INITIATIVE ON
Fragility, Conflict, and Migration

Political Violence in the G5 Sahel Countries (2018-2023)

An Application of ACLED's Conflict Index Methodology[1]

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Abstract

Over the past decade, the G5 Sahel countries (Mauritania, Mali, Burkina Faso, Niger, and Chad) have seen their security situation substantially worsen, following a combination of political instability, jihadist insurgencies and the proliferation of local militias. To better capture the multifaceted nature of conflict and political violence in the G5 Sahel region, this study applies the conflict index methodology developed by the Armed Conflict Location & Event Data Project (ACLED) to the second-level administrative entities within each country between 2018 and 2023. The outcome of this temporally and spatially refined conflict profile is projected in several tables, graphs and maps, which indicate: (i) that political violence has intensified over the period considered; (ii) that most of the conflict events were concentrated in the tri-state border area of Liptako-Gourma; and (iii) that political violence is far from uniform across its underlying dimensions, suggesting that different strategies might be needed to restore security. In methodological terms and using the results from the temporal analysis, this study also introduces a distinction between protracted and transient forms of political violence, which provides additional insight to the index dimensions of deadliness, danger, diffusion, and fragmentation.

Keywords: ACLED Conflict Index, G5 Sahel, political violence, Liptako-Gourma

Introduction

Following the 2023 Humanitarian Needs and Requirements Overview of UNOCHA, more than 30% of people in the Sahel region are in need of humanitarian assistance and protection (UNOCHA 2023). This staggering figure is the outcome of a complex and mutually reinforcing set of drivers, involving increased conflict and political instability, climate variability and increased pressure on natural resources, hunger and food insecurity, and migration and forced displacement. Indeed, multiple sources indicate that the number of conflict incidents have steadily increased since 2015 and have spread to coastal West African countries, that food security is likely to further deteriorate in 2024 while at the same time remaining a recurrent issue, that changing temperature and rainfall patterns impose considerable challenges to people's rural livelihoods, and that the number of displaced people in the Sahel region has reached an all-

[1] The detailed data generated for this analysis can be found on Harvard Dataverse: https://doi.org/10.7910/DVN/T6UT9O.

time high (UNOCHA 2023; WFP & FAO 2023; Nsaibia 2022; CILSS 2023; Yobom 2020; Gangneron et al. 2022).

Despite the intuition behind the co-movement of observed trends, it is often difficult to neatly assign attribution, or control for endogeneity within this complex web of intertwined drivers. This is for example the case regarding the presumed causal linkages between food security and conflict (Martin-Shields & Stojetz 2019), or between environmental changes and migration (Borderon et al. 2019). Several reasons can be cited for this difficult identification of cause-and-effect relationships. First, there are substantial differences in data types across the several disciplines covering each driver, which relate to differences in units of analysis, definitions, time precision, and spatial scale. Second, various important aspects, such as social cohesion, trust, and tolerance, cannot be easily observed or quantified, thus limiting the statistical power of causal identification while underscoring the importance of complementary qualitative research strategies. Third, in fragile and conflict-prone settings, there are many practical and ethical constraints to develop an appropriate research set-up or to implement (quasi) experiments with local populations, let alone the accessibility constraints and direct security risks imposed on the research team (UNOCHA 2023; WFP & FAO 2023; Barrett & Carter 2010; Glasman 2020; Borderon et al. 2019; Martin-Shields & Stojetz 2019).

Before pursuing a research agenda to improve our understanding of the relationships and coping strategies around the Humanitarian, Peace, and Development (HDP) nexus, this study focuses on one component only, that is conflict and political violence. Using ACLED's data and conflict index methodology, this report develops a spatially refined profile of political violence in Mauritania, Mali, Burkina Faso, Niger, and Chad between 2018 and 2023. The timing of this analysis aligns with a series of household food security surveys conducted by WFP and partners in the same five countries. As such, drawing a comprehensive conflict profile, that is sufficiently time- and location-specific, is seen as a first essential step to further investigate the root causes of human suffering in the Sahel region. Given the multifaceted and multi-actor nature of conflict, this approach looks easier than it is. First of all, what qualifies as conflict is sometimes very straightforward as it implies a clear breakdown of social order or a crisp disruption from normalcy, but very often it is also a mere social construct, accompanied by processes of continuity, reordering, and renegotiation (Hilhorst 2018). Second, there are several operational challenges to overcome and non-trivial choices to be made to store conflict events into a database with useful attributes that allow to go beyond a mere counting of events and fatalities (Miller et al. 2022).

