebuilding in the context of climate change by providing an in-depth assessment of the UN Multidimensional Integrated Stabilization Mission in Mali (MINUSMA).³ In order to help future peacebuilding efforts become more climate sensitive, the study aims to produce practical knowledge on: (a) how climate change in Mali is challenging the successful implementation of MINUSMA’s mandate; and (b) how MINUSMA has taken the challenges stemming from climate change into account in its ongoing operations.

Producing this insight is critical. Little attention has been paid to the link between climate-related security risks and their effects on peacebuilding missions, yet the arena of peace operations is shifting due to climate change, including in Mali. In fact, UN Security Council Resolution 2423, which renewed MINUSMA’s mandate for one more year in 2018, is the first time the adverse effects of climate change on stability in Mali were recognized as part of the mission by the Security Council. The negative impacts of climate change were further recognized in UN Security Council resolutions 2480 and 2531, which renewed MINUSMA’s mandate in 2019 and 2020, respectively. The findings of this study provide insight into the impact climate change has on MINUSMA’s work, and guidance on how MINUSMA and other policy actors can respond to these climate-related security risks.

The policy paper is divided into six parts. This introduction provides some key concepts and definitions (see box 1.1) and a brief description of the approach used (see box 1.2). Chapter 2 provides the necessary background to the conflict and peacebuilding efforts in Mali, including a look at MINUSMA and its mandate. This

¹ Krampe, F., ‘Why United Nations peace operations cannot ignore climate change’ SIPRI Topical Backgrounder, 22 Feb. 2021.

² Adger, N., Barnett, J. and Dabelko, G., ‘Climate and war: A call for more research’, *Nature*, vol. 498 (12 June 2013); Eklöv, K. and Krampe, F., *Climate-related Security Risks and Peacebuilding in Somalia*, SIPRI Policy Paper no. 53 (SIPRI: Stockholm, Oct. 2019).

³ Eklöv and Krampe (note 2).

Box 1.1. Key concepts and definitions**Climate-related security risks**

For the purpose of this study, climate-related security risks are defined using a comprehensive security approach that includes human, community, state and international security. Such an approach is needed because climate-related security risks are multifaceted (i.e. involve different consequences, such as drought, floods and sea-level rise) and can simultaneously undermine the security of different reference objects (e.g. humans, communities, states, the international system, the environment and ecology). Moreover, climate-related security risks span different policy areas, such as foreign, military, development, economy and environment. This multifaceted and multidimensional character of climate-related security risks calls for scrutinization of the framing of security (i.e. analyses of how organizations are responding to climate-related security risks should also investigate how these risks are understood in the organization, because this is likely to explain different policy outcomes).^a

Climate change (Intergovernmental Panel on Climate Change definition)

'Climate change refers to a change in the state of the climate that can be identified (e.g. by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use. Note that the Framework Convention on Climate Change (UNFCCC), in its Article 1, defines climate change as: "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods". The UNFCCC thus makes a distinction between climate change attributable to human activities altering the atmospheric composition and climate variability attributable to natural causes.'^b

Peacebuilding (United Nations definition)

'Peacebuilding aims to reduce the risk of lapsing or relapsing into conflict by strengthening national capacities at all levels for conflict management, and to lay the foundation for sustainable peace and development. It is a complex, long-term process of creating the necessary conditions for sustainable peace.'^c

Multilateral peace operation (SIPRI definition)

'The SIPRI Multilateral Peace Operations database contains information on operations that are conducted under the authority of the UN and operations conducted by regional organizations or by ad hoc coalitions of states that were sanctioned by the UN or authorized by a UN Security Council resolution, with the stated intention to: (a) serve as an instrument to facilitate the implementation of peace agreements already in place, (b) support a peace process, or (c) assist conflict prevention and/or peace-building efforts.'^d

Armed non-state actors

For the purpose of this paper, armed non-state actors are 'any armed group, distinct from and not operating under the control of the state or states in which it carries out military operations and which has political, religious, and/or military objectives'.^e

^a Krampe, F. and Mobjörk, M., 'Responding to climate-related security risks: Reviewing regional organizations in Asia and Africa', *Current Climate Change Reports*, vol. 4, no. 4 (Dec. 2018).

^b Matthews, J. B. R. (ed.), 'Annex I: Glossary', *Global Warming of 1.5°C*, Intergovernmental Panel on Climate Change (IPCC) Special Report (IPCC: Geneva, 2018).

^c United Nations Peacekeeping, 'Terminology'.

^d SIPRI, 'Definitions and methodology'.

^e Bellal, A., Giacca, G. and Casey-Maslen, S., 'International law and armed non-state actors in Afghanistan', *International Review of the Red Cross*, vol. 93, no. 881 (Mar. 2011), p. 1.

Box 1.2. Methodology**Climate-related security risks**

This study looks at the implications of climate change on United Nations peacebuilding efforts in Mali. As a single case study, the policy paper is limited in regard to generalizability beyond the scope of the UN Multidimensional Integrated Stabilization Mission in Mali (MINUSMA).^a Even though a generalization of how climate-related security risks affect peacebuilding efforts cannot be provided, it is possible to ascertain the importance of climate change in the context of peacebuilding by providing a plausibility probe—that is, an illustrative case study to demonstrate the empirical relevance.^b The study serves as an eye opener to policy actors and researchers, and guides future inquiries into the research question of how climate change affects peacebuilding efforts in Mali. A qualitative process-tracing methodology is followed to identify the observable implications.^c This allows a deeper understanding of the economic, social and political tensions and environmental dynamics. A combination of primary and secondary data has been collected and analysed, including existing academic literature on peace efforts in Mali and first-hand reports from MINUSMA. In addition, the study builds on a unique set of 57 interviews, comprising interviews with peacebuilding officials who have worked or are working in the various UN offices in Mali, as well as interviews and correspondence with regional experts (see appendix C). The viewpoints of these people serve as a lens through which events, as well as actors and their decisions, are interpreted. Moreover, the interviews provide information that is otherwise unattainable or unrecorded.^d Interviews were conducted under the Chatham House Rule, which allows the use of received information without disclosing the identity or affiliation of the interviewee (unless with consent). Interviewees retained the right to withdraw consent and participation in the interviews. In addition to primary interviews, existing research on climate-related security risks in Mali and relevant peacebuilding literature further qualify this study.

^a Brady, H. E. and Collier, D. (eds), *Rethinking Social Inquiry*, 2nd edn (Rowman & Littlefield: Plymouth, 2010); and George, A. L. and Bennett, A., *Case Studies and Theory Development in the Social Sciences* (MIT Press: Cambridge, MA, 2005).

^b Levy, J. S., 'Case studies: Types, designs, and logics of inference', *Conflict Management and Peace Science*, vol. 25, no. 1 (Mar. 2008).

^c George and Bennett (note a); and Bennett, A. and Checkel, J. T., *Process Tracing* (Cambridge University Press: Cambridge, 2014).

^d Richards, D., 'Elite interviewing: Approaches and pitfalls', *Politics*, vol. 16, no. 3 (Sep. 1996).

is followed by a comprehensive overview of climate change in Mali, especially regarding northern and central Mali, in chapter 3. Readers with knowledge of the conflict and the climatic conditions may choose to proceed directly to chapter 4, which describes the empirical findings of this study: how climate change is hindering the successful implementation of MINUSMA's mandate. Thereafter, chapter 5 provides insights into the responses by MINUSMA, followed in chapter 6 by a look at the limitations and recommendations going forward.

2. Conflict and peacebuilding efforts in Mali

Mali, a landlocked country in West Africa (see figure 2.1), is in the midst of a multidimensional crisis.⁴ After Mali's independence in 1960, the country experienced an uprising by the Tuareg population in the north in 1963, a coup d'état in 1968 and another uprising in the north in 1990–91, before establishing a democracy in the early 1990s.⁵ However, the democratically elected administrations during the 1990s and early 2000s were fragile. Their increasing mismanagement also helped set the stage for the current political crisis, which was sparked by the 2012 rebellion of the Tuareg in the north.⁶ This rebellion itself was triggered by the fall of the regime of Muammar Gaddafi in Libya in 2011.

Today, the north and centre of Mali are the two areas most affected by violence and insecurity. Extremism and the proliferation of armed groups have further exacerbated the political crisis.⁷ Among the complex set of root causes of the current conflict, scholars and experts identify both perceived and actual socio-economic exclusion and structural marginalization, limited or corrupt state presence in peripheral areas, exploitation of competition and control over natural resources, and friction between ethnic and identity groups.⁸

Northern Mali

Mali became independent in 1960, after approximately seven decades of French colonial occupation.⁹ Historic tensions between different populations in the north and south of the country were exacerbated by the French colonial presence, and friction between the north and south increased further after independence.¹⁰

⁴ Ba, B. and Bøås, M., 'Mali: A political economy analysis', Norwegian Institute of International Affairs (NUPI), Nov. 2017.

⁵ Chauzal, G. and van Damme, T., *The Roots of Mali's Conflict: Moving Beyond the 2012 Crisis* (Clingendael Institute: The Hague, Mar. 2015); and Poulton, R.-E. and Youssouf, I. (eds), *A Peace of Timbuktu: Democratic Governance, Development and African Peacemaking* (UNDIR: New York & Geneva, 1998).

⁶ Ba and Bøås (note 4); and Bergamaschi, I., 'The fall of a donor darling: The role of aid in Mali's crisis', *Journal of Modern African Studies*, vol. 52, no. 3 (2014).

⁷ Africa Center for Strategic Studies, 'The complex and growing threat of militant Islamist groups in the Sahel', Infographic, 15 Feb. 2019; Sidibé, K., *Security Management in Northern Mali: Criminal Networks and Conflict Resolution Mechanisms*, Institute of Development Studies (IDS) Research Report no. 77 (IDS: Brighton, Aug. 2012); and Di Razza, N., *Protecting Civilians in the Context of Violent Extremism: The Dilemmas of UN Peacekeeping in Mali* (International Peace Institute: New York, Oct. 2018).

⁸ MINUSMA officer 20, Interview with authors, 9 Oct. 2020; External expert 9, Interview with authors, 4 May 2020; External expert 5, Interview with authors, 12 Apr. 2020; External expert 7, Interview with authors, 18 June 2020; MINUSMA officer 25, Interview with authors, 2 Sep. 2020; and Bøås, M. and Torheim, L. E., 'The trouble in Mali: Corruption, collusion, resistance', *Third World Quarterly*, vol. 34, no. 7 (2013).

⁹ Chauzal and van Damme (note 5); and Keita, K., 'Conflict and conflict resolution in the Sahel: The Tuareg insurgency in Mali', *Small Wars and Insurgencies*, vol. 9, no. 3 (1998).

¹⁰ Chauzal and van Damme (note 5); Hagberg, S. and Körling, G., 'Socio-political turmoil in Mali: The public debate following the coup d'état on 22 March 2012', *Africa Spectrum*, vol. 42, nos. 2–3 (2012); Chena, S. and Tisseron, A., 'The destabilization of post-Gaddafi Mali: Political imbalance and shifting dynamics', *Afrique Contemporaine*, vol. 245, no. 1 (2013); and Kone, K., 'A southern view on the Tuareg rebellions in Mali', *African Studies Review*, vol. 6, no. 1 (Apr. 2017).



Figure 2.1. Map of Mali

Source: Made with Natural Earth, <<https://www.naturalearthdata.com/>>.

Credit: Hugo Ahlenius, Nordpil, <<https://nordpil.se/>>.

Political power remained concentrated in the south of the country and different groups in the north were increasingly marginalized both economically and politically.¹¹

As a result, the Tuareg population in the north, which identifies as culturally and historically different from the population in the south, rebelled a number of times against the Malian state after independence.¹² Grievances stemming from socio-economic marginalization, together with a desire for political recognition and a special status for the north, contributed to several Tuareg rebellions in northern Mali in the 1960s, 1990s and early 2000s.¹³ The rebellion in the 1960s was suppressed by the regime at the time, but the 1990–91 rebellion ultimately

¹¹ Chauzal and van Damme (note 5); and Poulton and Youssouf (note 5).

¹² Ba and Bøås (note 4); and Chauzal and van Damme (note 5).

¹³ Chauzal and van Damme (note 5); and Boutellis, A. and Zahar, M., *A Process in Search of Peace: Lessons from the Inter-Malian Agreement* (International Peace Institute: New York, June 2017).

led to the signing of the National Pact in 1992.¹⁴ However, the economic and political concessions of the peace agreement were slow to be realized, which eventually contributed to the unrest in 2006.¹⁵ The impact of these rebellions, together with the effects of two severe droughts in the 1970s and 1980s and the presence of trafficking and extremism later, had a significant impact on the socio-economic fabric and stability of the north.¹⁶

The dynamics of the Tuareg rebellions in northern Mali changed substantially with the return of heavily armed Malian Tuareg fighters who had, unsuccessfully, helped to defend the Gaddafi regime in Libya in 2011.¹⁷ In January 2012, the National Movement for the Liberation of Azawad (Mouvement National pour la Libération de l'Azawad, MNLA) started attacks in the north and formed a pragmatic alliance with several other armed non-state actors, including Ansar Dine (Defenders of the Faith), al-Qaeda in the Islamic Maghreb (AQIM) and the Movement for Unity and Jihad in West Africa (Mouvement pour l'unification et le jihad en Afrique de l'Ouest, MUJAO), as well as deserters from the Malian Armed Forces (Forces Armées Maliennes, FAMA).¹⁸

The FAMA was unable to contain the conflict in the north, and a group of unsatisfied and mutinous soldiers at a military base near Bamako staged a coup, ousting the democratically elected president Amadou Toumani Touré on 22 March 2012.¹⁹ By the end of March, the rebelling groups had gained control of the three main cities in northern Mali: Gao, Kidal and Timbuktu.²⁰ On 6 April 2012, the MNLA claimed northern Mali's independence as the state of Azawad.²¹ However, the MNLA's occupation was short-lived; after the declaration of Azawad's independence, Ansar Dine, AQIM and MUJAO took over the major cities in the north.²² In November 2012, AQIM and MUJAO drove out the MNLA from Kidal and Timbuktu, and Ansar Dine took control of Kidal.²³

As a result of mediation by the Economic Community of West African States (ECOWAS), a transitional authority was established in Bamako in April 2012, and subsequent negotiations between the MNLA, Ansar Dine and the Malian Government created a framework for inter-Malian dialogue.²⁴ However, the crisis

¹⁴ Boutellis and Zahar (note 13); Gregoire, E., 'Islamistes et rebelles touaregs maliens: alliances, rivalités et ruptures' [Islamists and Malian Tuareg rebels: Alliances, rivalries and ruptures], *EchoGéo*, 3 July 2013; and Poulton and Youssouf (note 5).

¹⁵ Benjaminsen, T., 'Does supply-induced scarcity drive violent conflicts in the African Sahel? The case of the Tuareg rebellion in northern Mali', *Journal of Peace Research*, vol. 45, no. 6 (2008); Ba and Bøås (note 4); Boutellis and Zahar (note 13); and Gregoire (note 14).

¹⁶ Sidibé (note 7).

¹⁷ Ba and Bøås (note 4); Boutellis and Zahar (note 13); and Chena and Tisseron (note 10).

¹⁸ Sköns, E., 'The implementation of the peace process in Mali: A complex case of peacebuilding', *SIPRI Yearbook 2016: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2016).

¹⁹ Francis, D. J., 'The regional impact of the armed conflict and French intervention in Mali', Norwegian Peacebuilding Resource Centre (NOREF) Report, 9 Apr. 2013.

²⁰ Sköns (note 18).

²¹ Boutellis and Zahar (note 13).

²² Ba and Bøås (note 4); and Boutellis and Zahar (note 13).

²³ Boutellis and Zahar (note 13).

²⁴ Sköns (note 18).

continued to escalate following the military advance of Islamist groups into Sévaré and Mopti in January 2013.²⁵ This advance prompted the transitional government to request external military assistance from France. The French Operation Serval was launched in January 2013, and regained control over the cities in the north with support from the UN Security Council-authorized, African-led International Support Mission in Mali (AFISMA).²⁶ Later, in April 2013, the UN Security Council authorized MINUSMA, which was mandated to support political processes and improve the security situation.

Peace talks held in Ouagadougou, led by Burkina Faso and supported by the UN and African Union, resulted in a preliminary agreement and ceasefire in June 2013. However, despite this agreement, political progress was slow and non-state armed actors clashed with the FAMA in Kidal in May 2014. After the defeat of the Malian Army in Kidal, Algeria led a multi-step peace process that resulted in the parties to the political conflict signing the Agreement for Peace and Reconciliation in Mali in May and June 2015. However, progress on the implementation of this agreement has also been slow.²⁷

Central Mali

While the most recent phase of the conflict began in the north, central Mali has grown increasingly volatile and insecure. Communal violence has escalated since 2015, in particular conflicts between pastoralists and farmers, with the presence of armed groups exacerbating old grievances and local disputes. Extremism, banditry and self-defence militias have grown in the central region, escalating conflicts over natural resources. Limited state presence and authority has further contributed to the insecurity.²⁸ While a different dynamic contributes to conflicts in the centre, the crisis in the north has also affected the central region.²⁹

Socio-economic and political factors contribute to communal violence and tensions in central Mali, where ethnic identity and people's livelihoods are closely interlinked. Commonly, for instance, the Fulani are herdsman, the Bozo are fishermen and the Dogon are agriculturalists.³⁰ Historically, these groups coexisted with complementary livelihood traditions and activities, and resource

²⁵ Ba and Bøås (note 4); and Sköns (note 18).

²⁶ Boutellis and Zahar (note 13).

²⁷ Boutellis and Zahar (note 13); and Carter Center, 'Report of the Independent Observer: Observations on the implementation of the Agreement on Peace and Reconciliation in Mali, resulting from the Algiers Process', Dec. 2020.

²⁸ Bodian, M., Tobie, A. and Marending, M., 'The challenges of governance, development, and security in the central regions of Mali', SIPRI Insights on Peace and Security no. 2020/4, Mar. 2020; and International Crisis Group, 'Central Mali: A crisis in the making?', Report no. 238, 6 July 2016.

²⁹ Bagayoko, N. et al., 'Gestion des ressources naturelles et configuration des relations de pouvoir dans le centre du Mali: entre ruptures et continuité' [Natural resource management and the configuration of power relationships in central Mali: Between ruptures and continuity], African Security Sector Network, June 2017.

