

How does climate exacerbate root causes of conflict in Mali? An impact pathway analysis

Pathway #1: Resource availability and livelihood insecurity

(I) Climate change and variability have the potential to impact resource availability and environmental conditions, strongly impacting climate-sensitive livelihoods such as agriculture, livestock, and fishing. Changes in climate, along with other factors such as population growth, migration, environmental degradation, and the poor management of resources as well as land-grabbing, rent-seeking, and power dynamics, can contribute to increasing the competition over the use and access over land and water resources, reducing levels of social cohesion, and increasing conflicts between and among different livelihood groups.

(II) The impact of climate change and variability on resource availability and environmental conditions that strongly impact climate-sensitive livelihoods can also increase local grievances, incrementing prospects for the recruitment of NSAGs who offer an economic opportunity to the vulnerable local population affected by poverty, unemployment, and food insecurity.

Pathway #2: Farmer-herder conflict

The increasing variability in climate and the rise in the number of extreme weather events, including droughts and floods, will further impact land, water, and food systems, decreasing both agricultural and livestock production and productivity. These changes will particularly impact pastoralists because of the reduced pasture and water availability which forces them to change the timing and direction of their usual routes. These changes can trigger various disputes between farmers and herders, especially in the southern regions where there is a general lack of demarcated livestock corridors and pastureland with access to water sources.

#Pathway 3: Mobility and resource competition in the South

The increasing climate variability and a rise in the number of extreme weather events such as droughts and floods will contribute to exacerbating and altering migration trends. Seasonal and circular migration from the central and northern regions towards the South, a typical resilience strategy, is changing towards a more permanent migration influenced by increasing levels of violence and insecurity which strongly undermines the capacity to adapt and mitigate the effects of the climate crisis. The new type of migration and the influx of IDPs, along with existing high population growth, environmental degradation, and other socio-economic factors, may increase competition over natural resources and create conflict between migrants and host communities in the South.

1. Objective and research questions

The Impact Pathway Analysis (IPA) aims to identify, describe, and represent the complex and non-linear interactions between climate, conflict, and existing vulnerabilities and risks with a special focus on food, land, and water systems. In particular, the IPA intends to address the following questions:

- What are the potential climate security pathways through which climate may act as a threat multiplier?
- Which specific vulnerabilities and risks, that are at the heart of insecurity and conflict, may be exacerbated by the climate crisis?
- How can dimensions such as natural resources, livelihoods, mobility, governance and food, land, and water systems, inform climate security pathways in specific contexts?

2. Methods and data

The IPA follows a systematic literature search and review to find, collate, analyse and synthesize insights from relevant knowledge products, including reports, policy briefs, fact sheets from grey literature, as well as books, journal articles, and other sources of documented evidence in academic literature and public media. The construction of a narrative is then followed by consultation with a designated set of experts and stakeholders through interviews and written feedback to gather evaluation and incorporate suggested revisions.

3. Results

3.1. Political and institutional risks

The effects of the climate crisis will impact an extremely fragile context characterised by armed conflict and strong political and socio-economic vulnerabilities. Since achieving its independence in 1960, Mali experienced three decades of authoritarian rule, including the socialist regime of Modibo Keita as well as the military regime of Moussa Traoré, followed by three decades of democratic rule since the 1991 revolution established a multi-party system (IMRAP and Interpeace 2015). Despite the democratic progress, the government and the state institutions continued to be marked by corruption, weak governance, and centralised rule (Bastagli and Toulmin 2014).

Mali is home to many different ethnic groups and communities, including the Bambara, the Malinke, the Songhay, the Fulani, the Soninke, the Arabs, and the Tuareg. In different times of history, these groups have created and run different autonomous political structures in part of the current territory of Mali¹ and despite the interaction, association, and exchanges between the different ethnic groups, each community has preserved many elements of its cultural heritage, including languages, customs, and traditions which are now embedded within the rich ethnocultural mosaic of the Malian society and state (IMRAP and Interpeace 2015; Ki-Zerbo 2011). The French colonial rule, as well as the different post-colonial governments, were responsible for exacerbating historical tensions between the north and the south, introducing regional disparities and grievances that were particularly felt by the Arabs and the Tuareg whose livelihood was increasingly undermined while being economically and politically marginalised (Chauzal and van Damme 2015; Hegazi, Krampe, and Smith 2021; Mongay Font and Alonso Meneses 2002). These grievances eventually led to tensions against the French colonial power first and to a series of recurring armed insurrections in 1963, 1991, 2006, and, the most recent one, 2012 (Chauzal and van Damme 2015; Kone 2017).