These limitations are not insurmountable as such but rather call for methods and indicators to be outlined explicitly and for results to be interpreted with sufficient attention to local context (Borderon et al. 2019; Hilhorst 2018). In the next section, we focus on the data and methods used to draw spatially and temporally refined profiles of conflict and political violence. After applying these methods, the following section discusses the results for the G5 Sahel countries between 2018 and 2023.

Founded in February 2014, the G5 Sahel was an institutional response by the governments of Mauritania, Mali, Burkina Faso, Niger, and Chad to the increased security challenges imposed by jihadist groups, such as Islamic State Sahel Province (IS Sahel)[2], Al Qaeda-affiliated Jama'at Nusrat Al Islam Wal Muslimin (JNIM), Islamic State West Africa Province (ISWAP), and Boko Haram. Over the past decade, these groups have found fertile ground and successfully exploited people's frustration regarding their impoverished living conditions and fragile livelihoods. The response of the G5 Sahel largely ran in parallel with

[2] Before March 2022, when it received 'provincial status', IS Sahel was known as Islamic State in the Greater Sahara (ISGS). For more information, see: https://acleddata.com/2023/01/13/actor-profile-the-islamic-state-sahel-province.

the French-led military counterinsurgency operation, called Barkhane (2014-2022), which was a geographical extension of a similar operation, called Serval (2012-2014), conducted in the north of Mali to oust Islamist militants which were advancing to the center of the country. While backed by France and the international community, the G5 Sahel joint military force and its related operations were always structurally underfunded and therefore have never really taken off at scale. Following growing dissatisfaction with the continued insecurity situation and fueled by anti-French resentment, incumbent and transitory regimes in Mali, Burkina Faso, and Niger have been repeatedly overthrown by several military coups (two in Mali in 2021 and 2022, two in Burkina Faso in 2022, and one in Niger in 2023). These military juntas have promised to improve the security situation in their countries, but at same time have disrupted the functioning of their economies and alienated their societies from traditional allies, such as ECOWAS, who has imposed sanctions and threatened to military intervene to restore legitimacy. Pushed by this imminent threat, the military regimes in Bamako, Ouagadougou, and Niamey have meanwhile not only resigned from the G5 Sahel and its related structures, but have also formed a new coalition, called the Alliance of Sahel States (AES). Interestingly, the charter of this new alliance goes well beyond sole security and military cooperation, and also mentions the pursuit of increased collaboration on economic, cultural, and political levels.[3]

Materials and methods

ACLED methodology

Based on tailor-made sourcing strategies per country and region, ACLED extracts key attributes from occurring political violence and demonstration events and makes the corresponding data publicly accessible on its website.[4] The information gathered on a weekly basis essentially involves dates, actors, locations, fatalities, and event types, which are further enriched with notes, pre-defined tags and attributes indicating levels of precision. To minimize bias and allow for reliable inferences across time and space, the extraction and coding processes follow a strict protocol, which are described in the ACLED codebook and related online materials.

A distinctive feature of ACLED's sourcing strategy includes its reliance on local partners and organizations to obtain primary data and screen subnational and local media outlets. This strategy has proven to be fruitful in reducing the omission bias resulting from a disproportionate focus on international and regional, often English-centered, traditional media. Further, the cautious use of new media sources combined with researcher-led coding and review processes help to protect against misrepresentation and inflation bias, the latter being of particular concern when artificial intelligence or 'big data' approaches are employed (Miller et al. 2022; Raleigh & Kishi 2019; Raleigh et al. 2023).[5]

To avoid double counting and further reduce inflation bias, ACLED follows a hierarchical coding approach for all events taking place on the same day and location, and between the same actors. In such cases, only a single event is retained and coded based on the order displayed in Table 1, which presents all event, sub-event, and disorder types classified by ACLED. For example, if multiple air strikes and artillery

[3] This contextual part draws from Carbone & Casola (2022), the official site of the G5 Sahel (www.g5sahel.org), and various newspapers and special issues, such as: "Afrique, le Prochain Califat" in Diplomatie (2023; 122:36-64); Jeune Afrique (www.jeuneafrique.com/1484492/politique/alliance-mali-burkina-faso-niger-vers-un-g3-sahel-et-plus-si-affinites); Les Echos (www.lesechos.fr/monde/afrique-moyen-orient/le-g5-sahel-se-dissout-2039820); and Anadolu Agency (AA) (www.aa.com.tr/fr/monde/l-alliance-des-états-du-sahel-aes-un-tournant-décisif-pour-l-afrique-de-l-ouest-/2998753)

[4] Armed Conflict Location & Event Data project (ACLED): https://acleddata.com.