³⁰ Bagayoko et al. (note 29); Tobie, A., 'Central Mali: Violence, local perspectives and diverging narratives', SIPRI Insights on Peace and Security no. 2017/5, Dec. 2017; and Bagayoko, N. et al., 'Masters of the land', The Broker, 21 June 2017.

management was linked to power dynamics between the groups.³¹ In the 19th century, prior to colonization, customary traditions of resource access in the Inner Niger Delta were regulated by the Dina empire. Under the Dina, rules were established to promote effective use of resources by all socio-economic groups, with priority given to high-ranking herdsmen of the Fulani.³²

However, colonial and postcolonial formal natural resource governance upset traditional power relations between the livelihood groups in the centre.³³ European governance rules were superimposed over customary rules, creating an issue of legitimacy and changing community power dynamics.³⁴ Alongside increasing population growth, the modernization project of both colonial and postcolonial rule prioritized the intensification of agricultural production at the expense of traditional customary structures.³⁵

Decentralization reforms in the late 1990s also exacerbated changing power relations and conflicts.³⁶ In Mopti, for example, the prioritization of agriculture disrupted dynamics between groups traditionally engaged in pastoralism and agriculture.³⁷ Decentralization reforms led to uncertainty surrounding policies and power dynamics, and contributed to agricultural encroachment into key pasture areas and livestock corridors.³⁸ In addition, within the hierarchical Fulani society, natural resource management reforms changed intracommunity power dynamics. For example, with agricultural labour traditionally reserved for the lowest-ranking members of society, the prioritization of agriculture in state reforms caused the lower castes of Fulani society to out-earn the formerly powerful members engaged in pastoralism.³⁹ Other factors, including climate change, herd expansion and population growth, further affected the livelihood activities of the different groups.⁴⁰

Since 2012, the increasing grievances between and within groups in the centre have led to an increase in self-defence militias, due to the absence of state security provision.⁴¹ Grievances have also become instrumentalized by armed non-state

³¹ Tobie (note 30).

³² Bagayoko et al. (note 29); and Ursu, A.-E., *Under the Gun: Resource Conflicts and Embattled Traditional Authorities in Central Mali* (Clingendael Institute: The Hague, July 2018).

³³ Bagayoko et al. (note 29).

³⁴ Tobie (note 30); and Ursu (note 32).

³⁵ External expert 15, Correspondence with authors, 15 Feb. 2021; Benjaminsen, T. A. and Ba, B., 'Farmer-herder conflicts, pastoral marginalisation and corruption: A case study from the inland Niger Delta of Mali', *Geographical Journal*, vol. 175, no. 1 (Mar. 2009); Becker, L., 'Seeing green in Mali's woods: Colonial legacy, forest use, and local control', *Annals of the Association of American Geographers*, vol. 91, no. 3 (2001); and ARD, Inc., *Mali Land Tenure Assessment Report*, United States Agency for International Development (USAID) Mali (USAID: Bamako, Sep. 2010).

³⁶ Benjaminsen and Ba (note 35).

³⁷ Bagayoko et al. (note 29).

³⁸ Benjaminsen and Ba (note 35).

³⁹ Bagayoko et al. (note 29).

⁴⁰ Tobie (note 30).

⁴¹ Ba and Boås (note 4).

actors, as they reportedly continue to ‘exploit conflicts across community lines, which result in continued violence against civilians and security incidents’.⁴²

Violent extremism in Mali and the response

Violent extremism has grown throughout the Sahel region. The United States and France, among others, are militarily present in the region, with the aim of preventing extremist safe havens.⁴³ Extremist groups have been present and active in Mali since the early 2000s, and some took part in the uprising in the north in 2012.⁴⁴ Groups such as Ansar Dine—part of the alliance with the MNLA in 2012—and al-Mourabitoun have operated primarily in northern Mali between Gao, Kidal and Timbuktu.⁴⁵ The group Katiba Macina emerged in the central area of the Inner Niger Delta in Mali from 2016 onwards.⁴⁶ Many of these groups are also active across Mali’s borders. For instance, the Islamic State in the Greater Sahara (ISGS) was formed in 2015 after breaking off from al-Mourabitoun.⁴⁷ ISGS branched out from the north-eastern Gao region and is active in the border region between Burkino Faso, Mali and Niger. In 2019, it was integrated into the group Islamic State West Africa Province (ISWAP).⁴⁸

In 2017, the Jama’a Nusrat ul-Islam wa al-Muslimin (Group to Support Islam and Muslims, JNIM) was created as a coalition of Ansar Dine, Katiba Macina, al-Mourabitoun and AQIM.⁴⁹ Accordingly, JNIM ‘redefined the objectives of all the various jihadist groups of Mali within the framework of a global struggle extending beyond any strictly regional dynamics’.⁵⁰ It has initiated numerous attacks against MINUSMA and the FAMA, and espouses the rhetoric of a global as well as a Malian struggle.⁵¹ In central Mali and northern Burkina Faso, Katiba Macina has been responsible for 78 per cent of attacks perpetrated against civilians under JNIM since October 2018.⁵² Furthermore, since 2019, violent confrontations

⁴² United Nations, Security Council, Report of the Secretary-General on the situation in Mali, S/2020/952, 29 Sep. 2020, p. 6.

⁴³ Baudais, V., Bourhous, A. and O’Driscoll, D., *Conflict Mediation and Peacebuilding in the Sahel: The Role of Maghreb Countries in an African Framework*, SIPRI Policy Paper no. 58 (SIPRI: Stockholm, Jan. 2021); and Kisangani, E., ‘The Tuaregs’ rebellions in Mali and Niger and the US global war on terror’, *International Journal on World Peace*, vol. 29, no. 1 (Mar. 2012).

⁴⁴ Kisangani (note 43); and Chena and Tisseron (note 10).

⁴⁵ Africa Center for Strategic Studies (note 7).

⁴⁶ Baldaro, E. and Dialla, Y. S., ‘The end of the Sahelian exception: Al-Qaeda and the Islamic State clash in central Mali’, *International Spectator*, vol. 55, no. 4 (2020); and Benjaminsen, T. A. and Ba, B., ‘Why do pastoralists in Mali join jihadist groups? A political ecology explanation’, *Journal of Peasant Studies*, vol. 46, no. 1 (2019).

⁴⁷ United Nations, Security Council, ‘Islamic State in the Greater Sahara (ISGS)’, 23 Feb. 2020.

⁴⁸ Berlingozzi, L. and Stoddard, E., ‘Assessing misaligned counterinsurgency practice in Niger and Nigeria’, *International Spectator*, vol. 55, no. 4 (2020); and United Nations (note 47).

⁴⁹ Africa Center for Strategic Studies (note 7).

⁵⁰ Tobie (note 30), p. 7; and Tobie, A. and Sangaré, B., *The Impact of Armed Groups on the Populations of Central and Northern Mali: Necessary Adaptations of the Strategies for Re-establishing Peace*, SIPRI and Ministry of Foreign Affairs of Finland, Report (SIPRI: Stockholm, Oct. 2019).

⁵¹ Tobie (note 30).

⁵² Eizenga, D. and Williams, W., ‘The puzzle of JNIM and militant Islamist groups in the Sahel’, Africa Center for Strategic Studies, Africa Security Brief no. 38, Dec. 2020.

between ISGS and JNIM have occurred in the central region of Mopti and the north-eastern region of Gao.⁵³ In central Mali, the presence of extremist groups has exacerbated tensions between different communities, notably the Fulani and the Dogon, leading to an increase in community self-defence groups and attacks between them.⁵⁴

The increase in extremist groups, particularly in the Liptako-Gourma region following the gains of jihadist groups in 2013 and the French intervention, set the foundations for the continued French counter-insurgency engagement through Operation Barkhane, with the aim of addressing the transnational nature of armed non-state actors.⁵⁵ In addition to Operation Barkhane and MINUSMA, other bodies in the region that aim to combat armed non-state actors include the Group of Five for the Sahel (G5 Sahel) joint force.⁵⁶

The United Nations Multidimensional Integrated Stabilization Mission in Mali

MINUSMA has been active since July 2013, following the adoption of UN Security Council Resolution 2100 on 25 April 2013. Initially, it was authorized to include up to 11 200 military personnel and 1440 police.⁵⁷ It was mandated, among other things, to provide ‘support for the reestablishment of State authority throughout the country’ and to ‘take active steps to prevent the return of armed elements to those areas’, while also supporting ‘the implementation of the transitional road map, including the national political dialogue’.⁵⁸ The mandate would later support the implementation of the 2015 Agreement for Peace and Reconciliation in Mali. Since 2018, it has placed increasing emphasis on central Mali.⁵⁹ After an escalation of violence in the central region, the mandate included a focus on the centre of Mali as a second strategic priority in 2019.⁶⁰ In addition, MINUSMA’s mandate includes the protection of civilians, good offices and reconciliation, the promotion and protection of human rights, and humanitarian assistance.⁶¹ By December 2020, the mission had more than 15 000 international personnel deployed in Mali—including more than 12 000 troops—making it the second-largest UN peacekeeping operation and the third-largest peace operation according to the

⁵³ Baldaro and Dialla (note 46).

⁵⁴ Human Rights Watch, *How Much More Blood Must Be Spilled? Atrocities Against Civilians in Central Mali, 2019* (Human Rights Watch: Feb. 2020).

⁵⁵ French Ministry of Armed Forces, ‘Opération Barkhane’ [Operation Barkhane], [n.d.].

⁵⁶ Baudai, Bourhous and O’Driscoll (note 43).

⁵⁷ United Nations, Security Council, Report of the Secretary-General on the situation in Mali, S/2013/189, 26 Mar. 2013.

⁵⁸ UN Security Council Resolution 2100, 25 Apr. 2013.

⁵⁹ Van der Lijn, J. et al., ‘Assessing the effectiveness of the United Nations Mission in Mali (MINUSMA)’, NUPI, 27 May 2019.

⁶⁰ Gorur, A., ‘The political strategy of the peacekeeping mission in Mali’, eds A. Day et al., *The Political Practice of Peacekeeping: How Strategies for Peace Operations are Developed and Implemented* (United Nations University: New York, 2020).

⁶¹ UN Security Council Resolution 2531, 29 June 2020.

SIPRI Multilateral Peace Operations Database.⁶² MINUSMA is also the peace operation with the most fatalities—237 as of 31 January 2021.⁶³

Organizationally, the mission's leadership is composed of the special representative of the secretary-general (SRSG), the deputy special representative of the secretary-general (DSRSG) (political), the DSRSG/resident coordinator (RC)/humanitarian coordinator (HC), the force commander and the police commissioner. The protection of civilians comes under the office of the SRSG. Civil affairs and political affairs both come under the office of the DSRSG (political), while disarmament, demobilization and reintegration (DDR) and stabilization and recovery come under the office of the DSRSG/RC/HC.

In addition to MINUSMA, 21 UN organizations operating from regional or subregional offices make up the UN Country Team, which is coordinated by the DSRSG/RC/HC. To facilitate the coordination between MINUSMA and the UN Country Team, in 2018 the UN Security Council encouraged the creation of an Integrated Strategic Framework (ISF) that would outline the UN's 'overall vision, joint priorities and internal division of labour to sustain peace in Mali . . . [and] ensure an efficient division of tasks and complementarity of efforts between MINUSMA and the UN Country Team, based on their mandates and comparative advantages'.⁶⁴ The ISF is intended to 'consolidate UN system actions in support to the priority tasks of the MINUSMA mandate', thus improving coordination between MINUSMA and the UN Country Team.⁶⁵

The ISF has several strategic objectives: (a) support national efforts to restore state authority and services in the north and centre; (b) strengthen human rights advocacy in affected regions; (c) build the capacity of rule of law, security and justice institutions; (d) strengthen social cohesion, conflict prevention and national reconciliation; and (e) support elections and the constitutional referendum.⁶⁶ In addition, the framework outlines risks the UN needs to take into account in order to 'make a meaningful contribution to sustaining peace in Mali'.⁶⁷ These include, among other things, a lack of trust between signatories to the peace agreement, a weak state, extremist groups and insufficient funding. Although the ISF recognizes that 'access to, and control and management of scarce [natural] resources' have driven intercommunal conflict in central Mali, compounded by the effects of climate change on those resources, population growth, a weak state and reduced confidence in the state's ability to manage natural resources, it does not include climate change or pressure on natural resources in the aforementioned risks.⁶⁸

⁶² SIPRI Multilateral Peace Operations Database, <www.sipri.org/databases/pko>.

⁶³ United Nations, Peacekeeping, 'Fatalities', 2021.

⁶⁴ UN Security Council Resolution 2423, 28 June 2018.

⁶⁵ United Nations System in Mali, 'Integrated Strategic Framework 2019–2021', Bamako, Feb. 2019, p. 6.

⁶⁶ United Nations System in Mali (note 65), pp. 9–12.

⁶⁷ United Nations System in Mali (note 65), p. 15.

⁶⁸ United Nations System in Mali (note 65), p. 3.

Environment and climate change as part of MINUSMA's mandate

Since 2018, the UN Security Council resolutions on Mali have included an explicit paragraph in the preamble on the relationship between the impacts of climate change and Mali's stability (see appendix B, table B.1):

Recognizing 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.⁶⁹

UN Security Council Resolution 2423, the first to recognize the impacts of climate change on Mali's stability in its preamble, considers the environment along two dimensions. First, it addresses the environmental impacts of MINUSMA specifically, calling on the mission to 'consider the environmental impacts of its operations when fulfilling its mandated tasks and, in this context, to manage them as appropriate'.⁷⁰ Second, the resolution more widely '*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'.⁷¹

In subsequent years, the section on environmental issues addressed only the environmental impact of MINUSMA and excluded the security risks associated with the effects of climate change.⁷² Although MINUSMA became the first mission to establish an Environment and Culture Unit, its actions focused on limiting the potential negative impact of the mission.⁷³ The resolutions did, however, continue to include risk assessment and risk management in relation to climate change and Mali's stability in the preambles to the mandate.⁷⁴

⁶⁹ UN Security Council Resolution 2423 (note 64), p 4.

⁷⁰ UN Security Council Resolution 2423 (note 64), p 17.

⁷¹ UN Security Council Resolution 2423 (note 64), p 17.

⁷² UN Security Council Resolution 2480, 28 June 2019, p. 14; and UN Security Council Resolution 2531 (note 61), p. 16.

⁷³ MINUSMA, 'Environment', [n.d.].

⁷⁴ UN Security Council Resolution 2480 (note 72); and UN Security Council Resolution 2531 (note 61), p. 3.

3. Climate change in Mali

Located in the Sahel region, Mali stretches through several climate zones: from the hot and arid Sahara Desert in the north to semi-arid savanna in the centre, and wetter tropical savannah in the south.⁷⁵ The climate of the Sahel is highly variable.⁷⁶ Annual northward movement of the intertropical convergence zone across West Africa affects the West African monsoon system, and this dynamic influences seasonal rainfall in the Sahel and southern Sahara Desert.⁷⁷ There is typically only one rainy season in Mali, between May/June and September/October.⁷⁸ Haboobs, or dust storms, also occur across the Sahel and the Sahara Desert and can affect human health and agriculture, as well as air traffic.⁷⁹

Hydrology

Mali shares two major river basins, the Niger and the Senegal, with other riparian countries. It is highly dependent on the Niger River for its water supply.⁸⁰ While the river basin extends across 10 countries, approximately 25 per cent of it is located in Mali.⁸¹ Precipitation from the West African monsoon primarily feeds the river.⁸² Extending from the eastern Guinean highlands and north-western Côte d'Ivoire, the river flows north-east towards the Sahara Desert, passing Bamako and Ségou before forming the Inner Niger Delta in the Mopti region.⁸³ The Inner Niger Delta is a unique area of wetlands, lakes and floodplains, which is dependent on seasonal flooding to provide opportunities for agriculture, fishing and livestock husbandry (see figure 3.1). Reaching as far north as Timbuktu, the river then

⁷⁵ Rian, S. et al., 'Analysis of climate and vegetation characteristics along the Savanna-Desert Ecotone in Mali using MODIS data', *GIScience & Remote Sensing*, vol. 46, no. 4 (2009); and World Bank, 'Climate risk and adaptation country profile: Mali', World Bank Group, 2011.

⁷⁶ Halimatou, A. T., Kalifa, T. and Kyei-Baffour, N., 'Assessment of changing trends of daily precipitation and temperature extremes in Bamako and Ségou in Mali from 1961–2014', *Weather and Climate Extremes*, vol. 18 (2017).

⁷⁷ Doherty, O. M., Riemer, N. and Hameed, S., 'Role of the convergence zone over West Africa in controlling Saharan mineral dust load and transport in the boreal summer', *Tellus B: Chemical and Physical Meteorology*, vol. 66, no. 1 (2014); and Rian et al. (note 75).

⁷⁸ United Nations Development Programme, 'Mali National Adaptation Programme of Action (NAPA) Official Document (French)', July 2007; World Bank (note 75); Frappart, F. et al., 'Rainfall regime over the Sahelian climate gradient in the Gourma region, Mali', *Journal of Hydrology*, vol. 375 (2009); Coulibaly, D. et al., 'Spatio-temporal analysis of malaria within a transmission season in Bandiagara, Mali', *Malaria Journal*, vol. 12, no. 82; Koita, O. et al., 'Effect of seasonality and ecological factors on the prevalence of the four malaria parasite species in northern Mali', *Journal of Tropical Medicine*, vol. 2012 (14 Mar. 2012); and Traore, B. et al., 'Effects of climate variability and climate change on crop production in southern Mali', *European Journal of Agronomy*, vol. 49 (2013).

⁷⁹ Pantillon, F. et al., 'Modeling haboob dust storms in large-scale weather and climate models', *Journal of Geophysical Research: Atmospheres*, vol. 121, no. 5 (2016), p. 1; Roberts, A. and Knippertz, P., 'Haboobs: Convectively generated dust storms in West Africa', *Weather*, vol. 67, no. 12 (2012); and Palma, D., 'Maintaining an aircraft in Mali', Government of Canada, 3 June 2020.

⁸⁰ Food and Agriculture Organization of the United Nations (FAO), 'The Niger River Basin', *Irrigation Potential in Africa: A Basin Approach*, FAO Land and Water Bulletin 4 (FAO: Rome, 1997).

⁸¹ FAO (note 80).

⁸² Goulden, M. and Few, R., 'Climate change, water and conflict in the Niger Basin', USAID, Dec. 2011.

⁸³ United Nations Environment Programme (UNEP), *Africa Water Atlas* (UNEP: Nairobi, 2010).



Figure 3.1. Map of major basins in Mali and map of the Inner Niger Delta

Sources: Global Runoff Data Centre, ‘Major River Basins of the World’, 2nd edn, Federal Institute of Hydrology, 2020; and made with Natural Earth, <<https://www.naturalearthdata.com/>>.

Credit: Hugo Ahlenius, Nordpil, <<https://nordpil.se/>>.

turns south-east, passing Gao before reaching Niger.⁸⁴ As of 2010, approximately 8 million people in Mali resided in the basin.⁸⁵

Mali also accesses the comparatively smaller Senegal River basin.⁸⁶ The river’s flow begins in the highlands of Guinea and then moves north through the south of Mali, where one third of the river basin catchment area is located.⁸⁷ The majority of the basin’s population—2.7 million as of 2010—live in Mali.⁸⁸ A number of dams affect the river’s water levels, as well as the alluvial aquifer of the basin, including the Manantali Dam in Mali (the largest in the basin).⁸⁹

Populations in Mali also utilize groundwater resources for irrigated agriculture, livestock and other domestic purposes.⁹⁰ Groundwater represents a significant source of Mali’s drinking water. The water comes from nine major aquifer systems

⁸⁴ UNEP (note 83).

⁸⁵ UNEP (note 83).

⁸⁶ Food and Agriculture Organization of the United Nations (FAO), ‘The Senegal River Basin’, *Irrigation Potential in Africa: A Basin Approach*, FAO Land and Water Bulletin 4 (Rome: FAO, 1997).