¹ Including empires such as the Ghana, Mali, Songhay or Macina Empire, kingdoms such as the Kéné Dougou or the Kingdom of Ségou as well as small confederations such as the *Kel Adagh* and the *Kel Ataram* (IMRAP and Interpeace, 2015; Mongay Font and Alonso Meneses, 2010; Ki-Zerbo, 2011).

3.2. Pre-existing conflict and security risks

In 2012 Mali witnessed an upsurge of the armed conflict with a new Tuareg rebellion followed by a proliferation of armed groups, including secessionist and jihadist movements, among others (Lecocq and Klute 2019; Hegazi, Krampe, and Smith 2021). The intensification of the armed conflict has critically damaged the Malian economy and society, worsening socio-economic and political vulnerabilities that were already present and that are part of the root causes of the conflict such as poverty, food insecurity, economic and political marginalisation, and regional inequalities (WFP 2020; World Bank 2015; Bastagli and Toulmin 2014; NUPI and SIPRI 2021). Despite the economic growth, the job market is characterised by high informality, low wages, and high unemployment, especially among the youth which creates the conditions for the recruitment of non-state armed groups (NSAGs) (Bastagli and Toulmin 2014; Théroux-Bénoni et al. 2016). The conflict context and the proliferation of NSAGs has helped to strengthen and enlarge illicit economy and criminal activities which go from the contraband of fuel, manufactured goods, and foodstuffs to human, drugs, and arms trafficking. While being a source of livelihood for some people that lack of economic alternatives, illicit economies have a highly destabilising effect, providing a source of income for NSAGs and accentuating existing vulnerabilities (Tinti 2014; Bastagli and Toulmin 2014). More recently, the instability of the country has further increased with the 2020 and the 2021 military coups that have been condemned by the international community (Ahmed and Petesch 2020).

3.3. Socio-economic risks

Despite the notable economic growth, Mali still suffers from poverty and food insecurity. Around 78% of its population lives in poverty –47% of the total population lives in extreme poverty- and 18% of the citizens suffer from food insecurity which particularly affects the north and central regions (The World Bank 2021; WFP 2020; 2021). Meanwhile, with one of the highest population growth rates in the world, the population is likely to continue growing. The total population of Mali has increased from 5.3 million in 1960 to 20.3 million in 2020 and it is projected to reach 27 million by 2030 and 44 million by 2050 (UNFPA 2020). This is likely to put additional stress on natural resources and contribute to environmental degradation (Nagarajan 2020; UNFPA 2020). Taking into consideration population growth estimates, per capita water availability is estimated to suffer a 77% decline by 2080 (Tomalka et al. 2020).

3.4. Climate exposure and impacts

Mali is a landlocked country that is part of the Sahel, one of the most climate-vulnerable regions in the world. It is highly vulnerable to climate disruptions while having a low level of readiness (University of Notre Dame 2019). However, the exposure and vulnerability vary across the country where we can find three main climate zones, including the desertic north which is part of the Sahara Desert, the Sahelian centre which has a relatively dry climate, and the Sudanian South which annually receives around 1,400mm of rainfall (Ministre de l'Environnement, de l'Assanissement et du Développement Durable 2017).