[5] Other possible biases stem from design and relate to strategic decisions on data collection, which often involves managing trade-offs between reliability and validity (Miller et al. 2022; Raleigh et al. 2023).

fighting on a particular day and location result in government forces regaining territory from a particular rebel faction, then this will be coded as a single event based on the highest classification in the table. In this case, it will be coded as “battle” (event), “government regains territory” (sub-event), and “political violence” (disorder type), with notes providing additional information on the concurrent interactions that took place (ACLED 2023).

As summarized in Table 1, ACLED in total distinguishes six event types, 25 sub-event types, and three overarching disorder types. While its focus is on political violence and demonstration events, ACLED also captures “strategic developments”, which is additional information to help understand current and future conflict dynamics, such as peace talks or ceasefires. Given its more limited coverage and context-specific nature, these events do not allow for any systematic comparison across time and place, and therefore will not be used in this study. In contrast, the focus of our analysis will be on political violence, which covers the “battle”, “explosions/remote violence”, and “violence against civilians” event types as well as the “excessive force against protesters” and “mob violence” sub-event types. Given its nature, the “excessive force against protesters” sub-event type is associated with two disorder types, that is political violence and demonstrations.

Table 1: ACLED classification of event, sub-event, and disorder types

Event type	Sub-event type	Disorder type
Battles	Government regains territory	Political violence
	Non-state actor overtakes territory	
	Armed clash	
Protests	Excessive force against protesters	Political violence; Demonstrations
	Protest with intervention	Demonstrations
	Peaceful protest	
Riots	Violent demonstration	
	Mob violence	Political violence
Explosions/Remote violence	Chemical weapon	
	Air/drone strike	
	Suicide bomb	
	Shelling/artillery/missile attack	
	Remote explosive/landmine/IED	
	Grenade	
Violence against civilians	Sexual violence	
	Attack	
	Abduction/forced disappearance	
Strategic developments	Agreement	Strategic developments
	Arrests	
	Change to group/activity	
	Disrupted weapons use	
	Headquarters or base established	
	Looting/property destruction	
	Non-violent transfer of territory	
	Other	

Source: Recopied from ACLED Codebook 2023 (https://acleddata.com/download/2827).

One of the key attributes of ACLED's dataset is the number of fatalities, which is an indicative estimate of reported fatalities – as opposed to casualties which combine injuries and fatalities. In the case of conflicting evidence or vague estimates, the most conservative figure is typically retained and possibly updated at a later stage when more accurate information becomes available. Another essential attribute concerns the observation whether civilians were the main or only target of a particular event. This is a separate attribute, which by default includes all "violence against civilians" events and all "excessive force against protesters" sub-events while adding other individual events that meet this criterion for inclusion. All events are also geographically identified using official administrative units and names, including latitude and longitude coordinates, and a code to indicate the level of spatial precision.

The two main actors or groups involved in each event are captured by their name and are assigned a unique code based on their goals, motives, and organizational structure. In total, ACLED identifies the following eight actor types: state forces, rebel groups, political militias, identity militias, rioters, protesters, civilians, and external/other forces. The difference between rebel groups and militias is that the former group violently challenges the incumbent national regime, either through regime replacement or separatism – an objective which is generally absent from militias. The main difference between political and

identity militias relates to thematic and geographical scope of their operations: whereas the identity militias pursue a more local agenda centered around communal, ethnic, or religious interests, political militias typically operate on a geographically and thematically larger scale and might have close ties with political, military, or business elites. Among the external/other forces, we find international organizations, foreign state forces, private security firms, and independent mercenaries. In addition to the two main actors, ACLED also provides a list of associated actors or groups involved in each event – however they are not coded using the same actor classification.