⁸⁷ UNEP (note 83).

⁸⁸ UNEP (note 83).

⁸⁹ UNESCO, ‘Senegal Basin, Guinea, Mali, Mauritania, Senegal’, *Water for People, Water for Life: The United Nations World Water Development Report* (UNESCO and Berghahn Books: Paris, 2003).

⁹⁰ Toure, A., Diekkrüger, B. and Mariko, A., ‘Assessment of groundwater resources in the context of climate change and population growth: Case of the Klela Basin in southern Mali’, *Hydrology*, vol. 3, no. 17 (May 2016).

that extend across the country, with varying depths and levels of accessibility.⁹¹ Major, non-renewable aquifers in the region are accessible only through deep drilling and contain significant reserves of water; most people, however, access groundwater through shallower wells.⁹² For groundwater replenished by rainfall, increasing population pressure coupled with a changing climate may cause stress on the resource.⁹³ Indeed, the Intergovernmental Panel on Climate Change predicts that the Sahel, which usually receives between 200 and 500 millimetres of rainfall per year, may experience declining groundwater recharge in shallow aquifers due to extreme precipitation events caused by climate change.⁹⁴ However, rainfall in the Sahel and Mali has increased in the last decades (see appendix A, figure A.1).⁹⁵

Temperature

Mali has generally experienced a consistent increase in annual temperature since 1960 (see figure 3.2), with a mean annual increase of approximately 0.7 degrees Celsius (°C), or an average rate of around 0.15°C per decade. Between 1901 and 2016, the overall mean annual temperature was 28.3°C, and Mali's mean annual temperatures are projected to continue to increase.⁹⁶ By the 2060s, global climate models indicate that they will rise by 1.2–3.6°C; and by the 2090s, by 1.8–5.9°C.⁹⁷

Precipitation

Average annual precipitation across Mali ranges from up to 100 millimetres in the north to approximately 1700 mm in the south.⁹⁸ The northern regions receive little rainfall throughout the year, while the southern regions experience rainfall primarily between June and September, with a peak in August. Average rainfall during this time in the southernmost areas of the country is around 300 mm per month, and normally no rain falls between November and March.⁹⁹

⁹¹ Diaz-Alcaide, S., Martínez-Santos, P. and Villarroya, F. 'A commune-level groundwater potential map for the Republic of Mali', *Water*, vol. 9 (2017).

⁹² Tetra Tech, ARD, *Background Paper for the ARCC West Africa Regional Climate Change Vulnerability Assessment* (USAID: Washington, DC, Mar. 2013).

⁹³ Toure, Diekkrüger and Mariko (note 90); and Lutz, A. et al., 'Sustainability of groundwater in Mali, West Africa', *Environmental Geology*, vol. 58 (2008).

⁹⁴ Niang, I. et al., 'Africa', eds V. R. Barros et al., *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press: Cambridge and New York, 2014).

⁹⁵ Niang (note 94).

⁹⁶ World Bank Group, 'Mali: Climate data, Historical', Climate Change Knowledge Portal for Development Practitioners and Policy Makers, [n.d.].

⁹⁷ McSweeney, C., New, M. and Lizcano, G., 'Mali', UNDP Climate Change Country Profiles, 2010.

⁹⁸ World Bank (note 75).

⁹⁹ McSweeney, New and Lizcano (note 97).

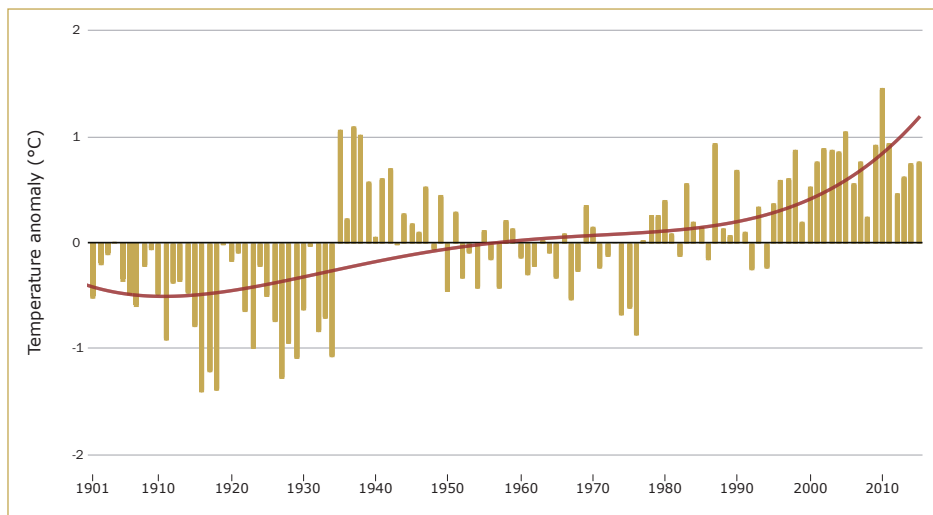


Figure 3.2. Temperature anomalies in Mali, in degrees Celsius, relative to the 1901–2015 average

Source: World Bank, Climate Change Knowledge Portal, 'Mali'.

In general, rainfall in the Sahel is notably low and greatly variable (see appendix A, figure A.1).¹⁰⁰ During the course of the 20th century, rainfall in the region has decreased overall.¹⁰¹ However, the majority of projections for the Sahel in future climate change scenarios find that it is likely to experience more rainfall.¹⁰² Specifically in Mali, annual precipitation levels vary over time (see figure 3.3 and appendix A, figure A.1) and across ecological zones.¹⁰³ Mali also experiences recurrent droughts as a function of the changes in the intertropical convergence zone's paths, which also cause rainfall variability during the wet season.¹⁰⁴ Although Mali experienced severe drought in the 1970s and 1980s, rainfall levels have recovered over the past 20 years (see figure 3.3 and appendix A, figure A.2).¹⁰⁵ Although vegetation in northern and central Mali has also recovered as a result, some studies suggest that the quality of regrowth is comparatively worse.¹⁰⁶

¹⁰⁰ Frappart, F. et al., 'Rainfall regime over the Sahelian climate gradient in the Gourma region, Mali', *Journal of Hydrology*, vol. 375 (2009); and Halimatou, Kalifa and Kyei-Baffour (note 76).

¹⁰¹ Biassuti, M., 'Forced Sahel rainfall trends in the CMIP5 archive' *Journal of Geophysical Research: Atmospheres*, vol. 118 (20 Feb. 2013).

¹⁰² Biassuti (note 101).

¹⁰³ Rian et al. (note 75); Generoso, R., 'How do rainfall variability, food security and remittances interact? The case of rural Mali', *Ecological Economics*, vol. 114 (2015); and Butt, T. A. et al., 'The economic and food security implications of climate change in Mali', *Climatic Change*, vol. 68 (Feb. 2005).

¹⁰⁴ McSweeney, New and Lizcano (note 97).

¹⁰⁵ Niang et al. (note 94).

¹⁰⁶ Brandt, M. et al., 'Local vegetation trends in the Sahel of Mali and Senegal using long time series FAPAR satellite products and field measurement (1982–2010)', *Remote Sensing*, vol. 6, no. 3 (Mar. 2014); Dardel, C. et al., 'Re-greening Sahel: 30 years of remote sensing data and field observations (Mali, Niger)', *Remote Sensing of Environment*, vol. 140 (Jan. 2014); and Herrmann, S. M., Sall, I. and Sy, O., 'People and pixels in the Sahel: A study linking coarse-resolution remote sensing observations to land users' perceptions of their changing environment in Senegal', *Ecology and Society*, vol. 19, no. 3 (Sep. 2014).

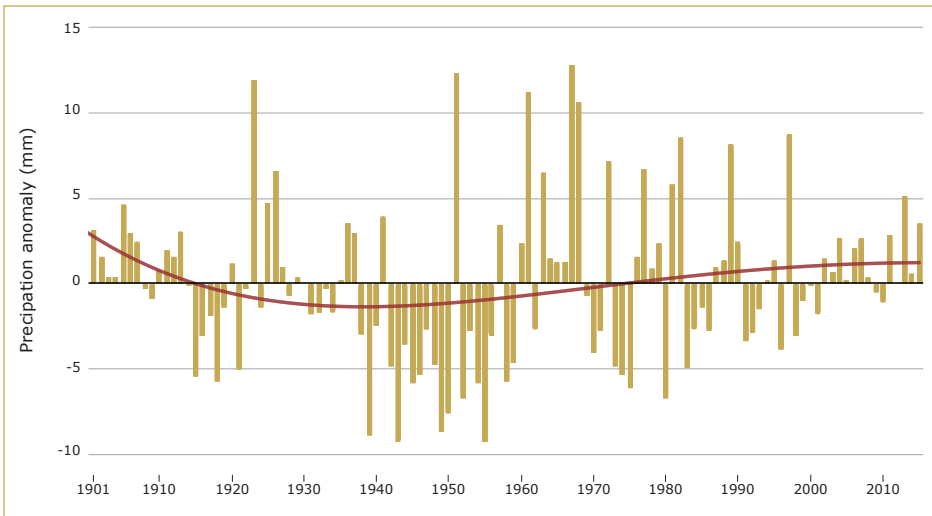


Figure 3.3. Precipitation anomalies in Mali, in millimetres, relative to the 1901–2015 average

Source: World Bank, Climate Change Knowledge Portal, ‘Mali’.

Climate change may also increase the potential for severe rainstorms and more erratic precipitation.¹⁰⁷

Socioecological dimensions

Mali’s agricultural livelihood activities are comprised of farming, pastoralism, fishing, hunting and forestry. The agricultural sector contributes to about 39 per cent of Mali’s gross domestic product (GDP) and employs about 63 per cent of its labour force.¹⁰⁸ Given the dependence on agriculture for large parts of the population, rainfall and seasonality play a significant role in people’s livelihoods (see figure 3.4). Farmers rely on the rainy season to prepare land and plant crops, which they harvest between mid October and mid May. Pastoralists migrate throughout the year to feed their livestock, with some groups moving from northern to central Mali between October and January. They then migrate back to northern Mali between July and September, when the rainy season provides feeding pastures further north. At times, this creates conflicts between different pastoralist groups.¹⁰⁹ Other pastoralist groups utilize the burgu pastures in the Inner Niger Delta during the dry season (from December to mid May) and then

¹⁰⁷ Halimatou, Kalifa and Kyei-Baffour (note 76).

¹⁰⁸ The statistic on GDP does not include pastoralism. The labour force statistic includes pastoralism and hunting. World Bank, ‘Agriculture, forestry, and fishing, value added (% of GDP): Mali’, Data, [n.d.]; and International Labour Organization (ILO), ‘Country profiles: The latest decent work statistics by country’, [n.d.].

¹⁰⁹ Dixon, S. and Holt, J., *Livelihood Zoning and Profiling Report: Mali*, USAID Famine Early Warning Systems Network (USAID: Washington, DC, Jan. 2010); UNOWAS, *Pastoralism and Security in West Africa and the Sahel: Towards Peaceful Coexistence* (UNOWAS: Aug. 2018); and External expert 15 (note 35).

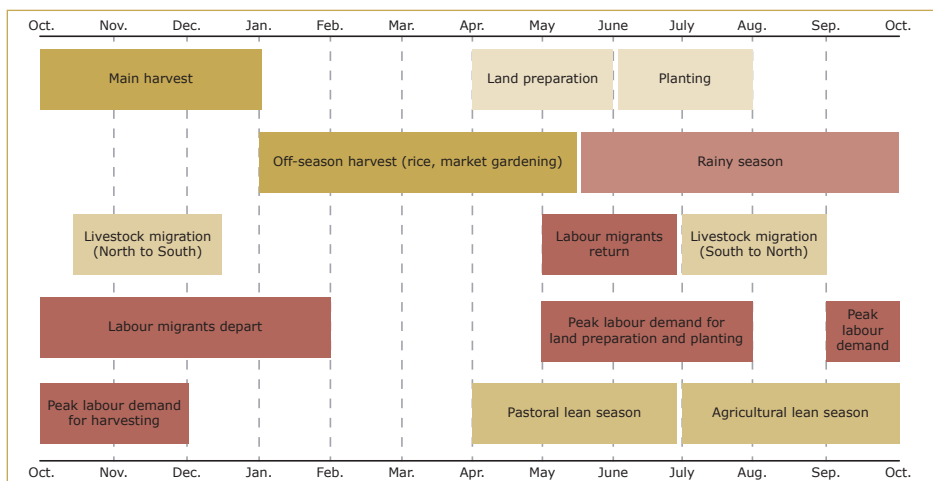


Figure 3.4. Key livelihood and labour cycles in Mali's seasonal calendar

Source: Famine Early Warning Systems Network, 'Mali', Feb. 2021.

migrate outward from the delta to the north-east or the north-west.¹¹⁰ The Niger River and the Inner Niger Delta are also vital to livelihoods in Mali, with fishermen depending on the river for fishing, and the flooding of the river allowing for rice and sorghum cultivation and pasture production.¹¹¹

As both farmers and pastoralists rely on the rainy season, variation in the intensity, frequency and timing of rainfall can cause problems.¹¹² In a 2009 survey of pastoral and agro-pastoral households in Gao and Mopti, respondents expressed that the frequency of climate-related risks posed a more significant threat to their livelihoods than the severity of such events. Inadequate rain, multi-year droughts and a later start to the rainy season were issues of concern.¹¹³ Further survey research from 2019 in Mopti and Ségou noted that 19 per cent of local respondents were explicitly concerned with climate-associated events (e.g. droughts, floods and storms) as the main challenge for agriculture. Almost all these survey participants used crops for household consumption.¹¹⁴

As Mali has experienced climate stressors and climate variability in the past, its population has adapted to these changes, often in contexts of insecurity.¹¹⁵ Different demographics and livelihood groups engage in varying methods of adaptation. For example, fishing communities in the Inner Niger Delta adopt floating

¹¹⁰ Benjaminsen and Ba (note 35).

¹¹¹ Dixon and Holt (note 109), p. 13.

¹¹² Naess, L. O. et al., 'Changing climates, changing lives: Adaptation strategies of pastoral and agro-pastoral communities in Ethiopia and Mali', Action Against Hunger, Institute of Development Studies, Tearfund, May 2010, p. 24.

¹¹³ Naess et al. (note 112).

¹¹⁴ Bodian, Tobie and Marending (note 28).

¹¹⁵ Van Dijk, H., 'Risk, agro-pastoral decision making, and natural resource management in Fulbe society, central Mali', *Nomadic Peoples*, vol. 1, no. 1 (1997).

rice farming as a complementary subsistence-level activity.¹¹⁶ Under increasing climate stress, women in communities dependent on mobile and sedentary live-stock breeding in northern Mali adopt more traditionally masculine roles, such as herding small ruminant animals, as men migrate further to find work.¹¹⁷ For groups engaged in agro-pastoralism, livestock mobility during different seasons reduces vulnerability.¹¹⁸

Sociopolitical hierarchies and structural factors further shape adaptation strategies within and between groups. In Mali, age, gender, ethnicity, class and livelihood practice also contribute to adaptation abilities and strategies.¹¹⁹ For example, for pastoralists, risk-reduction responses include herd expansion and complementing pastoralism with cereal growing. However, members of different social strata within the Fulani society in central Mali adapt in varying ways, with agricultural production separated by gender and age among the traditionally higher-ranking herdsman, while among the traditionally lower-ranking cultivators, men, women and children all work in agriculture.¹²⁰

Other response mechanisms to adapt to the effects of a changing climate include establishing cooperatives, implementing new agricultural techniques, and selling older livestock to buy younger animals that are better able to withstand adverse environmental conditions, such as limited grazing land and drinking water.¹²¹ Migration, primarily among men, further serves as an adaptation strategy to gain supplementary income.¹²² Households have also diversified their livelihood strategies to incorporate vegetable gardening, small-scale trade and artisan activities.¹²³ Moreover, households have used institutions at the village and local government levels to cope with risks to their livelihoods, and local traditional leadership has received consistent support for being fair and equitable in resolving disputes and managing natural resources.¹²⁴ National government efforts, however, have been less successful. The central government's local presence has become corrupt and access to programmes established by the national government for livelihood support are perceived to benefit more affluent pastoralists.¹²⁵

¹¹⁶ Morand, P. et al., 'Vulnerability and adaptation from African rural populations to hydro-climate change: Experience from fishing communities in the Inner Niger Delta (Mali)', *Climatic Change*, vol. 115 (2012).

¹¹⁷ Djoudi, H. and Brockhaus, M., 'Is adaptation to climate change gender neutral? Lessons from communities dependent on livestock and forests in northern Mali', *International Forestry Review*, vol. 13, no. 2 (2011).

¹¹⁸ Brottem, L. V. et al., 'Biophysical variability and pastoral rights to resources: West African transhumance revisited', *Human Ecology*, vol. 42 (2014).

¹¹⁹ Djoudi, H. et al., 'Beyond dichotomies: Gender and intersecting inequalities in climate change studies', *Ambio*, vol. 45, no. 3 (2016); and Djoudi and Brockhaus (note 117).

¹²⁰ Van Dijk (note 115).

¹²¹ Naess et al. (note 112); and Aberman, N. et al., 'Climate change adaptation assets and group-based approaches: Gendered perceptions from Bangladesh, Ethiopia, Mali and Kenya', International Food Research Institute Discussion Paper no. 01412, Jan. 2015.

¹²² Hummel, D., 'Climate change, land degradation and migration in Mali and Senegal: Some policy implications', *Migration and Development*, vol. 5, no. 2 (2016).

¹²³ Giannini, A. et al., 'Climate risk and food security in Mali: A historical perspective on adaptation', *Earth's Future*, vol. 5, no. 2 (9 Dec. 2016); and Naess et al. (note 112).

¹²⁴ Naess et al. (note 112), table 9.

¹²⁵ Naess et al. (note 112).

Maliens continue to experience persistent food insecurity, malnutrition and poverty, despite having adapted their livelihood strategies to adjust to environmental stressors.¹²⁶ As such, research that assesses the relationship between natural resources and conflict in Mali emphasizes the role that structural factors play in contributing to conflict. That is, it is not scarcity per se that generates conflict; rather, it is the broader structure within which these production systems exist that contributes to conflict.¹²⁷ These structural factors, which date back to the colonial period and which shifted the power balance between pastoral and sedentary populations, include an extensive increase in rice cultivation at the expense of pastoral land and the uneven presence of the state after the democratization and decentralization reforms of the 1990s, as well as ‘corruption and rent-seeking by government officials’.¹²⁸

Given the intricate relationship between Mali’s ecology and socio-economic life, conflicts between groups over access to and management of natural resources occur and are interwoven with social and political dynamics. For instance, livelihood categories are often associated with ethnic groups, making the issue of resource governance and conflicts even more difficult.¹²⁹ In general, the issues over which there is conflict related to natural resources differ across and within groups.