Changes in climatic conditions are not something new in Mali. Since 1960 there has been an overall increase in annual temperature of 0.7°C. The country has experienced five major drought episodes between 1987 and 2007 as well as devastating flood events (USAID 2018). However, this trend is likely to accelerate in the future with an increasing climate variability and a rise in the number of extreme weather events, including droughts and floods (Ministre de l'Environnement, de l'Assanissement et du Développement Durable 2017; USAID 2018; Nagarajan 2020). Temperatures are estimated to increase

between 1.4°C and 2.05°C by 2050 while annual precipitations are projected to decline between 2.5% and 12.5% by 2050. In this case, a decrease of more than 10% in annual rainfall would entail a drought episode for the country (Ministre de l'Environnement, de l'Assainissement et du Développement Durable 2017).

These changes in climate are likely to severely impact the Malian economy and society which is extremely dependent on climate-sensitive sectors such as agriculture, livestock, fisheries, and forestry (Ministre de l'Environnement, de l'Assainissement et du Développement Durable 2017; FAO 2021). Agriculture and livestock alone employ nearly 80% of the workforce and accounts for 40% of the GDP and around 75% of the exports (Ministre de l'Environnement, de l'Assainissement et du Développement Durable 2017).

Impact on agriculture

The combined effect of a rise in temperatures and rainfall variability is likely to result in reduced yields in the foreseeable future (USAID 2018; 2019). Some staple crops such as millet, sorghum, and maize as well as some cash crops such as cotton will see their productivity reduced (USAID 2019; Ministry of Foreign Affairs of the Netherlands 2018). This is particularly worrisome considering that 95% of Malian agriculture –mostly subsistence farming- is rainfed, making it extremely vulnerable to climate variability (USAID 2018). The overall effect of climate change and variability is likely to worsen food insecurity, malnutrition, poverty, and poor health (Nagarajan 2020; USAID 2019).

Impact on livestock

The effects of the climate crisis are likely to adversely impact the livestock industry, another key Malian economic sector that contributes to 7.9% of the GDP and is characterised by an extensive livestock system in which 75% of the livestock is part of transhumant herds (Ministre de l'Environnement, de l'Assainissement et du Développement Durable, 2018). The increase in temperatures and the decline in precipitations are projected to reduce livestock animal weight between 14 and 16% and decrease forage yields between 5 and 36% (Ministry of Foreign Affairs of the Netherlands 2018). Likewise, climate is also predicted to affect livestock by increasing the mortality and the prevalence of diseases in the animals as well as reducing livestock productivity. The outcome is likely to increase food insecurity, malnutrition, and poverty (Nagarajan 2020; USAID 2018).

3.5. Climate security pathways

In this context, there are multiple pathways through which climate could act as a threat multiplier in Mali, exacerbating existing socio-economic risks and vulnerabilities and potentially aggravating instability, insecurity, and violence (Figure 1).

#Pathway 1: Resource availability and livelihood insecurity

In the last decades, Mali has witnessed an increase in the competition over the access and use of natural resources by different livelihood groups. These groups are often associated with specific ethnic groups which has led to an overlap between conflict lines and the articulation of narratives that also draw from historical grievances of each ethnic group. For instance, there are considerable tensions between Tuareg and Fulani pastoralist communities over the control of pasture and water resources for their livestock (Nagarajan 2020). Fulani herders have also had confrontations with Dogon and Bambara farmers (Nagarajan 2020; Benjaminsen and Ba 2009; Hegazi, Krampe, and Smith 2021). The Tuareg have had tensions with the Songhay farmer communities. The Tuareg have been historically associated with insecurity because of their raiding against sedentary communities such as the Songhay while these have

been involved in forming government-supported anti-Tuareg militias to fight the various Tuareg rebellions (Chauzal and van Damme 2015).

The uneven access to natural resources has often been cited as one of the main drivers of conflict between the different livelihood groups (Benjaminsen et al. 2012; Ursu 2018). The lack of governance and the presence of corruption which are at the heart of the poor management of resources that affect the different livelihood groups are also root causes of local conflict (Benjaminsen and Ba 2009; Benjaminsen et al. 2012; Ursu 2018). The weakness of conflict resolution mechanisms is also a contributing factor to the conflict. While formal justice is perceived as costly, inefficient, and corrupt, customary justice imparted by local authorities such as the *jowros* and village chiefs lacks enforcement capacity to implement their verdicts partly because of the insufficient support from the national government (Ursu 2018; Benjaminsen et al. 2012). The fragility of the state, the lack of governance, and the inability to provide justice and security has created mistrust towards the government in the central and northern regions where people tend to rely on smaller units of governance such as family, clan, ethnic group, and even armed groups to meet those needs (Ibrahim and Zapata 2018; Hegazi, Krampe, and Smith 2021; Walch 2018).

