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Ahmadou Aly Mbaye

In the Sahel, regional climatic trends show an overall rise in temperature, coupled with an erratic trend in rainfall. Moreover, the region faces a growing number of natural disasters, the frequency and intensity of which are expected to further rise in the near future.¹ Desertification, drought, floods, and sea level rise, among others, are all affecting the availability of natural resources.² In a context where natural resources are the main sources of livelihoods, environmental degradation significantly impacts people's resilience and makes them highly vulnerable.³ In parallel, the region faces serious political turmoil and radical Islamist threats, which have caused serious security challenges within and across national borders. Some literature draws a link between recent climatic trends and the occurrence and persistence of violent conflict in the Sahel. It mostly points to the natural tendency of people to recourse to migration and fighting over scarce resources as an adaptation strategy to climate change. In this paper, we argue that conflicts in the Sahel usually have many different intertwined drivers, among which governance, favorit-

ism, and ethnic and religious factors all come into play, with climate change increasingly acting as an amplifier that contributes to trigger violence. We further make the point that mitigating conflict in the Sahel can only come through a larger package of policies, of which adaptation to climate change should be an important component.

Climate Change Amplifies Conflict in the Sahel

The idea that climate change is positively associated with conflict has received substantial empirical support in the literature. Combining climate model projections of future temperature trends with the historical response of conflict to temperature in Africa, studies project a 54 percent increase in armed conflict incidence by 2030, or an additional 393,000 deaths. Similarly, they find that a 1°C increase in temperature leads to a 4.5 percent increase in civil war incidence in the same year and a 0.9 percent increase in the following year. Due to climate change, African staple crop yields can be reduced by 10–30 percent per °C of warming.⁴

While the importance of climate change in drying out livelihoods and explaining conflict should not be downplayed, alternatives also deserve significant attention. In particular, institutions and state capacity, proxied by the protection of property rights, rule of law, and the efficiency of the legal system, are found to be root causes of civil war. Country institutional improvement from the median value to the 75th percen-

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tile is associated with a 36-percentage-point reduction in the incidence of civil war.⁵ Moreover, once institutions are included as an explanatory variable of civil war, income is found to have no statistical effect, either directly or indirectly. Rather, political instability, rough terrain—where rebels can hide easily—and large population size are the most correlated with violence.⁶ Furthermore, “the paradox of plenty,” observed in the case of Kenya, emphasizes that rather than dryness, abundance of water generates conflict.⁷ According to Adano et al., “The wetter the season, the more people are likely to die in violent livestock raiding. In other words, more conflicts and killings take place in wet season times of relative abundance, and less in dry season times of relative scarcity, when people reconcile their differences and cooperate.”⁸ By contrast, in periods of scarcity, good institutions can shape human interactions and avoidance of conflicts.⁹

Climate Change, Food Insecurity, and Instability in the Sahel

While the effect of climate change on overall violence is not easy to document, its effect on food security seems to be more discernible, especially in urban settings. Sea level rise, natural disasters, flooding, and drought are associated with food insecurity and threaten security, either directly or indirectly, through migration. The two major manifestations of climate change in the Sahel are through increased temperatures and rainfall variability.

Global warming has many potential economic and social effects in Africa and particularly in the Sahel, contrasting with the region’s minimal contribution in global emissions of greenhouse gases. GDP exposure in some African countries is projected to reach nearly half of the continent’s GDP. Africa has much less arable land than other regions of the world, except desertic regions;

this limited endowment is further shrinking as the result of climate change.¹⁰

Food security is at risk in the Sahel, as the Global Food Security Index (GFSI) shows. Out of 113 countries, Mali is 86, Senegal 87, Burkina Faso 97, Niger 104, and Chad 108.¹¹ While food insecurity has many potential drivers in the Sahel, climate change is probably one of the most determinant ones. According to some estimates, observed recent trends on the regreening of the Sahel do not alter this conclusion. Instead, desertification has increased in intensity in many localities of the Sahel in recent years, further decreasing the yield of many staple and fruit crops and exacerbating food insecurity.¹² Figure 1 depicts annual rainfall deviations from the long-term average and annual deviations in crop income from the long-term average in Niger. It shows a clear pattern of correlation between both variables, further testifying to the adverse effect of climate change on food security. Due to agricultural production variations brought about by climate change and other factors, food prices are soaring in the Sahel, further jeopardizing food security.