Conflict over land between farmers, for example, tends to revolve around demarcating field borders or managing shared fields.¹³⁰ Land disputes can also arise when landowners try to reclaim their land from land users who ‘assume that they have acquired some kind of ownership rights over the borrowed land’, because there is rarely any documentation or ‘witnesses to the original transaction or agreement’.¹³¹ Another type of conflict pertains to that between different livelihood groups, such as between farmers and herders.¹³² Farmer–herder conflicts tend to revolve around limited access to livestock corridors due to expanding agriculture, and access to water points.¹³³ Although structural factors such as corruption and the marginalization of pastoralists have a role to play, another source of tension between farmers and herders comes from the crop losses that farmers incur if livestock grazing is mistimed.¹³⁴ Increasingly, Mali’s

¹²⁶ World Food Programme, *Towards Sustainable Food Security: The World Food Programme in Mali* (World Food Programme: Bamako, May 2019).

¹²⁷ Benjaminsen and Ba (note 35); and Benjaminsen, T. A. et al., ‘Does climate change drive land-use conflicts in the Sahel’, *Journal of Peace Research*, vol. 49, no. 1 (2012).

¹²⁸ Benjaminsen et al. (note 127), p. 106; Benjaminsen and Ba (note 35); Bagayoko et al. (note 29); and ARD, Inc. (note 35).

¹²⁹ Gaye, S. B., *Conflicts Between Farmers and Herders against a Backdrop of Asymmetric Threats in Mali and Burkina Faso* (Friedrich-Ebert-Stiftung Peace and Security Centre of Competence Sub-Saharan Africa: Dakar, 2018).

¹³⁰ Beeler, S., ‘Conflicts between farmers and herders in north-western Mali’, International Institute for Environment and Development, Issue paper no. 141, Oct. 2006, p. 12; and Benjaminsen et al. (note 127), pp. 102–103.

¹³¹ Beeler (note 130), p. 12.

¹³² See Benjaminsen et al. (note 127) for more on conflicts between different livelihood groups.

¹³³ Beeler (note 130), p. 13; and Benjaminsen et al. (note 127), p. 103.

¹³⁴ Beeler (note 130), p. 14; Brottem, L., ‘Environmental change and farmer–herder conflict in agro-pastoral West Africa’, *Human Ecology*, vol. 44, no. 5 (2016); and Benjaminsen and Ba (note 35).

national-level conflict and the availability of small arms are further complicating and intensifying these more local-level conflicts.¹³⁵

Even though complex factors contribute to these conflicts, it is important to note that the pastoralists' adaptive strategies 'indicate an intention to avoid conflict', as they would rather move to find new grazing areas.¹³⁶ In addition, formal and informal mechanisms exist to settle disputes between farmers and herders in the event of crop damage. These involve negotiating an agreement between the disputing parties to compensate for the damages inflicted.¹³⁷ In some instances, the disputes are settled through the courts and the formal legal system.¹³⁸ Moreover, some villages have created collective agreements with herders to manage livestock passages and resolve conflict when it arises.¹³⁹

¹³⁵ Bagayoko et al. (note 29).

¹³⁶ De Bruijn, M. and van Dijk, H., 'Natural resources, scarcity and conflict: A perspective from below', eds P. Chabal, A. M. Gentili and U. Engel, *Is Violence Inevitable in Africa? Theories of Conflict and Approaches to Conflict Prevention* (Brill: Leiden, 2005), p. 68.

¹³⁷ Beeler (note 130), p. 16.

¹³⁸ Beeler (note 130), p. 18.

¹³⁹ Brottem (note 134).

4. Climate impacts on MINUSMA

Large segments of Mali's population are vulnerable to the impacts of climate change due to their dependence on natural resources for livelihoods. Combined with weak governance, climate change is thus further undermining people's human security. In addition, climate change affects peacebuilding in several ways, as its compound character is an increasingly strong factor that reshapes the social, political and economic context, thereby potentially amplifying local grievances and marginalization. This section examines how climate change is affecting MINUSMA's operations and the implementation of its mandate along two broad dimensions: peace and security, and governance and society. In terms of peace and security, the focus is on how environmental change impacts peace and security in Mali, and in turn the mission's mandate. In terms of governance and society, the focus is on how the interaction between climate change and weak governance affects the priority tasks of MINUSMA's mandate.

Peace and security

Scarcity of natural resources in central and northern Mali reduces livelihood options and facilitates recruitment into criminal and extremist groups

The recruitment dynamics of criminal and extremist groups are complex and the same conditions can often lead to different outcomes. In parts of Mali, evidence suggests that climate change, conflict and population growth are placing increasing pressure on natural resources, which reduces people's livelihood options, in particular herders and farmers. In turn, this creates recruitment opportunities for criminal and armed non-state actors as they, according to interviewees, often offer economic incentives for local actors to join.¹⁴⁰ For instance, northern and central Mali (especially Gao and Mopti) are highly susceptible to droughts and floods.¹⁴¹ Indeed, between 1941 and 1970 the Sahelian centre of Mali received enough rain to produce millet during two out of three years, whereas between the 1970s and 2000 it only received enough rain to do so during one out of three years.¹⁴² As a result, households have resorted to migration or other livelihood sources to cope with the impact of environmental change on their income-generating activities.¹⁴³

Conflict is also affecting the natural resources which Malians rely on for their livelihoods. In a recent survey in 2019, approximately 60 per cent of respondents in Mopti and Ségou indicated that insecurity had negatively affected agriculture and livestock rearing.¹⁴⁴ In Gao, for example, rice yields decreased by 43 per cent

¹⁴⁰ MINUSMA officer 9, Interview with authors, 30 Sep. 2020; MINUSMA officer (former) 3, Interview with authors, 25 May 2020; MINUSMA officer (former) 8, Interview with authors, 1 June 2020; and MINUSMA officer 7, Interview with authors, 4 Sep. 2020.

¹⁴¹ World Food Programme, 'Mali: Analyse intégrée du context (AIC) plus Nutrition (AIC+Nutrition) Mali' [Mali: Integrated context analysis plus nutrition Mali], June 2019, pp. 10, 16–17.

¹⁴² Giannini et al. (note 123), p. 149.

¹⁴³ Giannini et al. (note 123), p. 149.

¹⁴⁴ Bodian, Tobie and Marenging (note 28), p. 11.

between 2011 and 2012, driven by factors such as the reduced availability of fertilizer and fuel, and disrupted irrigation systems as a result of the conflict.¹⁴⁵ The conflict in Mali has also affected livestock rearing. Families with larger herds moved southwards, which increased pressure on available grazing land. Although overgrazing is not common in the country, some research suggests that this move did lead to overgrazing in the areas where pastoralists moved to escape the conflict.¹⁴⁶ Furthermore, although the price of livestock increased dramatically, livestock markets stopped operating.¹⁴⁷

In addition, population growth, which in 2019 was estimated to be 3 per cent annually, is placing increasing pressure on Mali's natural resources.¹⁴⁸ Although soil degradation is not universal, experts, mission staff and researchers consider that a rapidly growing population has led to 'unsustainable' agriculture, which has degraded soils and placed increasing pressure on land, and created greater competition for the limited resources.¹⁴⁹

Interviews suggest that the triple pressures of climate change, conflict and population growth on natural resources and livelihoods increase the vulnerability of the population to recruitment and exploitation by armed non-state actors. This is consistent with other research findings on recruitment into armed non-state actors in Mali and more broadly.¹⁵⁰ In 2016, the UN secretary-general emphasized the link between unemployment and recruitment by armed non-state actors in Mali, noting, 'The return of basic services and the establishment of income-generating activities in central and northern regions remain critical to addressing . . . unemployment among young people and former combatants, who are vulnerable to . . . recruitment by violent actors.'¹⁵¹

Factors that facilitate recruitment into armed groups are complex, with poverty being one of the push factors.¹⁵² This has a negative impact on stability since, as one interviewee explained, in the absence of alternative livelihood options, survival

¹⁴⁵ Kimenyi, M. et al., 'The impact of conflict and political instability on agricultural investments in Mali and Nigeria', Africa Growth Initiative at Brookings, Working paper 17, July 2014, p. 9.

¹⁴⁶ Diawara, M. O. et al., 'Joint monitoring of livestock stocking rates and rangeland vegetation of Hombori district in Mali during the 2010-2011 dry season', *International Journal of Biological and Chemical Sciences*, vol. 14, no. 6 (2020); and Kimenyi et al. (note 145), p. 10.

¹⁴⁷ Kimenyi et al. (note 145), p. 11.

¹⁴⁸ World Bank, 'Population growth (annual %): Mali', [n.d.].

¹⁴⁹ Benjaminsen, T. O., Aune, J. B. and Sidibé, D., 'A critical political ecology of cotton and soil fertility in Mali', *Geoforum*, vol. 41 (2010); Drakenberg, O. and Cesar, E., 'Mali environmental and climate change policy brief', Swedish International Development Cooperation Agency's Helpdesk for Environment and Climate Change, July 2013, p. 4; External expert 13, Interview with authors, 29 Apr. 2020; External expert 6, Interview with authors, 26 June 2020; MINUSMA officer 25 (note 8); MINUSMA officer 5, Interview with authors, 7 Sep. 2020; MINUSMA officer 19, Interview with authors, 25 Sep. 2020; MINUSMA officer 11, Interview with authors, 16 June 2020; UN Country Team officer 9, Interview with authors, 23 June 2020; and MINUSMA officer 13, Interview with authors, 28 Aug. 2020.

¹⁵⁰ Dal Santo, E. and van der Heide, E. J., 'Escalating complexity in regional conflicts: Connecting geopolitics to individual pathways to terrorism in Mali', *African Security*, vol. 11, no. 3 (2018); Théroux-Bénoni, L.-A. and Assanvo, W., 'Mali's young "jihadists": Fuelled by faith or circumstance?', Institute for Security Studies, Policy Brief no. 89, Aug. 2016; and UNDP, *Journey to Extremism in Africa: Drivers, Incentives and the Tipping Point for Recruitment* (UNDP: New York, 2017).

¹⁵¹ United Nations, Security Council, Report of the Secretary-General on the situation in Mali, S/2016/281, 28 Mar. 2016, p. 16.

¹⁵² UNDP (note 150).

could depend on joining one of these groups: ‘They have nothing else.’¹⁵³ Groups such as AQIM have capitalized on Malians’ ‘financial-related vulnerabilities’ and provided employment opportunities for youth.¹⁵⁴ Katiba Macina has also taken advantage of poverty and food insecurity by providing communities with food ‘to ensure the collaboration of villages’.¹⁵⁵ Various external experts, including UN Country Team staff, supported the idea that unemployment makes youths more vulnerable to recruitment.¹⁵⁶

Although a multitude of issues have negatively affected people’s livelihoods in Mali, interviewees consistently suggested that climate change is among the factors indirectly contributing to recruitment. For example, one MINUSMA officer observed that scarce rainfall has in several instances contributed to children’s recruitment, as families dependent on agriculture and farming have sent their children to armed groups as a means of generating income. The officer noted that this recruitment dynamic is generally observed in the centre and north of the country, and suggested that in periods of normal rainfall, when income shocks are less likely, there is noticeably less recruitment and involvement of children in armed groups.¹⁵⁷ This observation is broadly consistent with research on armed non-state actor recruitment, which finds that climatic shocks which affect agriculture are correlated with increased armed non-state actor recruitment.¹⁵⁸

Interviewees also understood water scarcity to be indirectly linked to the recruitment of herders by armed non-state actors. As one MINUSMA officer explained, a combination of factors, including poor living conditions and a lack of water, create challenging circumstances for herders: ‘So, no work, no schools, no water left the herders . . . in a difficult position, which meant . . . youngsters were getting easily recruited into terrorist groups and they had to survive through supporting smuggling . . . through routes in the Sahara.’¹⁵⁹ Essentially, the problem is the close relationship between natural resources and people’s livelihoods. As one MINUSMA officer put it, ‘There is nothing else to do. They need the basics which they cannot access, and the only option is to take up arms and get what they can. It is difficult for me to separate the two—the lack of natural resources and unemployment because I see one leading to the other.’¹⁶⁰

More broadly, environmental challenges create opportunities for armed non-state actors by providing openings for extremist groups to try to muster support from the local population. As one MINUSMA officer observed, since these groups have money and resources, they are able to provide security and justice, as well

¹⁵³ MINUSMA officer 7 (note 140).

¹⁵⁴ Dal Santo and van der Heide (note 150), p. 283.

¹⁵⁵ Rupesinghe, N. and Boås, M., ‘Local drivers of violent extremism in Central Mali’, UNDP Policy Brief, 30 Sep. 2019, p. 15.

¹⁵⁶ External expert 2, Interview with authors, 13 May 2020; External expert 3, Interview with authors, 14 May 2020; and UN Country Team officer 5, Interview with authors, 15 May 2020.

¹⁵⁷ MINUSMA officer 9 (note 140).

¹⁵⁸ Harari, M. and La Ferrara, E., ‘Conflict, climate, and cells: A disaggregated analysis’, *The Review of Economics and Statistics*, vol. 100, no. 4 (2018).

¹⁵⁹ MINUSMA officer (former) 3 (note 140).

¹⁶⁰ MINUSMA officer (former) 8 (note 140).

as small-scale dams and wells to improve communities' resilience to the harsh environment.¹⁶¹ As an example, the same officer noted that Katiba Macina has built wells and other armed non-state actors have implemented similar projects.¹⁶²

Although climate change factors play a significant role in affecting people's livelihoods and recruitment, recruitment dynamics are complex and linked to other factors, too. Government action or inaction, for example, can create grievances and social marginalization.¹⁶³ Corrupt local and state taxation systems may prompt communities to support armed non-state actors who promise protection from corrupt officials and unfair taxation, even though such groups may themselves collect funds, such as *zakat* (a charitable donation in Islam) in the case of jihadist groups.¹⁶⁴ Grievances may also be driven by government mistreatment, such as the FAMA mistreating Fulani herdsmen.¹⁶⁵

Ideology is another motivation for joining armed non-state actors. For example, one expert noted that the leader of Katiba Macina, Amadou Koufa, has been able to mobilize people around the ideal of an Islamic state, building on the history of the Macina Empire.¹⁶⁶ Regional experts stress that by using this Islamic narrative and justifying actions as being 'Islamically driven', people are united through religious ideology rather than being divided along other lines.¹⁶⁷ Ideology, however, also functions as a label to brand certain groups in the struggle over scarce resources. For instance, although the relationship between the Dogon and the Fulani has been relatively peaceful historically, the Malian Government has on occasion labelled the Fulani as jihadists and the Dogon have benefited from state support to build the Dan Na Ambassagou—a coalition of self-defence militias that operates in the central Mopti region and which has been accused of human rights violations.¹⁶⁸

There is also a clear indication that people join armed groups for reasons strongly related to individual identity, especially in terms of the need for social belonging. As increasing pressure on natural resources negatively affects people's livelihoods, which are closely linked to their identity, this creates an identity void. For instance, several experts point out that within the Fulani, youth and other

¹⁶¹ MINUSMA officer 4, Interview with authors, 5 Oct. 2020.

¹⁶² MINUSMA officer 4 (note 161).

¹⁶³ Dal Santo and van der Heide (note 150); Benjaminsen, T. A. and Ba, B., 'Why do pastoralists in Mali join jihadist groups? A political ecology explanation', *Journal of Peasant Studies*, vol. 46, no. 1 (2019); de Bruijn, M. and Both, J., 'Youth between state and rebel (dis)orders: Contesting legitimacy from below in sub-Saharan Africa', *Small Wars and Insurgencies*, vol. 28, nos. 4–5 (2017); and Pérouse de Montclos, M., *L'Afrique, nouvelle frontière du djihad?* [Africa, a new frontier for jihad?] (La Découverte: Paris, 2018).

¹⁶⁴ External expert 4, Interview with authors, 29 Apr. 2020; MINUSMA officer 1, Interview with authors, 14 Sep. 2020; and International Crisis Group, 'Speaking with the "bad guys": Toward dialogue with central Mali's jihadists', Africa Report no. 276, 28 May 2019.

¹⁶⁵ Rupesinghe, N. and Bøås, M (note 155), p. 10; and Ba and Bøås (note 4).

¹⁶⁶ External expert 3 (note 156).

¹⁶⁷ External expert 3 (note 156).

¹⁶⁸ External expert 5 (note 8); European Council on Foreign Relations, 'Mapping armed groups in Mali and the Sahel: Dan Na Ambassagou', [n.d.]; MINUSMA officer 1 (note 164); and Human Rights Watch (note 54).

people low in the group's social hierarchy may be more prone to join armed non-state actors for reasons of increased status.¹⁶⁹

The recruitment of civilians into armed or extremist groups affects several priority areas in MINUSMA's mandate, such as the protection of civilians, supporting the implementation of the peace agreement, and supporting the stabilization and restoration of state authority in the centre of Mali. As demonstrated above, in the context of Mali's ongoing conflict both environmental and economic stress contribute to recruitment. Thus, the recruitment of children and youth into extremist groups undermines the mission's mandate to protect civilians. Moreover, if armed groups are able to co-opt conflicts between herders and farmers—notably the Fulani and Dogon—and exert their influence, it impedes the stabilization of central Mali and the restoration of state authority.

With economic and climate pressures in northern Mali, delays in implementing a DDR programme drive engagement in illicit activities

Delays and deficiencies in implementing a DDR programme in Mali, combined with a weak economic fabric in the north that is under increasing stress from climate change, leaves people with limited livelihood opportunities. In order to fill this void, local actors increasingly engage in illicit activities such as trafficking.

Although it is part of Mali's 2015 peace agreement, implementation of the current DDR programme has been delayed due to the signatory parties' 'lack of political commitment' to implementation and a deterioration in trust between them.¹⁷⁰ As an alternative, the National DDR Commission began implementing an accelerated DDR/integration programme (ADDR-I), which aims to disarm, demobilize and reintegrate ex-combatants from signatory armed groups to the peace agreement into the Malian Defense and Security Forces (MDSF).¹⁷¹ However, the ADDR-I excludes reintegration into civilian economic life, so those who cannot be reintegrated into the MDSF must wait until other alternatives are available once the full DDR programme is operational.¹⁷² The full programme aims to reintegrate 10 000 former combatants into the MDSF and state services, and 16 000 ex-combatants into civilian economic life.¹⁷³ Further, 'It is envisaged that the remaining 48 000 demobilized combatants will benefit from the national community rehabilitation programme.'¹⁷⁴ Comparatively, the ADDR-I intends

¹⁶⁹ External expert 7 (note 8); External expert 4 (note 164); External expert 3 (note 156); and Rupesinghe, N. and Bøås, M (note 155), p. 12.

¹⁷⁰ Breitung, C., 'Why there is a need to reframe the discourse on armed groups in Mali: Requirements for successful disarmament, demobilisation and reintegration', Bonn International Center for Conversion (BICC), Policy brief, Aug. 2019, p. 2.

¹⁷¹ Breitung (note 170), p. 3.

¹⁷² Breitung (note 170), p. 3.

¹⁷³ United Nations, Security Council, Report of the Secretary-General, 'Situation in Mali', S/2019/983, 30 Dec. 2019, p. 7.