Without adequate climate mitigation and adaptation strategies, the impact of the climate crisis may contribute to exacerbating existing vulnerabilities and risks by further reducing the availability of natural resources, undermining the production and productivity of land, water, and food systems in different ways.

#Pathway 1.1: Increase in competition over access and use of natural resources

Climate change and variability have the potential to impact resource availability and environmental conditions, contributing to an increase in the competition over the use and access, reducing levels of social cohesion, and increasing conflicts between and among different groups (Nagarajan 2020; Raineri 2018; Ministry of Foreign Affairs of the Netherlands 2018; Tarif and Grand 2021; Ursu 2018). The changing climate impacts climate-sensitive livelihoods, including agriculture, livestock, and fishing, reducing their production and productivity (Nagarajan 2020; Ministre de l'Environnement, de l'Assainissement et du Développement Durable 2017). Climate conditions along with other factors such as population growth, migration, environmental degradation, and the poor management of resources as well as land-grabbing, rent-seeking, and power dynamics are also at the heart of the increasing conflict over land and water resources (Nagarajan 2020). Strengthening governance systems and conflict resolution mechanisms is crucial to administer natural resources and regulate their access and use (Raineri 2018).

#Pathway 1.2: Increase in the recruitment of NSAGs

In Mali, violent conflict has undermined social cohesion, increased grievances, and curtailed livelihoods, paving the way for individuals to join NSAGs. Weak governance has translated into the inability to enforce efficient conflict resolution mechanisms and solve disputes over access to natural resources while NSAGs have seen their legitimacy increase, especially concerning justice and conflict resolution (Nagarajan 2020; Ursu 2018). Poverty, unemployment, and the overall lack of economic opportunities have also been identified as crucial drivers for the recruitment of NSAGs, who offer an economic opportunity to vulnerable local population (Hegazi, Krampe, and Smith 2021; Théroux-Bénoni et al. 2016; UNDP 2017).

In recent literature, climate change has also been identified as a contributing factor to the recruitment of NSAGs mainly through its contribution to fragility and its impact on livelihoods that leave people in a more vulnerable situation (Nett and Rüttinger 2016). In the case of Mali, climate change and variability have impacted resource availability and increased competition over the access and use of natural resources which, in turn, undermines people's livelihoods and increase local grievances, incrementing prospects for the recruitment of NSAGs (NUPI and SIPRI 2021; Hegazi, Krampe, and Smith 2021).

Pathway #2: Farmer-herder conflict

Relations between farmers and herders in the past decade have been impacted by different factors which, altogether, have contributed to the increase of tensions. Pastoralists have historically remained in the northern regions during the rainy season and moved south towards the Inner Niger Delta during the dry season in search of fodder, particularly bourgou, a plant that grows on deep water in the Delta (Benjaminsen et al. 2012). However, in the past few decades, paddy fields for rice production have expanded to areas where bourgou used to grow (Benjaminsen and Ba 2009; Benjaminsen et al. 2012). The decrease in the water volume of the Delta in the 1970s and 1980s influenced by the droughts and the creation of the Sélingué Dam allowed the expansion of rice fields into bourgou areas (Benjaminsen and Ba 2009; Benjaminsen et al. 2012).

Tensions between both livelihood groups also augmented because of the expansion of farming into livestock corridors, obstructing the mobility of herders and hindering their access to essential natural resources such as water and fodder (Ibrahim and Zapata 2018; Benjaminsen and Ba 2009; Benjaminsen et al. 2012). In this scenario, some herders decide to take their livestock through farms in order to access water points which damages the crops and angers the farmers (Ibrahim and Zapata 2018). Furthermore, violent conflict has forced herders to move away from the war-torn regions of Timbuktu and Gao towards the central regions, including the Inner Niger Delta, putting pressure on natural resources and increasing tensions with farmers communities (NUPI and SIPRI 2021).