ACLED dataset of G5 Sahel countries

The data used for this study are extracted from the curated dataset for Africa published by ACLED on 5 January 2024. Table 2 displays the total number of ACLED events recorded in each of the G5 Sahel countries between 2018 and 2023. In total, we count 23,195 events, most of which have occurred in Burkina Faso (9,132) and Mali (8,324), followed by Niger (3,297), and finally Mauritania (1,299) and Chad (1,143). Compared to 2018, all countries have experienced an increase in the number of ACLED events in subsequent years. Most salient in this respect are Burkina Faso, Mali, and Niger, while the evolution in the number of ACLED events in Mauritania and Chad was much less dramatic or has even plateaued in recent years.

Table 2: ACLED events, G5 Sahel (2018-2023)

G5 Sahel country	2018	2019	2020	2021	2022	2023	Total
Burkina Faso	402	890	877	1,863	2,753	2,347	9,132
Chad	83	210	159	251	266	174	1,143
Mali	751	822	1,267	1,355	1,902	2,227	8,324
Mauritania	68	128	339	282	231	251	1,299
Niger	168	371	550	431	982	795	3,297
Total	1,472	2,421	3,192	4,182	6,134	5,794	23,195

Source: Based on ACLED's curated dataset for Africa (5 January 2024).

Based on ACLED's generic event classification, Table 3 presents a compounded frequency table for each event, sub-event, and disorder type for the G5 Sahel countries and all years combined. Among the most common sub-event types, we find attacks (5,203), armed clashes (4,882), looting/property destruction (2,996), and peaceful protest (2,594). As a result, violence against civilians (7,234) and battles (4,925) represent more than half of all events, which in turn contributes to political violence being by far the dominant type of disorder, accounting for almost two thirds of all observations.

Table 3: ACLED events by event, sub-event, and disorder type, G5 Sahel (2018-2023)

Event type (number)	Sub-event type (number)	Disorder type (number)
Battles (4,925)	Government regains territory (11)	Political violence (15,209)
	Non-state actor overtakes territory (32)	
	Armed clash (4,882)	
Protests (2,891)	Excessive force against protesters (28)	Political violence; Demonstrations (28)
	Protest with intervention (269)	Demonstrations (3,312)
	Peaceful protest (2,594)	
Riots (702)	Violent demonstration (449)	
	Mob violence (253)	Political violence (idem as above)
Explosions/Remote violence (2,797)	Chemical weapon (0)	
	Air/drone strike (1,251)	
	Suicide bomb (14)	
	Shelling/artillery/missile attack (312)	
	Remote explosive/landmine/IED (1,208)	
	Grenade (12)	
Violence against civilians (7,234)	Sexual violence (48)	
	Attack (5,203)	
	Abduction/forced disappearance (1,983)	
Strategic developments (4,646)	Agreement (64)	Strategic developments (4,646)
	Arrests (142)	
	Change to group/activity (217)	
	Disrupted weapons use (376)	
	Headquarters or base established (9)	
	Looting/property destruction (2,996)	
	Non-violent transfer of territory (28)	
	Other (814)	
Total (23,195)	Total (23,195)	Total (23,195)

Source: Based on ACLED's curated dataset for Africa (5 January 2024).

Conflict index

In many studies where conflict is used as a descriptive, explanatory, or control variable within a broader analytical exercise, the sole dimension often considered is the number of (violent) events or fatalities reported over time in or across locations. To better capture the complex and multifaceted nature of conflicts, ACLED has recently developed the "ACLED conflict index". This new measure is a ranking-based composite index based on four underlying dimensions or indicators – most of which can be directly computed from the ACLED database. The four dimensions involve deadliness, danger, diffusion, and fragmentation, with higher values each time pointing to worse or more difficult-to-resolve conflicts. Being a composite measure, the ACLED conflict index can be easily unpacked in its constituent dimensions depending on the precise research question or hypothesis to be tested.

Based on the latest methodological notes, this study reproduces ACLED's conflict index and its four underlying indicators for each second-tier administrative unit within the G5 Sahel countries and for each

year between 2018 and 2023.[6] In this section, we discuss the formal computation of the conflict index and related dimensions in more detail, while devoting special attention to the particular issues encountered in the G5 Sahel application.

The first dimension of the conflict index concerns **deadliness**, or the total number of fatalities reported from events classified as political violence within each second-tier administrative unit during a calendar year between 2018 and 2023. Given that the most conversative fatality rate is typically retained (see above), this dimension provides a lower-bound estimate of conflict intensity. The measure's focus on political violence includes the "excessive force against protesters" sub-event type and excludes "strategic developments" and "demonstrations" – a selection which is maintained for all four dimensions.