¹⁷⁴ United Nations, Security Council, Report of the Secretary-General, 'Situation in Mali', S/2020/223, 20 Mar. 2020, p. 3.

to integrate 4900 ex-combatants and is itself facing obstacles due to disputes between the FAMA and signatory parties on how to proceed with redeployment.¹⁷⁵

The DDR programme in Mali faces two interrelated challenges: economic underdevelopment and increasing climate change. Mali's northern region suffers from economic underdevelopment, and poverty has risen in the years since the signing of the peace agreement.¹⁷⁶ Economic development is essential for the reintegration of ex-combatants to be successful.¹⁷⁷ As one interviewee noted, weak economic development is a product of long-term marginalization and years of conflict in northern Mali, and the economy cannot support a young and growing population.¹⁷⁸ The lack of economic development has thus posed a challenge to reintegration efforts and remains a challenge in the current approach to DDR.

In addition, climate change is exerting pressure on the economic fabric of the north. Northern Mali is highly susceptible to droughts, and the region's primary reliance on raising livestock increases households' susceptibility to the effects of climate change on their herds.¹⁷⁹ Recurrent droughts—especially in the 1980s and up to 2012 (see appendix A, figure A.2)—have had a negative impact on the health of livestock. According to some observers, herders have progressively lost more of their herds, but there is uncertainty about whether this is a general trend.¹⁸⁰ As well as facing increasingly difficult conditions for their traditional livelihood, herders have few or no formal alternative livelihood options.¹⁸¹ Indeed, one MINUSMA officer stated:

If you recall how it all started in the north, the original conflict was based on the ideal of separatism. To separate from the south. Basically, the argument was . . . convincing people that the government in the south has ignored development in the north. There is nothing youth can rely on. I think selling this is easy because there is nothing. There is nothing, no factories, nothing.¹⁸²

Relatedly, socio-economic reintegration in nomadic contexts is a challenge for the DDR programme, as the UN has little to no experience in such a domain.¹⁸³

¹⁷⁵ Breitung (note 170), p. 3; and Carter Center, 'Report of the Independent Observer: Observations on the implementation of the Agreement on Peace and Reconciliation in Mali, emanating from the Algiers Process', Apr. 2020, pp. 10–11.

¹⁷⁶ Florquin, N. and Pézard, S., 'Insurgency, disarmament, and insecurity in northern Mali, 1990–2004', eds N. Florquin and E. G. Berman, *Armed and Aimless: Armed Groups, Guns, and Human Security in the ECOWAS Region* (Small Arms Survey: Geneva, 2005), p. 61; and United Nations, Security Council, Report of the Secretary-General, 'Situation in Mali', S/2018/541, 6 June 2018, p. 12.

¹⁷⁷ MINUSMA officer 7 (note 140); Banholzer, L., 'When do disarmament, demobilisation and reintegration programmes succeed?', Discussion paper no. 8/2014, German Development Institute, 2014; and Haugegaard, R., 'Sharia as "desert business": Understanding the links between criminal networks and jihadism in northern Mali', *Stability: International Journal of Security and Development*, vol. 6, no. 1 (13 June 2017).

¹⁷⁸ MINUSMA officer 11 (note 149).

¹⁷⁹ World Food Programme (note 141), p. 16; and Dixon and Holt (note 109), p. 23.

¹⁸⁰ UN Country Team officer 10, Interview with authors, 23 June 2020; and UN Country Team officer 11, Interview with authors, 22 Sep. 2020.

¹⁸¹ Dixon and Holt (note 109), p. 23.

¹⁸² MINUSMA officer (former) 8 (note 140).

¹⁸³ External expert 8, Interview with authors, 19 May 2020.

Whether the UN has conducted labour needs surveys and whether these consider changing climate and living conditions remains unclear.

The delays and deficiencies in implementing the DDR programme and the lack of economic opportunities in northern Mali, in addition to climate change, are pushing people to trade increasingly in illicit goods.¹⁸⁴ Trade and trafficking in licit goods have historically been a part of adapted livelihoods in Mali.¹⁸⁵ For example, the Tuareg's salt caravans have existed for many years, and trade and caravans are part of traditional life.¹⁸⁶ Indeed, trafficked goods, mostly coming from Algeria, constitute 'up to 90 per cent of all available goods in some northern regions'.¹⁸⁷ Today, however, people are also trafficking weapons, migrants and drugs, although licit goods still make up the vast majority of trafficked goods.¹⁸⁸ The main trafficking networks for drugs are run by Arab tribes, in particular the Lamhars, and both non-state actors and government officials are allegedly involved in drug trafficking.¹⁸⁹

Despite several DDR initiatives, one expert noted that the criminal economy has grown continuously since the 1990s and that many nomadic people are involved in trafficking.¹⁹⁰ Interviewees observed that there are no livelihood opportunities or investments in the north other than trafficking, which limits economic development.¹⁹¹ Thus, people engage in trafficking because of a lack of viable alternatives. This increasing engagement has direct implications for MINUSMA's mandate and the successful implementation of the peace agreement in northern Mali. MINUSMA is tasked with supporting the DDR process as part of its mandate.¹⁹² However, a MINUSMA officer and an external expert observed that political, economic and security challenges have had a negative impact on the DDR process. Signatory parties have been unwilling to demobilize without seeing progress on desired economic reforms, and government actors have been unwilling to 'reward' armed non-state actors with positions in state security forces.¹⁹³

In addition, part of supporting the implementation of the peace agreement is 'the detention, investigation and prosecution of individuals suspected of, and

¹⁸⁴ Boàs, M., 'Crime, coping, and resistance in the Mali-Sahel periphery', *African Security*, vol. 8, no. 4 (8 Dec. 2015).

¹⁸⁵ MINUSMA officer 11 (note 149); Dal Santo and van der Heide (note 150), p. 282; and International Alert, 'Organised crime in Mali: Why it matters for a peaceful transition from conflict', Policy brief, Sep. 2016, p. 2.

¹⁸⁶ MINUSMA officer 12, Interview with authors, 28 May 2020.

¹⁸⁷ International Alert (note 185), p. 2; and External expert 8 (note 183).

¹⁸⁸ MINUSMA officer 12 (note 186); and External expert 8 (note 183).

¹⁸⁹ External expert 4, Correspondence with authors, 11 Nov. 2020; United Nations, Security Council, 'Report of the assessment mission on the impact of the Libyan crisis in the Sahel region', S/2012/42, 18 Jan. 2012; Lacher, W., 'Organized crime and conflict in the Sahel-Sahara region', Carnegie Endowment for International Peace, Carnegie Papers, 2012; and Aning, K. and Pokoo, J., 'Understanding the nature and threats of drug trafficking to national and regional security in West Africa', *Stability: International Journal of Security and Development*, vol. 3, no. 1 (2014).

¹⁹⁰ External expert 8 (note 183).

¹⁹¹ External expert 8 (note 183); and MINUSMA officer 7 (note 140).

¹⁹² UN Security Council Resolution 2531 (note 61), p. 8.

¹⁹³ MINUSMA officer 7 (note 140); and External expert 2 (note 156).

sentencing of those found responsible for ... transnational organized crime activities (including trafficking in persons, arms, drugs and natural resources, and the smuggling of migrants)'.¹⁹⁴ Yet fulfilling this task is challenging. Delays in implementing DDR, a lack of alternative livelihood options and increasing climate change pressures on existing livelihoods increase the number of people engaged in trafficking. Should DDR programming be successful, however, the number of people involved in trafficking is likely to decrease.¹⁹⁵ In order to build a formal and lasting local economy, the DDR process needs to be adjusted to local conditions and to promote resilient, climate change-appropriate options. Nevertheless, socio-economic reintegration programmes may still face the challenge of competing with the higher incomes derived from illicit activities.¹⁹⁶

Harsh weather patterns hinder MINUSMA's mobility

Extreme weather events, such as sandstorms and flooding, affect MINUSMA's logistics and operational environment because they hinder troops' mobility and support logistics, including medical and casualty evacuation.

Challenges related to flooding are linked to poor infrastructure and interviews with MINUSMA officers illuminated how these challenges affect the mission's operational logistics. In Mopti, for instance, road conditions prevent troops from reaching places where they are needed to deter violence and assist people.¹⁹⁷ The Mopti region is particularly hard hit during the rainy season, leading to deteriorated road conditions and making it difficult for MINUSMA to reach flooded areas.¹⁹⁸ In addition, armoured vehicles experience difficulty in accessing flooded zones in northern Mali due to mud impeding their road access.¹⁹⁹

In order to counter its operational limitations, MINUSMA, and particularly its civilian staff, needs to rely on air transport to fend off attacks and avoid improvised explosive devices (IEDs). For instance, in Mopti, the mission is forced to use helicopters.²⁰⁰ However, several officers reported that both in the central and northern regions certain weather conditions make it difficult to use helicopters because they cannot take off, regardless of the mission's readiness to use them.²⁰¹

In addition to flooding, sandstorms in central and northern Mali further hinder MINUSMA's military and logistical operations. Sandstorms can, for example, prevent helicopters from flying, and in Gao air operations have been grounded for days due to sandstorms.²⁰² In Kidal, where temperatures reach over 50°C, wind and sandstorms have challenged security around the mission's camp. Balloons with cameras were being used for surveillance, but they had to be taken down

¹⁹⁴ UN Security Council Resolution 2531 (note 61), p. 8.

¹⁹⁵ MINUSMA officer 7 (note 140).

¹⁹⁶ External expert 8 (note 183).

¹⁹⁷ MINUSMA officer 1 (note 164).

¹⁹⁸ MINUSMA officer 1 (note 164).

¹⁹⁹ MINUSMA officer 2, Interview with authors, 13 Oct. 2020; MINUSMA officer 5 (note 149); and MINUSMA officer (former) 3 (note 140).

²⁰⁰ MINUSMA officer 1 (note 164).

²⁰¹ MINUSMA officer 1 (note 164); and MINUSMA officer 2 (note 199).

²⁰² MINUSMA officer 2 (note 199).

due to damage during a complex attack, their ineffectiveness in surveillance and the adverse weather conditions.²⁰³ A former MINUSMA officer did note, however, that while the heat and rain posed challenges, they had not observed them getting worse.²⁰⁴

While armed non-state actors in Mali are exposed to the same extreme weather conditions, they do not face the same mobility challenges as the mission. For instance, the heat does not affect these groups in the same way as they are better adapted to their environment. As one former MINUSMA officer noted, ‘These actors knew the whole thing by heart. They mostly operated [at] night, while MINUSMA does not move in the dark because of the risk of IEDs. Insurgent groups, however, know where the explosive devices are located and can travel at night and avoid extreme heat.’²⁰⁵ The same challenge exists for Malian forces—in Gao, Kidal and Timbuktu, for example—which are not well-equipped to move in significant heat.²⁰⁶ Extreme heat is also problematic for MINUSMA’s aeroplanes and helicopters, as their payload decreases with lower air density due to heat.²⁰⁷

Furthermore, MINUSMA officers noted that armed non-state actors use more appropriate means of transport for extreme weather. In central Mali, for example, armed non-state actors are equipped with boats and motorcycles that enable them to move quickly and attack during the rainy season.²⁰⁸ The lack of state and military presence in flooded areas also makes it easier for armed non-state actors to stage attacks and gain control.²⁰⁹ Mobility, however, is always problematic in Mali given the long distances to reach destinations, especially in the north. Convoys travelling on long roads present easy and predictable targets.²¹⁰

As harsh weather patterns hinder MINUSMA’s logistical and operational mobility, core elements of its mandate become affected. First, by affecting military capability, core parts of the peacekeeping mandate are undermined. Second, protecting civilians from violence becomes increasingly difficult during extreme weather events. This came across clearly in the interviews with MINUSMA officers, especially higher-ranking military personnel. As one officer noted, extreme weather events, ‘have an impact on our ability to be places and protect civilians, but equally to try to anticipate when people [are] raising conflict again, when they will mobilize’.²¹¹ The same officer also noted that the environment affects the type of equipment the mission needs, and should the mission be unable to reach civilians, they are left on their own.²¹²

²⁰³ External expert 8 (note 183).

²⁰⁴ MINUSMA officer (former) 3 (note 140).

²⁰⁵ MINUSMA officer (former) 3 (note 140).

²⁰⁶ MINUSMA officer 4 (note 161).

²⁰⁷ External expert 8 (note 183).

²⁰⁸ MINUSMA officer 4 (note 161); MINUSMA officer 1 (note 164); and MINUSMA officer 5 (note 149).

²⁰⁹ MINUSMA officer 1 (note 164).

²¹⁰ External expert 1, Interview with authors, 29 May 2020.

²¹¹ MINUSMA officer 2 (note 199).

²¹² MINUSMA officer 2 (note 199).

Governance and society

Weakened local conflict resolution mechanisms exacerbate intercommunity conflict

Research shows that both the security situation on the ground in Mali and the increasing impact of climate change affect herders' traditional migration routes across the Sahel.²¹³ This diversion from long-established routes leads to increasing tensions between herders and farmers, because the local conflict resolution mechanisms that historically regulated this travel and mediated arrangements between the two groups are weakened due to poor state governance and the presence of armed non-state actors.

One MINUSMA officer observed that, in addition to the scarcity of food and water in northern Mali, security issues push nomads further south, thus exacerbating the risk of conflict with farmers in those areas.²¹⁴ Another MINUSMA officer noted that historic Fulani transhumance routes from Niger through the centre of Mali are shifting approximately 30 kilometres further south through Burkina Faso, before coming back to central Mali.²¹⁵ Using these new routes, herders come into contact with communities they have no past arrangements with for sharing natural resources.²¹⁶ As ECOWAS and the International Organization for Migration have stressed, more erratic rainfall and changes in the start of the rainy season are other factors that push pastoralists in the northern Sahel to move earlier in the season and travel further south.²¹⁷ MINUSMA has also noted the relevance of climate change, with one officer identifying climate change as a multiplying factor.²¹⁸

However, although both conflict and climate change are contributing to growing tensions because they affect long-established mobility patterns, both natural resource conflicts and herder–farmer conflicts have existed for centuries. The difference is that, together with newly emerging migration patterns, the local management of natural resources and access to these resources has changed for a number of reasons. One reason is linked to the sustainable management of available land in the centre. In central Mali, for instance, the growing population has increased the burden on land resources and created greater competition for the limited resource—further aggravating conflicts.²¹⁹ For example, land disputes and scarcity play a role in intercommunal tensions between Fulani and Dogon communities in the centre. According to one interviewee, the Fulani claim that

²¹³ Leonhardt, M., *Regional Policies and Response to Manage Pastoral Movements within the ECOWAS Region* (International Organization for Migration: Abuja, 2019); United Nations Environment Programme (UNEP), *Livelihood Security: Climate Change, Migration and Conflict in the Sahel* (UNEP: Geneva, 2011); and Brottem (note 134).

²¹⁴ External expert 1 (note 210); and MINUSMA officer 14, Interview with authors, 7 Oct. 2020.

²¹⁵ MINUSMA officer 14 (note 214).

²¹⁶ MINUSMA officer 14 (note 214).

²¹⁷ Leonhardt (note 213).

²¹⁸ MINUSMA officer 14 (note 214).

²¹⁹ Drakenberg and Cesar (note 149); External expert 13 (note 149); External expert 6 (note 149); MINUSMA officer 25 (note 8); MINUSMA officer 5 (note 149); MINUSMA officer 19 (note 149); MINUSMA officer 11 (note 149); UN Country Team officer 9 (note 149); and MINUSMA officer 13 (note 149).

due to land scarcity, the Dogon are endeavouring to expel them from their land to gain more arable land.²²⁰

Another reason is that although there are formal and traditional ways to manage transhumance routes in order to avoid conflict, these mechanisms are increasingly challenged. As a result, as explained by one interviewee, there is an increasing lack of resource access mediation through local, traditional mechanisms, which contributes to violence.²²¹ Additionally, local populations do not trust formal conflict resolution mechanisms, as they tend to be corrupt, and instead favour traditional mechanisms for settling disputes.²²²

Although the Malian population favours local, traditional conflict resolution mechanisms, the interference of armed non-state actors has placed increasing pressure on these mechanisms. Indeed, communities are becoming increasingly fractured due to the presence of armed non-state actors, which in turn contributes to greater violence. For example, violence between non-state armed actors associated with the Dogon and Fulani communities impedes community reconciliation. One MINUSMA officer noted that the Dogon consider the Fulani to be extremists. Should community leaders work to engage with each other to reconcile issues, they are at risk of being killed by members of armed groups, even those from their own community.²²³ For example, the Dogon self-defence coalition Dan Na Ambassador has been known to carry out attacks against Dogon villages engaged in reconciliation.²²⁴ In the view of another MINUSMA officer, the militia can oppose reconciliation as relative peace would mean they no longer receive income from participating in the group.²²⁵ Nevertheless, there are local peace agreements between Dogon and Fulani communities, for example, to resolve conflicts regarding access to water points.²²⁶

Furthermore, some experts claim that although how traditional mechanisms operate varies across groups and areas, the involvement of armed non-state actors is a significant reason why these mechanisms have lost traction.²²⁷ As such, there has been a shift in who reinforces social norms.²²⁸ Non-religious, traditional leaders used to facilitate these mechanisms, but their authority is currently in question, notably by youth who are armed and empowered through their involvement in non-state armed groups, thus changing local power structures.²²⁹ For

²²⁰ MINUSMA officer 1 (note 164).

²²¹ External expert 3 (note 156).

²²² Tobie, A. and Chauzal, G., 'State services in an insecure environment: Perceptions among civil society in Mali', SIPRI Insights on Peace and Security no. 2018/7, Dec. 2018; and Winters, M. S. and Conroy-Krutz, J., 'Preferences for traditional and formal sector justice institutions to address land disputes in rural Mali', *World Development*, vol. 142 (forthcoming June 2021).

²²³ MINUSMA officer 1 (note 164).

²²⁴ MINUSMA officer 1 (note 164); and MINUSMA officer 14 (note 214).

²²⁵ MINUSMA officer 14 (note 214).

²²⁶ Peace Agreements Database, 'Peace agreement between the Dogon and Fulani communities of Koro', English translation, Aug. 2018; and Centre for Humanitarian Dialogue, 'Fulani and Dogon communities from Koro sign a peace agreement in the Mopti region of Mali', 29 Aug. 2018.

²²⁷ External expert 3 (note 156).

²²⁸ External expert 3 (note 156).

²²⁹ MINUSMA officer 1 (note 164).

example, jihadist groups have brokered local peace agreements between Fulani and Dogon communities. Malians continue to rely predominantly on local, traditional conflict resolution mechanisms, but interviewees identified a variety of factors that are undermining them: the absence of a monopoly on violence by the state, a lack of efficient and fair formal justice mechanisms, and the increased availability of arms, among other things.²³⁰

While changing mobility patterns due to conflict and climate change play a role in herder–farmer violence, there are other factors that also account for violence. For instance, one expert anecdotally suggested that the economy surrounding cattle is increasingly monetized, thus affecting relationships between pastoralists and other local communities.²³¹ In the Sahel, there is a trend of hiring people to manage herds who have not maintained reciprocal relationships with local populations.²³² The same expert noted that due to cattle theft, the hired herders are armed, thus potentially creating conflict.²³³ As such, it is important to nuance the debate around herder–farmer conflicts in Mali.