The increasing variability in climate and the rise in the number of extreme weather events, including droughts and floods, will further impact land, water, and food systems, decreasing both agricultural and livestock production and productivity (Ministre de l'Environnement, de l'Assainissement et du Développement Durable 2017). These changes will particularly impact pastoralist communities due to the reduced pasture and water availability that will further diminish the access of herders to essential natural resources. There will be an increasing mortality and prevalence of diseases in the animals and reduced livestock productivity (USAID 2018; Nagarajan 2020; Ministry of Foreign Affairs of the Netherlands 2018). In an effort to cope with the changes in climate that mainly translated into a more severe dry season, pastoralist communities are forced to change their routes in search of alternative resources while some farmers increment agricultural land, frequently at the expense of grazing areas (Ibrahim and Zapata 2018). This often leads to disputes between farmers and herders, especially in the southern regions where there is a general lack of demarcated livestock corridors and pastureland with access to water sources (Nagarajan 2020).

The increasing variability of climate has altered seasons, changing the timing of harvests and turning more unclear when pastoralists can move southwards with their herders to graze and access water sources (Nagarajan 2020). Likewise, harsh climate conditions with more severe dry seasons force pastoralists to move southwards earlier in search of pasture near the Inner Niger Delta. This becomes a real problem when animals arrive before the crops have been harvested as they damage crops, impacting farmers'

livelihoods and creating confrontations between both livelihood groups (Ibrahim and Zapata 2018). Without strengthening the coping capacity and the conflict resolution mechanisms, the increasing effects of the climate crisis are likely to continue impacting farmer and pastoralist communities in central and northern Mali who are already affected by a wide array of risks and vulnerabilities, contributing to the increase in farmer-herder conflicts (Ibrahim and Zapata 2018; Hegazi, Krampe, and Smith 2021; USAID 2018). In this regard, there are some interesting initiatives such as the strengthening of local conflict resolution mechanism that the Centre for Humanitarian Dialogue has been developing since 2015 through which they support networks of community mediators to resolve conflict over the access to natural resources that often feed into broader inter-communal conflicts (Centre for Humanitarian Dialogue 2020).

#Pathway 3: Mobility and resource competition in the South

Migration has been an essential aspect of the Malian society and economy. Seasonal and circular migration is a resilience strategy that has historically helped communities to cope with the changing effects of climate (Mitra 2017; Nagarajan 2020). During seasonal floods and droughts, people move southwards and then come back when environmental conditions have improved (Hegazi, Krampe, and Smith 2021). For instance, one-third of the workforce seasonally migrates in search of jobs from rural areas in the Niger Delta towards urban centres in the south (UNEP 2011)

However, this trend is changing towards a more permanent migration to the Southern regions due to increasing political, socio-economic, and climate vulnerabilities that hinder livelihoods and forces people to migrate (Nagarajan 2020). For instance, the new cycle of violence experienced since 2018 contributed to increment displacement (IOM). In 2020, floods impacted the live of more than 80,000 people, damaging around 6,000 houses (Hegazi, Krampe, and Smith 2021). Land, water, and food systems are also heavily affected by the increasing changes in climate that reduces their production and productivity and hinders different livelihood groups, including farmers, herders and fishermen (Nagarajan 2020). Overall, there are now more than 370,000 IDPs in Mali (UNHCR 2021). The increasing climate variability and a rise in the number of extreme weather events, including droughts and floods, will contribute to exacerbate and alter migration trends (Ministre de l'Environnement, de l'Assanissement et du Développement Durable 2017; Nagarajan 2020). This trend has also been impacted by insecurity and violence levels in the central and northern regions which strongly undermines the capacity of communities and individuals as well as the state to adapt and mitigate the effects of climate change and variability (Ndaruzaniye et al. 2010; Stewart and Fitzgerald 2001; Adger et al. 2014).