While there is debate around the relationship between climate change and communal violence, there seems to be a more direct link between riots and climate-induced increase in food prices. Figure 2 is a simple plot of the annual staple food price index in main Sahelian consumption areas and the number of riots and protests in considered localities of the Sahel, showing a clear positive trend between the two variables.¹³

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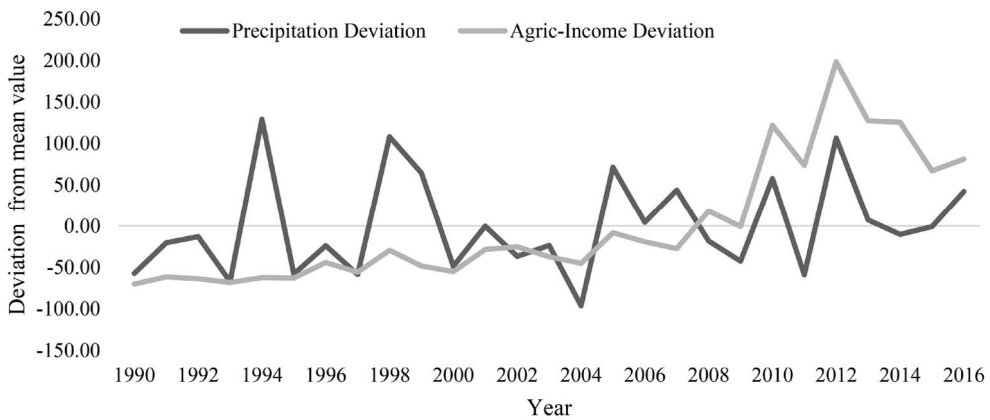


Figure 1. Precipitation and Resource Scarcity in Niger. Since 2009, lower investment returns have led to slower growth and increases in the debt to GDP ratio. Data sources: Bank for International Settlements, OECD.

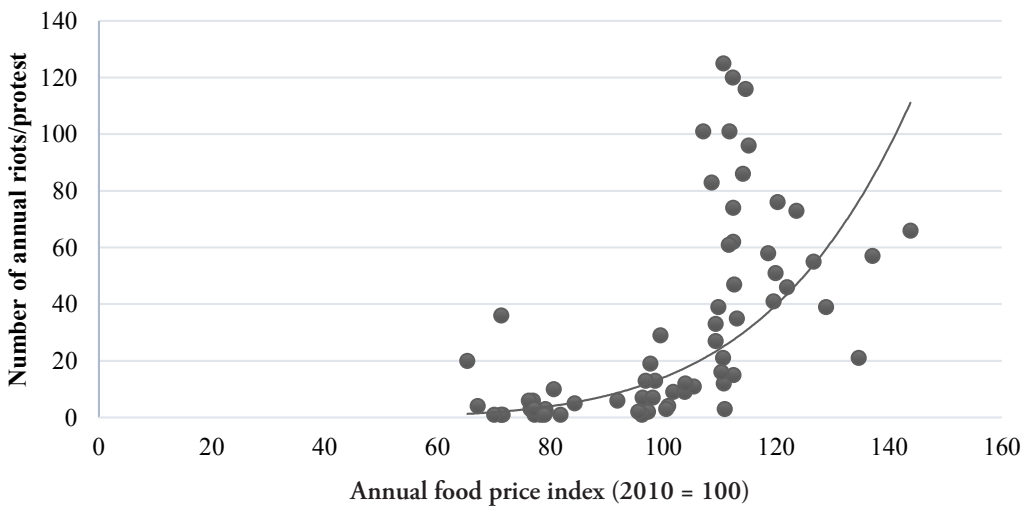


Figure 2. Food Price Index and Conflict Events 2000–2018. Source: Mamane Bello Garba Hima, “Economic Analysis of Climate Change-Induced Resource Scarcity and Armed Conflicts in Niger” (PhD diss., Université Cheikh Anta Diop de Dakar, 2019). *Université Cheikh Anta Diop de Dakar. Used by permission.*

Climate Change, Favoritism, and Conflict in the Sahel

While state failure is increasingly seen as the main driver of conflict in the Sahel, it plays out in different ways in Africa. First and foremost, it manifests itself in most governments having very limited control over their territories. The remoteness and inaccessibility of the terrain limits governments’ abil-

ity to ensure security. Therefore, lack of full control over territory prevents African states from providing basic services to populations located in some remote areas. In arid and semi-arid Saharan and Sahelian territories, many hinterlands are yet to be incorporated.¹⁴ The same is true for islands in some countries, such as Guinea-Bissau. Likewise, it is common knowledge that service provi-

sion and political representation in remote areas are well below average in Africa.¹⁵