Climate change, among other issues, affects transhumance routes and is expected to have even greater impact in the future. The weakening of local, traditional conflict resolution mechanisms in Mali not only challenges broader peacebuilding efforts, but also specifically affects MINUSMA’s mandate to protect civilians and to support the stabilization and restoration of state authority in the centre. Moreover, it highlights the need to place more emphasis on facilitating adequate and effective mediation mechanisms that have the trust of the local population. Indeed, peacekeeping operations in the Sahel have been addressing transhumance-related conflict, despite not having an explicit mandate to do so, because of its consequences for the protection of civilians and for processes of reconciliation and social cohesion.²³⁴

The absence of a government response to the effects of climate change contributes to grievances against the state

The impacts of climate change on natural resource-dependent livelihoods in many regions of Mali are adding to the canon of grievances and resentment against the state. Both the general absence of state authorities and an absence of substantial adaptation efforts contribute to these grievances, which in turn challenge MINUSMA’s mandate of supporting the restoration of state authority in the north and centre.

²³⁰ Ba, B. and Cold-Ravnkilde, S., ‘When jihadists broker peace: Natural resource conflicts as weapons of war in Mali’s protracted crisis’, Danish Institute for International Studies (DIIS) Policy Brief, Jan. 2021; Bodian, Tobie and Marenging (note 28); MINUSMA officer 14 (note 214); and UN Country Team officer 3, Interview with authors, 8 May 2020.

²³¹ External expert 13 (note 149).

²³² Basset, T., ‘Hired herders and herd management in Fulani pastoralism (northern Côte d’Ivoire)’, *Cahiers d’études africaines*, vol. 34, no. 133 (1994).

²³³ External expert 13 (note 149).

²³⁴ United Nations Peacekeeping, ‘Preventing, mitigating and resolving transhumance-related conflicts in UN peacekeeping settings: A survey of practice’, 2020, p. viii; and Delsol, G., ‘UN peacekeeping operations and pastoralism-related insecurity: Adopting a coordinated approach for the Sahel’, International Peace Institute (IPI) Issue Brief, 16 July 2020, p. 7.

The Malian state is absent or not well perceived in many areas throughout Mali. While local populations identify the state as responsible for providing basic services—including education, water, healthcare, justice and security—it has fallen short of meeting these expectations.²³⁵ In central Mali, local populations are dissatisfied with public service provision, including healthcare and education.²³⁶ One MINUSMA officer noted that people have expressed grievances surrounding the insecurity and impunity that come with the absence of a state presence. Justice and good governance ranked foremost among their concerns.²³⁷

With approximately 63 per cent of Mali's population engaged in agriculture, the projected effects of both higher temperatures and increased rainfall variability may negatively affect agricultural output and in turn Malians' livelihoods.²³⁸ Although the impacts of these changes on agriculture are uncertain, year-on-year variability in yield is expected to increase due to increased variability in temperature and rainfall during the growing season.²³⁹ On average, the yields of maize, sorghum and millet, which are staple crops and constitute the majority of calories in the Malian diet, are expected to decrease as a result.²⁴⁰ Yields from foraging are expected to decrease by between 5 and 36 per cent.²⁴¹ Pastoralists may also experience negative effects, since northern Mali is particularly prone to drought and this adversely affects livestock.²⁴² However, it should be noted that pastoralists have coped with drought in the past.

Using Kidal as an example, where people are accustomed to living in a harsh environment, one MINUSMA officer claimed that the consequences of living in a challenging climate and a lack of response from the state have deepened grievances. Although the officer did not think there had been dramatic environmental changes since the 1990s, the population has still experienced harsh rains, livelihood destruction, drought and limited access to water: 'The fact that the state has never addressed the harsh climate situation . . . has really had an impact on grievances and the Peace Agreement.'²⁴³

Increased grievances as a result of the state's absence and its failure to address the effects of climate change, compounded by limited economic opportunities and inadequate basic services, in turn affect MINUSMA's ability to fulfil its mandate. As part of implementing the peace agreement, the mission is mandated to support the restoration of state authority in central and northern Mali, which is challenging when people are already dissatisfied with the state's performance. Nevertheless, restoring state authority to these regions does provide an opportunity

²³⁵ Bodian, Tobie and Marening (note 28).

²³⁶ Bodian, Tobie and Marening (note 28).

²³⁷ MINUSMA officer 1 (note 164).

²³⁸ International Labour Organization, 'Country profiles: The latest decent work statistics by country—Mali', [n.d.].

²³⁹ Ahmed, K. F. et al., 'Potential impact of climate change on cereal crop yield in West Africa', *Climatic Change*, vol. 133 (11 July 2015).

²⁴⁰ Butt, T. A., McCarl, B. A. and Kergna, A. O., 'Policies for reducing agricultural sector vulnerability to climate change in Mali', *Climate Policy*, vol. 5, no. 6 (Jan. 2006); and Ahmed et al. (note 239).

²⁴¹ Butt et al. (note 103).

²⁴² World Food Programme (note 141), p. 16.

²⁴³ MINUSMA officer 17, Interview with authors, 28 Aug. 2020.

for the government to address grievances by improving the provision of basic services, including assisting Malians in adapting to the effects of climate change.

MINUSMA's environmental impact aggravates existing environmental pressures and leads to grievances

In addition to already existing grievances against MINUSMA because of its perceived ineffectiveness in improving the security situation in Mali, the mission's operations have generated negative effects on the environment. In some cases, this negative environmental impact has compounded the local population's negative attitude towards the mission because already scarce local resources, such as groundwater, have declined.

While MINUSMA was one of the first missions to include considerations of its environmental footprint in its mandate, as of 2019 it did not have a mechanism to monitor its groundwater extraction from boreholes or its impact on the local energy supply, for example.²⁴⁴ Unregulated groundwater withdrawal can lead to the over-extraction of local water resources, negatively affecting the local population's ability to withdraw water and the sustainability of groundwater resources, particularly in northern Mali.²⁴⁵ It also leads to an increase in food prices.²⁴⁶ Indeed, in 2016 a local community in Kidal protested against the mission because an increase in troops in MINUSMA's camp there led to the depletion of the local water supply.²⁴⁷ In response, the mission drilled deeper wells to improve the availability of water for locals.²⁴⁸ One former MINUSMA officer voiced concern that the perception among locals that the mission is taking water from locals will negatively affect the peace process.²⁴⁹ The officer pointed out that local perceptions of the culpability of peacekeepers in depleted water resources can affect trust in and support for MINUSMA, as it is difficult to discuss peace when people are deprived of basic necessities.²⁵⁰

Another risk that mission staff raised was that armed non-state actors can exploit protests and local grievances to increase attacks against the mission. As one MINUSMA officer explained, the strategy of these armed groups is 'to convince the local population that the government and the UN, who are here for peacekeeping, are giving them a raw deal [and] that they have better options for them than those who are claiming to be bringing peace'.²⁵¹ Because armed non-state actors have resources, they are able to offer the local population alternatives.²⁵²

²⁴⁴ United Nations, Office of Internal Oversight Services, 'Audit of the implementation of the environmental action plan in the United Nations Multidimensional Integrated Stabilization Mission in Mali', Report 2019/16, 21 Mar. 2019.

²⁴⁵ United Nations, Office of Internal Oversight Services (note 244).

²⁴⁶ External expert 15 (note 35).

²⁴⁷ United Nations, Office of Internal Oversight Services (note 244); MINUSMA officer (former) 8 (note 140); and External expert 8 (note 183).

²⁴⁸ MINUSMA officer (former) 8 (note 140); External expert 8 (note 183); and MINUSMA officer 26, Interview with authors, 11 Sep. 2020.

²⁴⁹ MINUSMA officer (former) 8 (note 140).

²⁵⁰ MINUSMA officer (former) 8 (note 140).

²⁵¹ MINUSMA officer (former) 8 (note 140).

²⁵² MINUSMA officer (former) 8 (note 140).

In the past, this has helped them to gather intelligence against MINUSMA, for example, increasing the mission's vulnerability to attacks.²⁵³

In sum, there is an indication, at least in northern Mali, that existing environmental pressures may become exaggerated because of MINUSMA's footprint on the local environment. Although the mission is increasingly addressing the problem, this has the potential to undermine its ability to support the restoration of state authority and implementation of the peace agreement, since Malians may harbour negative perceptions of MINUSMA.

Further observations

In addition to the climate-related impacts on MINUSMA's mandate mentioned above, there are two topics that were notably absent or underrepresented in the interviews conducted, despite being relevant factors in previous studies: (a) gender and (b) internally displaced persons (IDPs).²⁵⁴ Furthermore, interviewees discussed land rights in central Mali, as the fact that they remain unresolved is problematic and constitutes a risk factor for conflict between different users of natural resources.

Gender

Climate change and conflict have gender-specific implications for women and men in Mali.²⁵⁵ Restrictive gender roles and expectations mean that women can experience heightened risks related to climate change, especially those who experience other forms of socio-economic marginalization (e.g. linked to age, ethnicity, class or disability). For example, due to gender roles, women may not be able to access the necessary resources to adapt to changing environments. Climate change can also increase workloads and inequalities, with women having to travel further to collect resources and take on more responsibilities, while men migrate for work.²⁵⁶ Although gender is not a synonym for women, gender dimensions of climate change and conflict for women are highlighted in particular here.

Research on perceptions of insecurity in Mali reveals that women are particularly concerned with climate change (specifically drought) and see it as a priority area to address in order to reduce insecurity.²⁵⁷ The compounding effects of climate change and conflict work to further heighten insecurities and

²⁵³ MINUSMA officer (former) 8 (note 140).

²⁵⁴ Eklöw and Krampe (note 2).

²⁵⁵ Djoudi and Brockhaus (note 117); and Halle, S. et al., *Gender, Climate and Security: Sustaining Inclusive Peace on the Frontlines of Climate Change* (UNEP, UN Women, DPPA and UNDP: 2020).

²⁵⁶ Djoudi and Brockhaus (note 117); and Halle et al. (note 255).

²⁵⁷ Tobie, A., 'A fresh perspective on security concerns among Malian civil society', SIPRI Insights on Peace and Security no. 2017/2, July 2017.

inequalities for women, who are more at risk of conflict-related sexual violence when having to travel greater distances to collect water, for example.²⁵⁸

Together, climate change and conflict can contribute to shifts in gender relations and norms.²⁵⁹ Interviews with MINUSMA and UN Country Team officers highlighted some gender-specific effects on women in Mali. One UN Country Team officer observed that women, children and the elderly are the primary residents in villages and IDP camps, since men are likely to be engaged elsewhere due to the conflict, or dead. As a result, women take on untraditional roles, including defending their land.²⁶⁰ Women also experience gender-based violence and this varies in different regions. One MINUSMA officer noted that in the north sexual slavery and rape are prevalent, while in the centre non-state armed actors, in order to develop their own agendas, may threaten women and girls and ban various rights.²⁶¹ Another MINUSMA officer said that women are at increased risk of rape when going to fetch water or wood, and highlighted that male herders attack women from farming communities during transhumance.²⁶²

It is often stated that women's equal and meaningful participation is of key importance in addressing climate change and conflict, as well as the gender-specific risks women experience, but traditional and structural barriers can impede this progress.²⁶³ MINUSMA's mandate encompasses 'addressing sexual and gender-based violence and violations against women', therefore close cooperation and integration with other UN agencies working on broader gender issues, such as equality and economic rights, is critical.²⁶⁴

Internally displaced persons

MINUSMA's mandate includes humanitarian assistance as a priority area, with a focus on assistance for IDPs.²⁶⁵ Violence and climate change, among other factors, have affected internal displacement in Mali.²⁶⁶ After the 2012 crisis, many people in northern Mali left their home communities to escape violence.²⁶⁷ In Kidal, as one MINUSMA officer noted, people also left for economic and educational opportunities, and tended to return to their place of origin when the security

²⁵⁸ Permanent Mission of the United Arab Emirates to the United Nations New York and Georgetown Institute for Women, Peace and Security, 'The United Arab Emirates panel series on women, peace and security', 2015; MINUSMA officer 26 (note 248); and McOmber, C., *Women and Climate Change in the Sahel*, West African Papers no. 27 (OECD Publishing: Paris, 2020).

²⁵⁹ Halle, S. et al. (note 255).

²⁶⁰ UN Country Team officer 12, Interview with authors, 12 June 2020.

²⁶¹ MINUSMA officer 22, Interview with authors, 4 Sep. 2020.

²⁶² MINUSMA officer 15, Interview with authors, 16 Sep. 2020.

²⁶³ Smith, E. S., 'Climate change in Women, Peace and Security national action plans', SIPRI Insights on Peace and Security no. 2020/7, June 2020.

²⁶⁴ UN Security Council Resolution 2531 (note 61).

²⁶⁵ UN Security Council Resolution 2531 (note 61), p 10.

²⁶⁶ United Nations, Security Council, Report of the Secretary-General, 'Situation in Mali', S/2020/1281, 28 Dec. 2020.

²⁶⁷ Bratton, M., 'Violence, displacement and democracy in post-conflict societies: Evidence from Mali', *Journal of Contemporary African Studies*, vol. 34, no. 4 (Dec. 2016); and Cartier, D., 'Mali crisis: A migration perspective', International Organization for Migration, June 2013.

situation became safer and basic social services improved.²⁶⁸ Violence in the more populous central regions has also caused displacement and, as one UN Country Team officer mentioned, people can be displaced multiple times over.²⁶⁹ As of October 2020, the number of IDPs in Mali was 311 193, up from 287 496 in July 2020.²⁷⁰

In addition, seasonal flooding and droughts contribute to internal displacement. In 2020, seasonal flooding affected more than 80 000 individuals, damaging over 6000 houses and over 7000 tons of food.²⁷¹ These floods led to deaths, injuries and a need for shelter and food.²⁷² One MINUSMA officer noted that women and children are particularly affected in these events, and that the mission worked to provide hygiene kits for women.²⁷³ Another MINUSMA officer claimed that people displaced by increasingly dry conditions in the north were likely to return to their home area when environmental conditions improved. However, when conditions do not improve and people move, this can contribute to violence.²⁷⁴ Increased pressure on natural resources from arriving IDPs can create friction in receiving communities.²⁷⁵ IDPs are also more vulnerable to recruitment and exploitation, as noted by a MINUSMA officer.²⁷⁶

Land rights in central Mali

Since colonization, land rights in Mali have been adjudicated through overlapping customary and formal systems.²⁷⁷ This can lead to challenges with regard to settling disputes over land and resource rights. Interviews highlighted how such overlap, and the lack of state capacity to enforce its formal rulings, can influence disputes. As described by an external expert, ‘One of the big stressors is that land rights are officially governed by the state. But its capacity to deal with everything is limited, so customary law is relied on instead. In the centre, rules from the 19th century and Macina Empire are used. However, they are outdated and corrupted.’²⁷⁸

If pastoralists move their herds earlier than usual due to climate change, the ineffectiveness of corrupt customary practices may contribute to small-scale disputes.²⁷⁹ One MINUSMA officer highlighted a case in which a conflict between the Fulani and the Bozo occurred over land and water rights.²⁸⁰ The state gave the rights to the Fulani, but the Bozo refused to accept that.²⁸¹ The officer also noted that the formal system had limited capacity to enforce rulings, and that

²⁶⁸ MINUSMA officer 12 (note 186).

²⁶⁹ UN Country Team officer 5 (note 156).

²⁷⁰ United Nations, Security Council (note 266).

²⁷¹ United Nations, Security Council (note 266).

²⁷² MINUSMA officer 22 (note 261); and United Nations, Security Council (note 266).

²⁷³ MINUSMA officer 22 (note 261).

²⁷⁴ MINUSMA officer 7 (note 140).

²⁷⁵ MINUSMA officer 10, Interview with authors, 7 Sep. 2020.

²⁷⁶ MINUSMA officer 10 (note 275).

²⁷⁷ Becker (note 35); and ARD, Inc. (note 35).

²⁷⁸ External expert 4 (note 164); and Benjaminsen and Ba (note 35).

²⁷⁹ External expert 4 (note 164).

²⁸⁰ MINUSMA officer 13 (note 149).

²⁸¹ MINUSMA officer 13 (note 149).

the different groups may have more respect for traditional means of resolving conflicts through dialogue.²⁸²

The increasing pressure on productive resources due to the effects of climate change, population growth and soil degradation can exacerbate disputes over land.²⁸³ While a greening trend has been observed in the Sahel since the 1980s, this trend may be localized as land use practices also affect vegetation patterns.²⁸⁴ Further, land degradation may occur on a smaller scale than is observable in satellite imagery.²⁸⁵ Indeed, local perceptions on greening in the Sahel indicate that, although there is increased vegetation, it is of lower quality.²⁸⁶

Finally, overlapping land governance systems can pose challenges for MINUSMA's mandate of supporting the restoration of state authority, especially if recurrent drought, and land degradation due to erratic rain and floods, increases scarcity and competition.

²⁸² MINUSMA officer 13 (note 149).

²⁸³ Drakenberg and Cesar (note 149), p. 4; External expert 13 (note 149); External expert 6 (note 149); MINUSMA officer 25 (note 8); MINUSMA officer 5 (note 149); MINUSMA officer 19 (note 149); MINUSMA officer 11 (note 149); UN Country Team officer 9 (note 149); and MINUSMA officer 13 (note 149).

²⁸⁴ Brandt et al. (note 106).

²⁸⁵ Dardel et al. (note 106).

²⁸⁶ Herrmann, Sall and Sy (note 106).

5. Institutional responses to climate-related security risks

Climate change is transforming the security context in Mali and affecting several aspects of MINUSMA's mandate. This section explains how the mission implicitly and explicitly works to address the impact of climate-related security risks in Mali.

Implicit responses

Several divisions within MINUSMA have responded to emerging climate-related security risks, often without being explicitly aware that they are doing so, and their response has been closely linked to the management of natural resources.²⁸⁷ For the mission as a whole, however, conflict sensitivity rather than climate sensitivity is the priority.²⁸⁸ This section presents a selection of responses from the Civil Affairs Division (CAD), the Office of Stabilization and Early Recovery, the Security Sector Reform (SSR) and DDR Section, the Mediation Unit, the Joint Mission Analysis Centre (JMAC) and the Joint Operations Centre (JOC) that all in some way respond to climate-related security risks. Naturally, these examples do not represent all the implicit responses by MINUSMA.

The Civil Affairs Division

Interviewees frequently noted that the CAD was involved in managing the challenges related to environmental change. This division has a presence in Bamako and field offices, and has regular discussions with Malians regarding why conflict occurs, what people fight over and how it can be prevented.²⁸⁹ Climate change and population growth are increasingly affecting the availability of natural resources and the CAD works to address the associated tensions or to pre-empt the potential for conflict.²⁹⁰ For example, the CAD works with land commissions to help manage conflict caused by unpredicted seasonal changes, particularly between herders and farmers.²⁹¹ It also encourages local communities to plant more trees to mitigate the impact of climate change, and these communities have organized groups to try to ensure that their actions do not have a negative impact on the environment.²⁹²

The effects of climate change have a direct impact on the work of the CAD. The division understands the challenges that climate change presents and discussions related to climate change revolve around the tensions it may generate

²⁸⁷ MINUSMA officer 2 (note 199).