The new type of more permanent migration and as the influx of IDPs, along with existing high population growth, environmental degradation, and other socio-economic factors, may increase competition over natural resources and create conflict between migrants and host communities in the south (Marquette 2020; Nagarajan 2020; Ursu 2018; Hegazi, Krampe, and Smith 2021). Also, migration and, especially, forced displacement often leaves people in precarious and vulnerable situation which can renders them more susceptible of exploitation and recruitment by NSAGs (Hegazi, Krampe, and Smith 2021). Without the adequate mitigation and adaptation strategies that cope with the effects of climate change and socio-economic risks, conflicts between migrants and host communities are likely to take place (NUPI and SIPRI 2021).

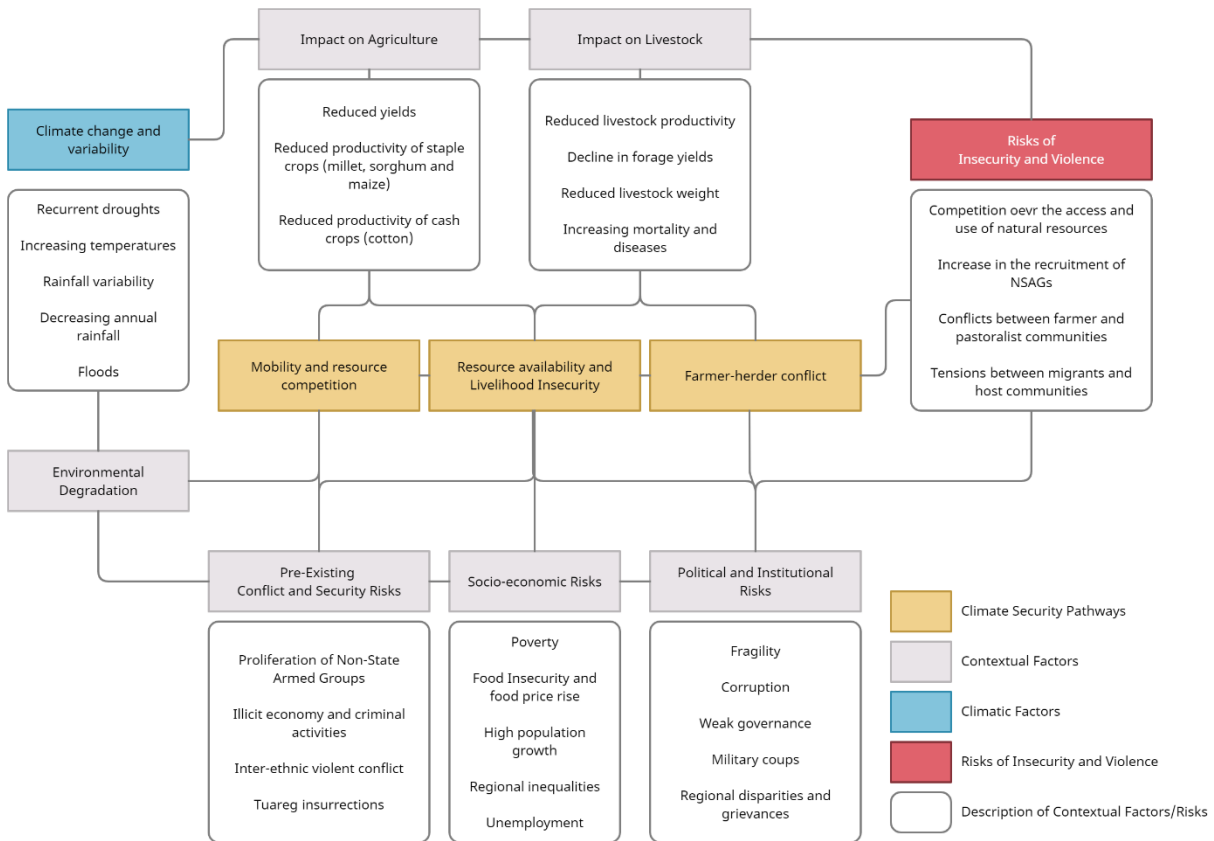


Figure 1: Climate Security Pathways for Mali

4. References

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