The second indicator is **danger**, or the total number of events within the same administrative units and periods investigated that have targeted civilians, either as their main or exclusive target. This dimension not only has a direct impact on the population and its immediate feeling of insecurity, but it may also provide an indication on the likelihood that these events continue or even proliferate as armed groups do not experience much resistance from civilians. As mentioned above, the attribute of targeting civilians goes beyond the event type with the same name, and may apply to all political violence events.

The third dimension is **diffusion**, which is obtained using the geocoordinates of each political violence event combined with population data from WorldPop.[7] The construction of this indicator involves the following three steps. First, we overlay a 10x10km grid on all G5 Sahel countries. Second, to avoid scarcely populated areas having an unduly effect on the final diffusion indicator, we exclude all grid cells with less than 50 inhabitants, as estimated by the WorldPop datasets. Finally, for each second-level administration unit, we compute the proportion of eligible grid cells with three or more conflict events per year. As such, this indicator aims to capture the geographical spread of political violence within each administrative unit – with higher percentages pointing to more dispersed conditions of high-violence levels while lower percentages indicate that high levels of violence are more spatially concentrated. In a similar vein, this spatial dimension is also indicative of the challenges and corresponding cost to resolve or reduce conflict in any administrative unit.

Compared to ACLED's methodology, our approach to estimate the diffusion indicator slightly differs in two respects. First, regarding thresholds, we decided to lower the eligibility threshold to 50 inhabitants since several conflict events appear to have occurred in grid cells with less than 100 inhabitants, which is the threshold used by ACLED. This is for example the case for attacks on remote border police stations. In addition, we also lowered the threshold for the identification of high violence to three events per year (as opposed to 10 events used by ACLED). With these revised thresholds, we are able to capture more spatial variation – with high-violence grid cells now cumulatively representing around 7% of all eligible cells compared to only 1% with the initial thresholds.

Second, in 2.4% of all ACLED events reported between 2018 and 2023, we note an inconsistent mapping of the geocoordinates to their corresponding second-level units. The main reason for this small number of inconsistencies relates to slight differences in the underlying shapefiles used. While ACLED is using Mapbox, we rely for our G5 Sahel application on the UNOCHA geographic dataset, which is the main

[6] The methodological notes on which this analysis is based, can be found under the tab "Methodology" on the following page: https://acleddata.com/acled-conflict-index-mid-year-update. Compared to the previous index version (called "Conflict Severity Index"), the current measure adopts a slightly different approach for the estimation of diffusion, while at same time all territories are ranked according to the four indicators (as opposed to applying thresholds of inclusion) and no weighing scheme is employed at final aggregation.

[7] More specifically, this analysis relies on the "constrained individual countries 2020 UN adjusted (100-meter resolution)" datasets for Mauritania, Mali, Burkina Faso, Niger, and Chad (see: www.worldpop.org). Given the midpoint reference of 2020, it is assumed that any demographic change between 2018 and 2023 will have only a minor effect on the estimated diffusion indicator.

reference used by most humanitarian and development partners in the Western Sahel.[8] This dataset consists of 287 second-tier administrative areas, which are reduced to 279 units after collapsing the nine city neighborhoods of Nouakchott. As such, all major cities in the G5 Sahel region are at most represented by a single polygon. These 279 administrative areas cover 45 provinces in Burkina Faso, 70 departments in Chad, 50 cercles in Mali, 47 Moughataas in Mauritania, and 67 departments in Niger.[9]

The fourth and final indicator measures **fragmentation**, approached by the number of distinct rebel groups and militias, either as main or associate actor, which are active in each second-level administrative unit per year. Similar to ACLED's methodology, this counting of groups excludes unidentified armed groups, includes pro-government militias, and limits the number of identity militias to a maximum of one group per third-level administrative unit.[10] The latter limitation is to avoid overinflation of numbers, given that ACLED is sometimes tracking certain militias and sub militias in more detail to assess how they proliferate over time. To apply the same eligibility criteria to the associated actors, we first needed to create an inventory with actor codes from the main actors before assigning them to the associated actors.

To arrive at the final conflict index, all second-level administrative areas are first ranked according to the individual indicators of deadliness, danger, diffusion, and fragmentation, which is then followed by a final ranking based on the average rank across the same four dimensions. Implicitly, this ranking procedure implies that all dimensions receive an equal weight in the final index, and that conflict is measured in a fully relative sense. The latter not only means that differences in absolute performance go unnoticed, but also that areas which rank low on the conflict index might in fact suffer from high annual fatality rates or many events targeting civilians – just because other areas perform worse. In theory, the reverse might also be true for highly ranked conflict areas.