²⁸⁸ MINUSMA officer 2 (note 199).

²⁸⁹ MINUSMA officer 2 (note 199).

²⁹⁰ MINUSMA officer 19 (note 149); and MINUSMA officer 18, Interview with authors, 21 Sep. 2020.

²⁹¹ MINUSMA officer 18 (note 290).

²⁹² MINUSMA officer 18 (note 290).

due to the scarcity of natural resources, rather than whether the availability of natural resources has changed over the past decade.²⁹³

The Office of Stabilization and Early Recovery

The Office of Stabilization and Early Recovery manages various financing mechanisms within MINUSMA, specifically quick impact projects (QIPs) and the Trust Fund for Peace and Security.²⁹⁴ QIPs are short-term projects intended to meet the ‘priority needs’ of local populations and increase confidence in MINUSMA and its mandate, as well as in the peace process.²⁹⁵ The trust fund is larger, with comparatively more significant projects reviewed by the Project Review Committee.²⁹⁶

In its work, the office responds indirectly to climate-related impacts.²⁹⁷ After floods in Kidal, for example, it was necessary to build a dam to prevent future disasters and MINUSMA worked with engineers to build one according to what the government said was needed.²⁹⁸ Smaller-scale QIPs, such as drilling wells or installing solar pumps, are another avenue to address challenges related to climate change in response to requests from the field.²⁹⁹

However, while QIPs may repair damage to infrastructure and address access to natural resources, one MINUSMA officer critiqued the model as environmentally unsustainable in some cases.³⁰⁰ For example, with approval from the Malian Government, the mission frequently drills boreholes in northern Mali. However, an increasing number of boreholes attracts an increasing number of people and livestock herds.³⁰¹ This in turn increases the demand for water and the increased livestock degrade the local vegetation.³⁰² The officer noted that if QIPs continue in this way, they may create long-term problems. At the same time, if QIPs are not implemented, the mission’s ability to quickly rehabilitate local infrastructure and provide for basic needs becomes diminished and this may lead, by extension, to serious humanitarian issues.³⁰³

While acknowledged in interviews, it is noteworthy that climate change and the environment are not discussed directly in reporting on the progress of the Office of Stabilization and Early Recovery, as mission and project timelines impede this.³⁰⁴ However, although the officer had not observed projects that accounted

²⁹³ MINUSMA officer 19 (note 149).

²⁹⁴ MINUSMA officer 23, Interview with authors, 23 Sep. 2020; and MINUSMA officer 24, Interview with authors, 1 Oct. 2020.

²⁹⁵ MINUSMA, ‘Quick impact projects (QIPs)’, [n.d.].

²⁹⁶ MINUSMA officer 15 (note 262).

²⁹⁷ MINUSMA officer 23 (note 294).

²⁹⁸ MINUSMA officer 23 (note 294).

²⁹⁹ MINUSMA officer 24 (note 294).

³⁰⁰ MINUSMA officer 24 (note 294).

³⁰¹ MINUSMA officer 24 (note 294).

³⁰² MINUSMA officer 24 (note 294).

³⁰³ MINUSMA officer 24 (note 294).

³⁰⁴ MINUSMA officer 24 (note 294).

for the future effects of climate change, it was noted that the mission had recently received new instructions to do so.³⁰⁵

The Security Sector Reform and Disarmament, Demobilization and Reintegration Section

Falling under the SSR and DDR Section, community violence reduction (CVR) programmes aim to tackle the conflict dynamics that communities experience. They are implemented in the short to medium term, with an overarching goal of sustaining peace.³⁰⁶ For example, projects may address access to water or land, gender issues, or youth at risk of being recruited into armed non-state groups.³⁰⁷ One MINUSMA officer described an instance in which a CVR project was implemented in Kidal to prevent conflicts around water access.³⁰⁸ The community had an old, poorly constructed, hand-powered well that was difficult for both people and livestock to use. In order to address this problem, the CVR project brought the community together to build a solar-powered well to serve people and livestock.³⁰⁹ A committee was set up, with a balance of representatives, including two women from each village, to discuss how to manage and maintain the well.³¹⁰ The same model was used to build 12 to 15 wells across Mali.³¹¹

The Mediation Unit

The Mediation Unit, within MINUSMA's Political Affairs Division, works to support the implementation of the peace agreement pursuant to UN Security Council Resolution 2531, and to provide support to the Malian Government and signatory parties.³¹² While climate change or natural resource issues are not explicitly accounted for in this goal, these challenges affect all pillars of the unit's work.³¹³ For example, in central Mali, the Mediation Unit tries to support regional governance structures in conflict mediation.³¹⁴ In such efforts, natural resources are involved not as a stand-alone issue but as part of conflict dynamics, since they are intertwined with livelihoods and traditions, as well as ethnic identity and ethnic relations.³¹⁵

In some cases, the Mediation Unit responds to natural resource-related disputes when they come to the attention of state authorities, or when they may have an impact on the peace process.³¹⁶ For example, when a dispute occurred between

³⁰⁵ MINUSMA officer 24 (note 294).

³⁰⁶ United Nations, Disarmament, Demobilization and Reintegration (DDR) Resource Centre, Integrated DDR Standards, '2.30 Community violence reduction'; MINUSMA officer 27, Interview with authors, 21 May 2020; UN Country Team officer 11 (note 180); and MINUSMA officer 14 (note 214).

³⁰⁷ MINUSMA officer 27 (note 306).

³⁰⁸ MINUSMA officer 14 (note 214).

³⁰⁹ MINUSMA officer 14 (note 214).

³¹⁰ MINUSMA officer 14 (note 214).

³¹¹ MINUSMA officer 14 (note 214).

³¹² MINUSMA officer 16, Interview with authors, 1 Sep. 2020; and MINUSMA officer 27 (note 306).

³¹³ MINUSMA officer 16 (note 312).

³¹⁴ MINUSMA officer 21, Interview with authors, 1 Sep. 2020.

³¹⁵ MINUSMA officer 21 (note 314).

³¹⁶ MINUSMA officer 21 (note 314).

increasingly sedentary Tuareg communities and mobile Fulani herders around Ménaka, the unit intervened. It gathered representatives from the communities to engage in dialogue in Bamako and held a workshop aimed at establishing a governance mechanism so that communities could manage these disputes.³¹⁷

Discussions specifically on climate-related security risks within the Mediation Unit take place on occasion. For example, officers within the unit considered climate-related security risks in the context of conflicts between the Dogon and the Fulani.³¹⁸ Yet they pointed out that these conversations are solution oriented rather than focused on the drivers. Questions are raised regarding how to tackle an issue and solutions are discussed that revolve around setting up governance mechanisms for communities to resolve that issue in the future.³¹⁹ Also, although raised internally, climate security is not specifically included in reporting. However, should a relevant concrete case arise, an officer acknowledged that they may, for example, be asked to draft a report to inform the secretary-general's report to the UN Security Council.³²⁰

The Joint Mission Analysis Centre and the Joint Operations Centre

The JMAC and the JOC provide analysis and information, respectively, for MINUSMA and its mandate.³²¹ The JMAC focuses on analysis for the SRSB and the mission's leadership, while the JOC provides situational awareness of issues that could affect implementation of the mandate, coordinates different branches of the mission and operates as the secretariat for crisis management.³²²

The regional offices of the JOC take environmental factors into account in their reporting.³²³ One MINUSMA officer explained that understanding how conflicts over natural resources in the centre have evolved, and how transhumance routes have changed, affects what the office does.³²⁴ The JOC also works with the JMAC and MINUSMA's Environment and Culture Unit to better understand these challenges.³²⁵

The JMAC assesses contextual challenges to achieving MINUSMA's mandate and addresses environmental change within the framework of this task.³²⁶ For instance, drought and rain are addressed in the JMAC's analysis because they can affect security, since armed non-state actors may take advantage of the situation.³²⁷

³¹⁷ MINUSMA officer 21 (note 314).

³¹⁸ MINUSMA officer 21 (note 314).

³¹⁹ MINUSMA officer 21 (note 314).

³²⁰ MINUSMA officer 21 (note 314).

³²¹ MINUSMA officer 4 (note 161); and MINUSMA officer 14 (note 214).

³²² MINUSMA officer 4 (note 161); and MINUSMA officer 14 (note 214).

³²³ MINUSMA officer 14 (note 214).

³²⁴ MINUSMA officer 14 (note 214).

³²⁵ MINUSMA officer 14 (note 214).

³²⁶ MINUSMA officer 4 (note 161).

³²⁷ MINUSMA officer 4 (note 161).

An explicit response: Greening the Blue Helmets

When it was established through UN Security Council Resolution 2100 in 2013, MINUSMA became the first mission required to ‘properly manage its environmental impact’.³²⁸ Therefore, although the mission anticipated and designed responses to manage its environmental impact, it took several years for the changes to take effect.

The start of MINUSMA closely followed the reception of the 2012 UN Environment Programme report ‘Greening the Blue Helmets’, in which the UN recognized the impact that peacekeeping missions can have on the natural environment. The report also highlighted the fact that the environment and natural resources can affect peacekeeping missions.³²⁹ Within MINUSMA, the Environment and Culture Unit focuses on reducing the mission’s potential negative environmental effects through, for example, waste management and water access.³³⁰ Among other things, the mission has created a regional environmental management system, which includes regional environmental committees and relevant policies and operating procedures.³³¹ It has also implemented environmental awareness training for staff.³³² In interviews, mission officers expressed how MINUSMA was keen to be environmentally friendly and mitigate the impact it might have on the environment and on local communities’ natural resources.³³³ However, while reflecting on some of MINUSMA’s efforts to do this, the interviews also indicated a lack of sustained commitment across the mission. For example, regular monthly environmental committee meetings were convened at one regional office, whereas six months could pass without a meeting at another.³³⁴ In addition, even when meetings were held, they were not attended regularly.³³⁵ Indeed, the 2019 internal audit of the implementation of the mission’s Environmental Action Plan noted that such meetings were not convened regularly and that the mission lacked capacity in terms of staff with environment specializations.³³⁶ Further research will be crucial to better understand the limitations and deficiencies in these areas.

³²⁸ MINUSMA (note 73).

³²⁹ UNEP, *Greening the Blue Helmets: Environment, Natural Resources and UN Peacekeeping Operations* (Nairobi: UNEP, 2012).

³³⁰ MINUSMA (note 73).

³³¹ United Nations, Office of Internal Oversight Services (note 244).

³³² United Nations, Office of Internal Oversight Services (note 244).

³³³ MINUSMA officer 15 (note 262); and MINUSMA officer 9 (note 140).

³³⁴ MINUSMA officer 12 (note 186); and MINUSMA officer 1 (note 164).

³³⁵ MINUSMA officer 1 (note 164).

³³⁶ United Nations, Office of Internal Oversight Services (note 244).

6. Limitations and recommendations going forward

Based on the analysis above, this section considers three limitations that MINUSMA faces in addressing climate-related security risks in its operations: (a) climate-related security risks are not a priority for the mission; (b) the mission lacks the capacity to address climate-related security risks; and (c) coordination between the mission and the UN Country Team is weak. Linked to these limitations, it then offers recommendations for MINUSMA, other UN missions in locations of high climate change exposure and the broader UN system, in order to help them account for and address climate-related security risks going forward.

Limitations of current responses to climate-related security risks

Prioritization and mandate

In light of the broader complexity of security in Mali, MINUSMA addresses climate-related security risks as and when they appear, rather than anticipating and preventing them.³³⁷ The mission's priorities correspond to those laid out by its mandate. As of 2020, these are supporting the implementation of the peace agreement, the protection of civilians and supporting the stabilization and restoration of state authority in the centre.³³⁸ To work towards achieving these priorities, MINUSMA has key tasks that are executed by different divisions, such as the SSR and DDR Section and the Protection of Civilians Unit.³³⁹ One MINUSMA officer noted that as the mandate does not explicitly target climate change and its effects on security, the mission does not directly address the issue.³⁴⁰ Longer-term challenges are addressed by the UN Country Team.³⁴¹

Indeed, the language and structure of the mandate affect the mission's ability to prioritize climate change. When climate change was first included in UN Security Council Resolution 2423 in 2018, it was positioned in the preamble rather than the mandated priority tasks. Although including it in the resolution implies that the mission must take it into consideration, according to one MINUSMA officer, the language used comprised 'classic watering down terms that people use to get consensus', such as 'noting the importance' and 'as appropriate'.³⁴² Furthermore, in the resolutions renewing the mission's mandate in 2019 and 2020, the framing of climate change weakened in comparison to the 2018 resolution since 'noting the importance' and 'as appropriate' were removed.³⁴³

³³⁷ MINUSMA officer 27 (note 306).

³³⁸ MINUSMA officer 27 (note 306).

³³⁹ MINUSMA officer 27 (note 306).

³⁴⁰ MINUSMA officer 27 (note 306).

³⁴¹ MINUSMA officer 27 (note 306).

³⁴² MINUSMA officer 2 (note 199).

³⁴³ MINUSMA officer 2 (note 199).

As the mandate requires MINUSMA to deliver on a number of tasks with limited resources, it is difficult to address issues outside those designated as priorities.³⁴⁴ Managers must align resources with the mandate and report back to the UN Security Council on the most important items—the ‘thou shalt’, rather than the ‘take note’,³⁴⁵ Thus, the current structure and language of the mandate make directly prioritizing climate change a challenge for the mission.³⁴⁶ In order to focus on climate change, it would be necessary to change the flexibility and time frame of budgets, as well as their priorities.³⁴⁷

Nevertheless, increasing the priority of climate-related security risks is important for fulfilling MINUSMA’s mandate, because the effects of climate change have both direct and indirect implications for the mission. The direct implications are most clearly illustrated through the challenges that extreme weather events create for the mission’s operations and logistics, and in turn for accomplishing the mandate. The indirect implications are most clearly illustrated through the effects of climate change on Malians’ natural resource-dependent livelihoods and their interaction with poor governance and weak economic development. The alternative options in which people engage to supplement their livelihoods as a result pose challenges for supporting the implementation of the peace agreement and supporting the restoration of state authority in the centre, both of which are core aspects of MINUSMA’s mandate.

Capacity

Although interviewees identified climate change as a factor affecting Mali and its conflict dynamics, they also raised the lack of capacity to clearly identify climate-related security risks and do anything about them within MINUSMA. In some divisions, officers can clearly observe how climate-related security risks are affecting their work, but they have to deal with immediate crises and do not have the capability to address everything.³⁴⁸ As one officer stated, ‘We have a lot to do, little [resources]’.³⁴⁹ Another officer was unsure if the mission had the means to generate a sustainable response in terms of climate change, referring to the fact that MINUSMA was created with a mandate specifically related to the conflict in Mali.

While climate change has an impact on everything, including the mission’s mandate, there are no significant provisions to address it sustainably.³⁵⁰ MINUSMA could support the state and other parties in addressing climate change, but it is unable to take the lead on a sustainable solution, and some interviewees suggested that the UN Country Team should instead.³⁵¹ One officer, while noting the

³⁴⁴ MINUSMA officer 2 (note 199).

³⁴⁵ MINUSMA officer 2 (note 199).

³⁴⁶ MINUSMA officer 2 (note 199).

³⁴⁷ MINUSMA officer 6, Interview with authors, 31 Aug. 2020.

³⁴⁸ MINUSMA officer 10 (note 275); MINUSMA officer 5 (note 149); and MINUSMA officer 28, Interview with authors, 7 Sep. 2020.

³⁴⁹ MINUSMA officer 1 (note 164); and MINUSMA officer 2 (note 199).

³⁵⁰ MINUSMA officer 22 (note 261).

³⁵¹ MINUSMA officer 22 (note 261).

importance of raising awareness and mainstreaming climate change throughout MINUSMA's activities, suggested that UN agencies would be better positioned to tackle this.³⁵² The same officer pointed out that although the mission discusses climate change, it is not addressed as an issue in and of itself; rather, discussions revolve around social cohesion and reconciliation.³⁵³

Nevertheless, building capacity within MINUSMA—or at least awareness and understanding across all the mission's divisions—of climate-related security risks is important. This is because a large majority of Malians are engaged in agriculture, which is heavily dependent on favourable climatic conditions. Changes to these favourable conditions create security risks that challenge the mission's mandate. If each division within MINUSMA understands what the risks are and how climate change exacerbates them, it can at least better address the consequences as part of fulfilling the mission's mandate and (aspirationally) plan for how to address them.

Coordination between MINUSMA and the UN Country Team

While several UN agencies within the UN Country Team are focused on specific aspects of climate-related security risks, coordination between MINUSMA and the UN Country Team is often problematic. Coordination is the role of the DSRSG/RC/HC, with the ISF providing the strategy to guide the mission and the team's integrated approach.³⁵⁴ Although the ISF promotes collaboration between MINUSMA and the UN Country Team, tensions between security and humanitarian actors frequently arise given their different core values and this hinders integrated work.³⁵⁵ For example, if the security situation requires a military escort for humanitarian actors to enter certain areas and they refuse association with military actors, they will not be able to access those areas.³⁵⁶ Indeed, for a period of time, humanitarian actors in Mali found it difficult to position themselves in relation to MINUSMA, but this relationship appears to have improved.³⁵⁷ Another problem seems to be that coordination mechanisms are viewed more as a formality than as an asset in promoting efficiency and action. In the view of one UN Country Team officer, there is too much coordination of the activities of the team and MINUSMA through the many mechanisms that exist.³⁵⁸

Furthermore, coordination between UN agencies within the UN Country Team seems to be problematic for a number of reasons. While there is 'fertile ground for cooperation in Mali', cooperation can be challenging because of competing priorities and access to financial resources.³⁵⁹ Further, when agencies do attempt

³⁵² MINUSMA officer 1 (note 164).

³⁵³ MINUSMA officer 1 (note 164).

³⁵⁴ United Nations System in Mali (note 65), p. 6; and External expert 8 (note 183).

³⁵⁵ MINUSMA officer 21 (note 314); MINUSMA officer 5 (note 149); UN Country Team officer 1, Interview with authors, 28 Apr. 2020; UN Country Team officer 8, Interview with authors, 16 June 2020; and MINUSMA officer (former) 3 (note 140).

³⁵⁶ MINUSMA officer (former) 3 (note 140).

³⁵⁷ MINUSMA officer 5 (note 149).

³⁵⁸ UN Country Team officer 2, Interview with authors, 8 May 2020.

³⁵⁹ UN Country Team officer 9 (note 149).

to work together, inadequate funding impedes implementation that would affect real change.³⁶⁰ UN agencies are also focused on achieving their individual mandates, so they tend to partner with other UN agencies that have similar ones.³⁶¹ This means that while it may be beneficial for agencies with different mandates to cooperate, such cooperation may not take place.

Despite the difficulties of coordinating between MINUSMA and the UN Country Team, and between agencies within the team, coordination is important in addressing climate-related security risks because different actors have different knowledge bases. For example, if the Mediation Unit, in partnership with the Malian Government, is engaged in supporting reconciliation processes surrounding conflicts over natural resources, having knowledge from other actors is beneficial. Those who understand how climate change will affect the availability of natural resources in the future could help in designing conflict resolution mechanisms that can cope with a potential increase in the number and rate of future conflicts. Ultimately, such coordination will help MINUSMA in its priority task of supporting the restoration of state authority in both the short and long term.