Second, due to the clientelist nature of most African regimes, governments unduly favor ethnic groups or districts voting for them, further sidelining those groups that are considered less related to them. In Africa, where there are limited options available in a hostile and changing environment due to lack of assets and political support, violence over scarce resources is exacerbated by segregation by ethnic affiliation and politics. For example, data from both the Horn of Africa and the Sahel show that politically marginalized (“irrelevant”) groups are excluded from the political agenda and usually settle in marginal areas. These marginalized groups, while being too weak to exercise violence against the government, usually do so against rival communities. According to some estimates, up to 65 percent of ethnopolitical minorities in Africa are disadvantaged in terms of access to top positions in politics, civil service, and the military. Moreover, up to 70 percent of the political and economic segregation these groups face is more severe compared to the global average.¹⁶ Likewise, the patronage hypothesis is also confirmed in African democracies, considering the following three dimensions: presidentialism with high power concentration, clientelism rewarding clients (public jobs, budget allocation, license, contracts, projects, etc.), and the use of public resources for public legitimation.¹⁷ Lastly, the way governments respond to disasters is also shaped by clientelism.¹⁸ In many instances, officials in Niger and Mali have diverted resources intended for humanitarian assistance to their personal profit.¹⁹

Hence, in the Sahel, the risk of conflict stemming from climate change is related to preexisting economic, political, and physical vulnerabilities in communities, where the politics of resources and risk distribution af-

In the Sahel, the risk of conflict stemming from climate change is related to preexisting economic, political, and physical vulnerabilities in communities, where the politics of resources and risk distribution affect instability.

fect instability.²⁰ Restricted mobility for pastoralists, political negligence, corruption, and rent-seeking are the major drivers of conflict.²¹ Rather than climate change, governmental failure to regulate components of contested livelihoods, compounded by recent gun proliferation, is critical in fueling conflict.²² Indeed, Libya’s disintegration into many contested war zones, coupled with porous and poorly policed international borders, have made weapons smuggling much easier throughout the Sahel.

Evidence from Mali

The inconclusiveness of the literature on the climate change/conflict nexus has much to do with the fact that while climate change is often associated with dryness, it is more about extreme deviations of rainfall (both drier and wetter), both of which are associated with conflict. On the other hand, by its very nature, conflict has many intertwined drivers which are often not easily testable. Thus, while econometric regressions provide important heuristic insights, they might need to be complemented by in-depth contextual analyses to account for idiosyncrasies and other factors which are not properly reflected in statistical data. In this section, we document the case of the Niger River Delta in Mali, which offers an excellent illustration of how climate change and institutions fuel conflict in the Sahel.

Mali is a landlocked, low-income country of the Sahel with a poverty rate estimated

at 47.8 percent, compared to the average in Sub-Saharan Africa of 41 percent.²³ Currently, Mali suffers from violence and political instability mainly in the north that causes significant economic repercussions in the whole country. There are two main juxtaposed territorial sets in Mali.²⁴ The North (the Sahara) is almost empty, with its three northern regions: Timbuktu, Gao, and Kidal. Those regions represent two-thirds of the national territory yet hold only 10 percent of Mali's population. The south (the Sahel) is more populated along with vibrant agriculture. Between the two areas, Mopti represents the border between the jihadist-occupied north and the government-controlled south. In 2012, the entire north of Mali came under the control of jihadist groups Ansar Dine and Movement for Unity and Jihad in West Africa (MUJAO). Advancing south toward the capital, Bamako, these groups reached the town of Kona in the Mopti region in January 2013. The Malian government then declared a state of emergency and appealed to France, which launched Operation Serval, halting the jihadists and forcing them to withdraw further north.²⁵

The delta is the main source of livelihoods for farmers, herders, and fishermen. It encompasses a catchment area that covers around 30,000 km², where flooding depends mostly on rainfall. Farmers and pastoralists have long coexisted in the Sahel, and local institutions had always mediated conflicts. However, since independence, the Malian government has always favored farmers over herders. For example, President Modibo Keita had, on many occasions, disdained pastoralism and sought to push industry and agriculture to advance his socialist development agenda. His successor, Moussa Traoré, did very little to ease long-term nomadic frustration.²⁶ In land dispute cases treated by the Mopti Court of Appeal

in Sévaré (Mali), several cases of judicial bribery involved conflicts between farmers, farmers and herders, and farmers and fishermen. Most people interviewed by Benjaminsen et al. blamed state incapacity as the main cause of conflicts. The same study also documented many instances where pastoralists bribe government officials to win their support.²⁷