Recommendations for MINUSMA

Factor climate security into the ISF

The ISF, which outlines the five areas that MINUSMA works on with the UN Country Team, does not incorporate climate change and climate-related security risks. As climate security issues typically suffer from the problem that no one is directly responsible for them, the ISF should provide a strategic platform to explicitly include climate security. In doing so, it would define the roles and responsibilities of the mission and the country team vis-à-vis climate security, enable the generation of synergies between the interventions of different agencies and enhance information sharing between agencies.

Appoint an environmental security adviser

Appointing an environmental security adviser could serve to address the prioritization of, and capacity to address, climate-related security risks. Such an adviser would be a focal point and provide all of MINUSMA with analysis on how climate change and environmental degradation can affect the social and conflict dynamics in Mali, and in turn how the mission can address these through its various divisions. Housed within the office of the DSRSG/RC/HC, the environmental security adviser could also work with the JMAC—which is able to analyse in the medium term and already accounts for environmental change in its analysis—to directly provide analysis to the mission's leadership. Furthermore, the adviser could provide input for the secretary-general's report to the UN Security Council, stressing the need to identify operational responses to the security implications of

³⁶⁰ UN Country Team officer 2 (note 358).

³⁶¹ UN Country Team officer 2 (note 358).

climate change in the mission's mandate. Lastly, the adviser would have the added value of working with the UN Country Team to ensure that coordination between the mission and the team, at least on issues pertaining to climate-related security risks, is effective and efficient. Recognizing the risks climate change exerts on the mission, MINUSMA should request support for the position of an environmental security advisor in its annual budget plan.

Provide training in climate security analysis and responses

There is a need for training courses to sensitize staff across MINUSMA to climate-related security risks, especially within divisions that routinely address inter- and intracommunal conflict, such as the CAD and the Mediation Unit. It is notable that there was a vague understanding of climate change and its risks throughout the interviews, but interviewees often conflated climate change with natural resource issues. While the mission addresses immediate crises, its mandate of supporting the restoration of state authority and the implementation of the peace agreement are long-term processes affected by the security risks that the effects of climate change create. In addition, the immediate crises that MINUSMA addresses can be a product of long-held grievances that erupt in violence or encourage recruitment into armed non-state actors.

Building capacity through training in climate-related security risks will enable staff to be more aware of how climate change could affect conflict dynamics and citizens' grievances. It might also provide opportunities to find more adequate solutions. Importantly, training should be informed by local knowledge, experience and traditional practices, so that responses are sustainable and appropriate for the context in which they are being implemented, especially in Mali where people have been adapting to and coping with climatic changes historically. In additional iterations, training courses should include governments and donors represented in Bamako to better incorporate them into the conversations.

Recommendations for UN missions in locations of high climate change exposure

Map awareness of climate security issues across UN missions

Mapping the awareness of climate-related security risks among staff in UN missions in locations of high climate change exposure would generate an understanding of where there are gaps in a mission's knowledge and how such risks apply to the context in which it is operating. Understanding where these deficiencies are in the early stages of a mission's work creates an opportunity to strengthen prevention and address them through training and capacity building. Regional offices of the UN Department of Political and Peacebuilding Affairs (DPPA), such as the UN Office for West Africa and the Sahel, the UN Regional Office for Central Africa and the Office of the Special Envoy Horn of Africa, could be key focal points and work closely with the CSM to map and anticipate climate-related security risks in the respective regions. This information would be valuable for UN actors working

in the regions in both mission and non-mission settings, in order to raise awareness and better integrate the consideration of climate-related security risks into their work.

Provide training in climate-related security risks and responses

Once awareness has been mapped across a mission and deficiencies have been identified, training in and sensitization to climate-related security risks that are specific to the mission's operating context could be used to supplement staff knowledge. In addition, staff could be trained in how to integrate climate-related security risks into their analysis and reporting. As noted above, understanding climate-related security risks and their impact on a mission's mandate allows for the implementation of appropriate responses to pre-empt negative effects on the mandate. The CSM is a critical knowledge hub for advising on the design and content of such training. As a joint initiative between the DPPA, the UN Development Programme and the UN Environment Programme, the CSM aims to help the UN address climate-related security risks more systematically by devising prevention and management strategies. Through regional offices and in cooperation with environmental security advisers in the field, it can support knowledge exchange and learning between different missions. If its toolbox is developed further, the CSM should actively engage and advise existing peacekeeping training centres, in order to support the inclusion of climate-related security risks in existing training courses.

Recommendations for the broader UN system

Increase knowledge within the DPPA and the DPO

Given the centrality of both the DPPA and the UN Department of Peace Operations (DPO), building their knowledge and awareness of climate-related security risks is also imperative for the broader UN system. Climate-related security risks touch on all five of the DPPA's focus areas, to varying degrees.³⁶² Similarly, such risks have implications for the DPO's peacekeeping missions, both in terms of logistics and operations and the missions' mandates, as the findings on MINUSMA and the UN Assistance Mission in Somalia illustrate.³⁶³ Moreover, recognition and increased knowledge of climate-related security risks within these two departments will help inform central parts of the UN system, including, but not limited to, the Peacebuilding Commission and the Special Committee on Peacekeeping Operations, which is a prerequisite for better, more long-term funding strategies.

³⁶² United Nations, Political and Peacebuilding Affairs (DPPA), 'What we do', [n.d.]. The DPPA's five focus areas are: (a) ensuring sound analysis and early warning; (b) preventing conflict and engaging in peacemaking; (c) managing political crises and violent conflicts; (d) sustaining peace; and (e) enhancing partnerships.

³⁶³ Eklöv and Krampe (note 2).

Provide long-term, flexible funding streams

As several interviewees noted, the effects of climate change and the security risks they create are long-term problems that are not necessarily suited to a short timescale and short-term funding cycle. They also cut across sectors and different UN agencies' mandates. In addition, it is likely that the UN system will maintain a sustained engagement in Mali. As such, the funding streams should align with the nature of the risks that need to be addressed. While the chance of success might be limited in the short term, better information provision to central organs, such as the Peacebuilding Commission and the Special Committee on Peace Operations, would support the realignment of broader funding streams to better respond to the changing security landscape. Multi-year funding that cuts across UN agencies, including those with different mandates, could improve coordination within the UN Country Team and provide a sustained source of financial resources to address climate-related security risks, thus supporting long-term peacebuilding processes in Mali.

The UN Peacebuilding Fund has taken on climate security in recent years, and this will support short-term action. However, climate-related security risks should be more centrally and directly embedded in mission budgets, since the Peacebuilding Fund's role is intended to be catalytic, with other donors continuing what it has started.³⁶⁴ Furthermore, broader action by the UN Economic and Social Council, the Security Council and the secretary-general will be as important as revised funding agreements and commitments by donors.

³⁶⁴ External expert 8 (note 183).

Appendix A. Precipitation and drought-incidence trends in Mali

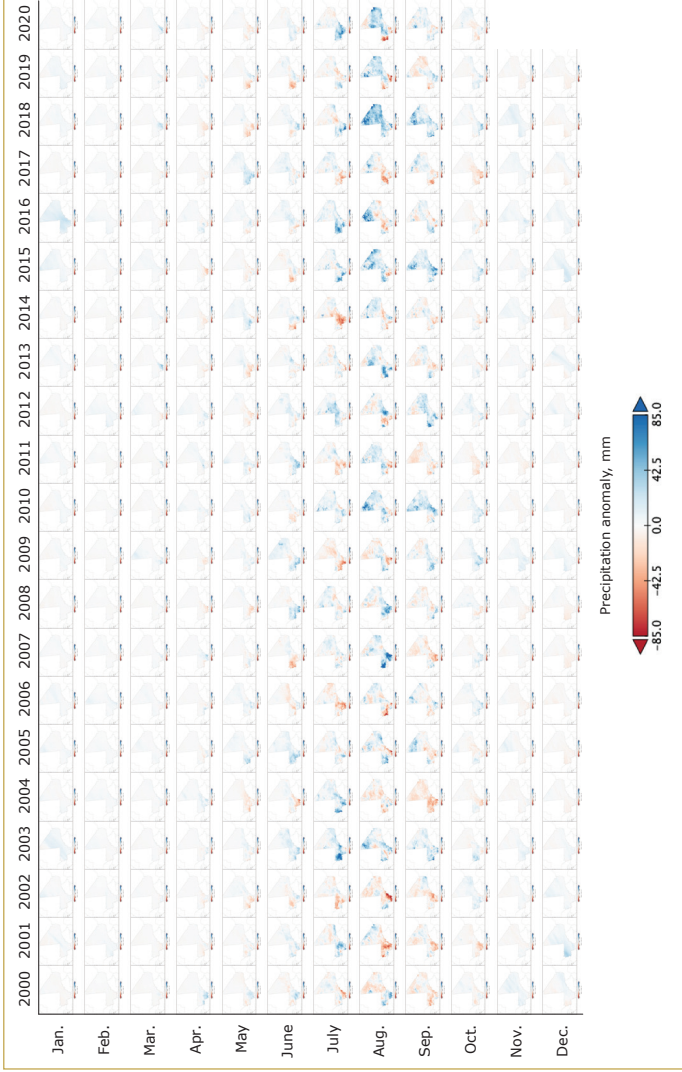


Figure A.1. Precipitation anomalies in Mali, 2001–2020

Sources: Tarnavsky, E. et al., 'Extension of the TAMSAT Satellite-based Rainfall Monitoring over Africa and from 1983 to present', *Journal of Applied Meteorology and Climatology*, vol. 53, no. 12 (2014); and Maidment, R. et al., 'The 30 year TAMSAT African Rainfall Climatology And Time series (TARCAT) data set', *Journal of Geophysical Research*, vol. 119, no. 18 (2014).

Credit: Hugo Ahlenius, Nordpil, <<https://nordpil.se/>>.

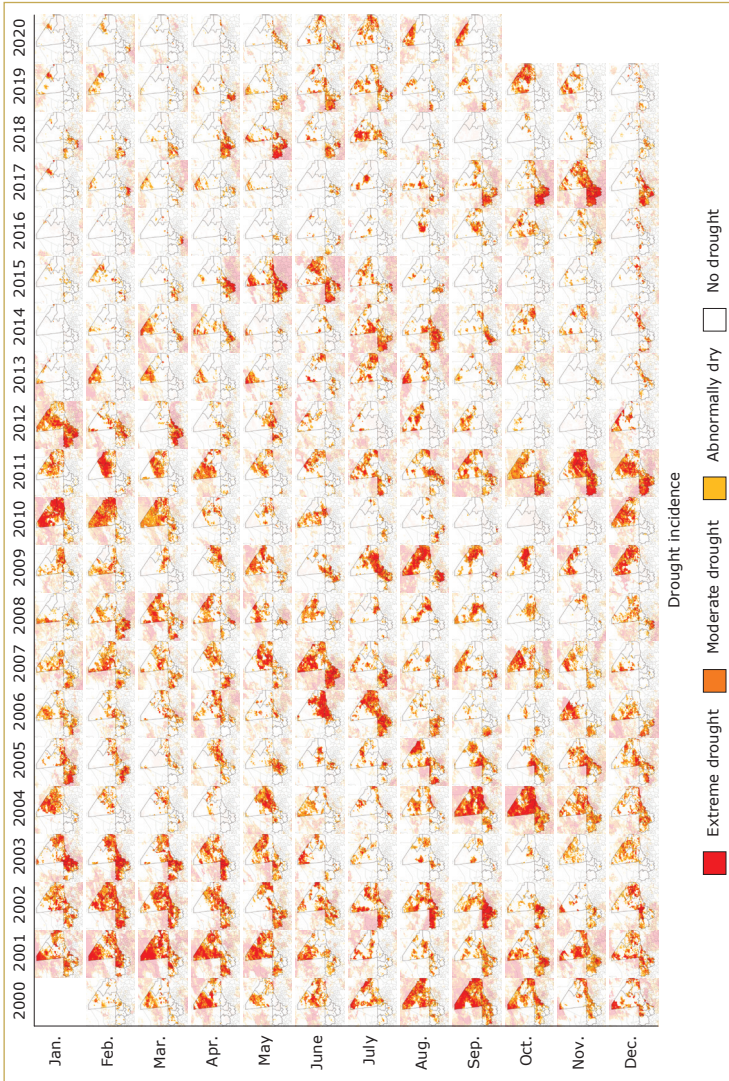


Figure A.2. Drought incidence in Mali, 2000–2020

Source: Tarnavsky, E. et al., ‘Extension of the TAMSAT Satellite-based Rainfall Monitoring over Africa and from 1983 to present’, *Journal of Applied Meteorology and Climatology*, vol. 53, no. 12 (2014); and Maitment, R. et al., ‘The 30 year TAMSAT African Rainfall Climatology And Time series (TARCAT) data set’, *Journal of Geophysical Research*, vol. 119, no. 18 (2014).

Credit: Hugo Ahlenius, Nordpil, <<https://nordpil.se/>>.

Appendix B. Climate and environment references in United Nations Security Council resolutions

Table B.1. Climate and environment references in United Nations Security Council resolutions since 2018

Resolution	Reference
Resolution 2423, 28 June 2018	<p><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 <i>emphasizing</i> 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)</p> <p><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)</p> <p><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. 17)</p> <p><i>Encourages</i> all relevant United Nations agencies, as well as regional, bilateral and multilateral partners to provide the necessary support to contribute to the implementation of the Agreement by the Malian parties, in particular its provisions pertaining to socioeconomic, cultural and environmental development (p. 7)</p>
Resolution 2480, 28 June 2019	<p><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)</p> <p><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)</p>
Resolution 2531, 29 June 2020	<p><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)</p> <p><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)</p>

MINUSMA = United Nations Multidimensional Integrated Stabilization Mission in Mali.

Table B.2. Environment references in United Nations Security Council resolutions before 2018

Resolution	Reference
Resolution 2100, 25 Apr. 2013	<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 June 2014	<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)
Resolution 2227, 29 June 2015	<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 June 2016	<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 June 2017	<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)

MINUSMA = United Nations Multidimensional Integrated Stabilization Mission in Mali.

Appendix C. Interviews and correspondence

Table C.1. Overview of interviews and correspondence with regional experts and peacebuilding officials as part of the SIPRI study on climate-related security risks and peacebuilding in Mali

Interviewee	Communication with authors	Date
External expert 1	Interview	29 May 2020
External expert 2	Interview	13 May 2020
External expert 3	Interview	14 May 2020
External expert 4	Interview	7 May 2020
	Correspondence	11 Nov. 2020
External expert 5	Interview	12 Apr. 2020
External expert 6	Interview	26 June 2020
External expert 7	Interview	18 June 2020
External expert 8	Interview	19 May 2020
External expert 9	Interview	4 May 2020
External expert 10	Interview	14 May 2020
External expert 11	Interview	2 June 2020
External expert 12	Interview	15 May 2020
External expert 13	Interview	29 Apr. 2020
External expert 14	Interview	15 Sep. 2020
External expert 15	Correspondence	16 Feb. 2021
French diplomatic source	Interview	7 July 2020
MINUSMA officer 1	Interview	14 Sep. 2020
MINUSMA officer 2	Interview	13 Oct. 2020
MINUSMA officer (former) 3	Interview	25 May 2020
MINUSMA officer 4	Interview	5 Oct. 2020
MINUSMA officer 5	Interview	7 Sep. 2020
MINUSMA officer 6	Interview	31 Aug. 2020
MINUSMA officer 7	Interview	4 Sep. 2020
MINUSMA officer (former) 8	Interview	1 June 2020
MINUSMA officer 9	Interview	30 Sep. 2020
MINUSMA officer 10	Interview	7 Sep. 2020
MINUSMA officer 11	Interview	16 June 2020
MINUSMA officer 12	Interview	28 May 2020
MINUSMA officer 13	Interview	28 Aug. 2020
MINUSMA officer 14	Interview	7 Oct. 2020
MINUSMA officer 15	Interview	16 Sep. 2020
MINUSMA officer 16	Interview	1 Sep. 2020
MINUSMA officer 17	Interview	28 Aug. 2020

Interviewee	Communication with authors	Date
MINUSMA officer 18	Interview	21 Sep. 2020
MINUSMA officer 19	Interview	25 Sep. 2020
MINUSMA officer 20	Interview	9 Oct. 2020
MINUSMA officer 21	Interview	1 Sep. 2020
MINUSMA officer 22	Interview	4 Sep. 2020
MINUSMA officer 23	Interview	23 Sep. 2020
MINUSMA officer 24	Interview	1 Oct. 2020
MINUSMA officer 25	Interview	2 Sep. 2020
MINUSMA officer 26	Interview	11 Sep. 2020
MINUSMA officer 27	Interview	21 May 2020
MINUSMA officer 28	Interview	7 Sep. 2020
UN Country Team officer 1	Interview	28 Apr. 2020
UN Country Team officer 2	Interview	8 May 2020
UN Country Team officer 3	Interview	8 May 2020
UN Country Team officer 4	Interview	13 May 2020
UN Country Team officer 5	Interview	15 May 2020
UN Country Team officer 6	Interview	18 May 2020
UN Country Team officer 7	Interview	26 May 2020
UN Country Team officer 8	Interview	16 June 2020
UN Country Team officer 9	Interview	23 June 2020
UN Country Team officer 10	Interview	23 June 2020
UN Country Team officer 11	Interview	22 Sep. 2020
UN Country Team officer 12	Interview	12 June 2020
UN Country Team officer 13	Interview	7 May 2020

MINUSMA = United Nations Multidimensional Integrated Stabilization Mission in Mali;
 UN = United Nations.

Climate-related Security Risks and Peacebuilding in Mali

Climate-related security risks are changing the security landscape in which multilateral peacebuilding efforts are taking place. Following a similar assessment of the United Nations Assistance Mission in Somalia in 2019, this policy paper offers another glimpse into the future of peacebuilding in the context of climate change, this time by providing an in-depth assessment of the UN Multidimensional Integrated Stabilization Mission in Mali (MINUSMA).

Climate change in Mali has affected natural resource-based livelihoods and contributed to undermining human security in a context of conflict and weak governance. Furthermore, the compound character of climate change is an increasingly strong factor that reshapes social, political and economic contexts, thereby potentially amplifying local grievances and marginalization. These interactions all contribute to hindering MINUSMA's efforts to support peace and stability in Mali.

MINUSMA, however, explicitly and implicitly responds to climate-related security risks. For example, its divisions address natural resource-related conflicts, supporting peace and stability in a context where natural resources are often crucial to livelihoods and human security. MINUSMA also works to reduce its own potential negative environmental impact. Nevertheless, it faces three main limitations in addressing climate-related security risks: prioritization of the issue vis-à-vis the mandate, limited capacity within the mission, and coordination challenges between the mission and the UN Country Team.

By analysing how climate change affects MINUSMA's mandate, and the mission's responses to it, the insight offered in this paper suggests the need for increased knowledge, training and prioritization surrounding climate security. This applies not only to MINUSMA, but also to other missions located in areas of high climate change exposure, and more generally to the broader UN system.

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