In Mali, a clear dividing line determines livelihoods according to ethnicity and gender. On the one hand, women are disadvantaged in access to basic assets, services, and income across all rungs of livelihood formation, while being more clustered around climate change-affected sectors, such as agriculture.²⁸ On the other hand, the societal division of labor is mostly by ethnic group affiliation. For example, the Fulani and the Tuareg tend to be pastoralists, while the Songhai and Bambara tend to be agriculturalists. The Fulani and Tuareg are Muslims, while the Bambara and the Songhai are animists (traditional African religion). Recent patterns of communal conflicts in Mali illustrate how ethnic and religious factors, along with government failures, interact with climate change to drive conflicts.

The Niger River is home to intense agricultural activity, both by farmers and by herders. While farmers grow rice, herders grow Burgu, a fodder for cattle that is used as the main animal food source in the dry season. Burgu grows in deeper water than rice, and during dry periods, which are becoming increasingly frequent due to climate change, Burgu fields are often encroached upon by rice farmers, triggering communal conflicts. Since the 1950s, a quarter of Burgu fields have been converted into rice fields due to the decrease in rainfall.²⁹

Recently, the Fulani and the Tuareg are increasingly joining the jihadist insurrection in northern Mali due to the dual pressures of alleged government discrimination and

climate change—exacerbated conflict over water. Amadou Koufa, the head of MU-JAO, is Fulani. In this context, jihadist attacks trigger retaliation from the Bambara and Songhai agriculturalists, worsening the vicious cycle of hatred and violence.

Building Adaptive Capacity to Mitigate Climate-Induced Conflicts

Climate change is an important proximate cause of conflict in the Sahel, severely compounding the root causes: state and institutional failures. Adaptation to climate change is therefore essential to mitigate conflict, along with institutional upgrades. Adaptation encompasses many layers of policy options. Diversifying livelihoods away from weather-dependent activities, such as artisanal fishing and traditional agriculture, is key. It can be achieved through processing traditional crops and primary products so that they gain some steps up in the global value-chains ladder. Additionally, mainstreaming innovation in the production process by introducing crop varieties more tolerant to drought and flooding, and including modern equipment and technology, can reinforce this strategy. Building barns to allow for shade and better air flows might protect animals from higher temperatures.³⁰

Informal family workers, self-employed workers, and micro-enterprise workers overwhelmingly dominate the landscape of rural and semi-urban activities in agriculture, livestock, and fishing, which are the most adversely affected by climate change. Empowering these actors should be an important aspect of any adaptation strategy. This would encompass developing well-targeted programs including adequate financing schemes and skills development and incubation, to help these fragile enterprises grow and consolidate.³¹

Given Africa's tiny contributions to global emissions, contrasting with its much higher exposure to climate change, there is a near consensus that adaptation should be given greater consideration in climate finance allocation. While the international community has pledged to significantly increase support to adaptation to climate change, available resources supporting adaptation in Africa are still very limited, cumulating to less than \$2 billion.³² By contrast, it is estimated that investments needed to support adaptation in Africa is in the order of \$300 billion, and annual maintenance in the order of \$3 billion.³³ Scaling up adaptation financing and improving allocation mechanisms to make them more effective than standard development assistance methods should be a key development priority.³⁴

Conclusion

The relationship between climate change and conflict generates considerable controversies in the literature. While some authors see climate-induced scarcity generating resource conflicts, a growing body of empirical evidence points to institutional failures. In this paper, we have used the Sahel as a case study to show that conflict has many intertwined factors, mostly related to state failure, demographics, and rent-seeking behaviors. Climate change exacerbates existing rivalries and contributes to the onset of violence. Thus, adaptation to climate change should be an important pillar of policies aimed at mitigating conflict in the Sahel. Adaptation encompasses many dimensions, including diversifying the economies away from raw natural resources, mainstreaming innovation, and supporting informal workers who are more exposed to climate change effects. Lastly, scaling up adaptation funds flowing to Africa and fast-tracking their use through improved access mechanisms is also critical.

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