To provide for some real-world grounding, ACLED assigns the following conflict levels or categories: "extreme" (ranking 1-10), "high" (ranking 11-30), "turbulent" (ranking 31-50), and "low/inactive" (ranking +50). However, applying the same thresholds to our G5 Sahel application would result in more than 40 areas receiving a "low/inactive conflict" label despite annual recordings of 25 to 313 fatalities and 17 areas with 10 to 41 events targeting civilians. To better align with concrete manifestations of conflict, we used the same final index but changed the categorization as follows: "extreme" (top 20 areas), "high" (next 40 areas), "turbulent" (next 40 areas), while the conflict level in all other areas is labeled as "low/inactive". Using the accumulated rank of 100 as the main threshold, we now find at most 51 fatalities and 8 events targeting civilians among the administrative areas assigned with a "low/inactive" level of conflict.

In addition, it is important to highlight that none of the individual indicators nor the overall conflict index accounts for demography. In other words, the level of conflict here is defined irrespective of how many people are affected by it. Using the WorldPop datasets, this analysis will therefore, where possible and useful, bring in the demographic component and link it to the conflict index and related indicators. Next to demography, there might be other components and angles to conflict which are not sufficiently captured by the current index and its dimensions. Some of these aspects, such as motives and goals of rebel

[8] UNOCHA geographic datasets are published on HDX, see https://data.humdata.org/dataset/sahel-administrative-boundaries. By relying on this geographic dataset, we implicitly assume that ACLED's geocoordinates and UNOCHA's shapefile are more accurate than ACLED's assignments to administrative units.

[9] This delimitation, however, is already outdated as names have changed or new administrative entities have been created meanwhile – often by further subdividing rather than merging existing units. For example, the transitional authorities in Mali have passed a bill in 2023 to increase the number of cercles to 156 (see: www.matcl.gov.ml). This inflationary trend of course relates to the power and resources that come with administrative legitimacy, which in turn explains why certain subdivisions are contested and related information is imprecise.

[10] With this focus on third-tier administrative units, we in fact mimic ACLED's global country analysis, where first-level units are used to cap the number of identity militias.

groups, are however more difficult to quantify, or their inclusion might have some inflationary effect on a particular dimension and as such unduly distort the final ranking.

Results and discussion

Given our focus on political violence, Table 4 presents a series of basic descriptive statistics on this subset of ACLED events.

Between 2018 and 2023, the G5 Sahel countries recorded in total 15,237 political violence events. Over the six years, this number has almost quadrupled from 990 events in 2018 to 3,825 events in 2023. Political violence has also been spreading spatially over time – from 107 administrative entities recording at least one event in 2018 to 161 entities in 2023. Over the entire period considered, this means that more than 80% of all second-level administrative units (that is 234 out of 279) were affected by at least one event of political violence. Accounting for population density, this increase in geographic spread also implies that more people have been exposed to political violence, defined as living within 5km from one or more events. Indeed, the percentage of people exposed to conflict has almost doubled, from 9% in 2018 to 18% in 2023, which amounts to almost one third of all people in the G5 Sahel having suffered from nearby political violence over the past six years.

Table 4: Descriptive statistics on political violence, G5 Sahel (2018-2023)

Political violence	2018	2019	2020	2021	2022	2023	2018-2023
Total events (number)	990	1,639	2,233	2,831	3,719	3,825	15,237
Geographic spread (number of adm2 areas with at least one event)	107	136	150	154	176	161	234
Conflict exposure (% people within 5 km of an event)	9%	12%	13%	13%	19%	18%	31%
Estimated fatalities (number)	2,805	5,382	6,988	6,582	10,704	14,201	46,662
Lethality rate (fatalities per event)	2.83	3.28	3.13	2.32	2.88	3.71	3.06
Events targeting civilians (number)	523	939	1,166	1,500	1,844	1,893	7,865
Civilian violence rate (% of events targeting civilians)	53%	57%	52%	53%	50%	49%	52%
Distinct rebel groups and militias (number)	82	123	120	94	102	79	337

Source: Based on ACLED's curated dataset for Africa (5 January 2024).

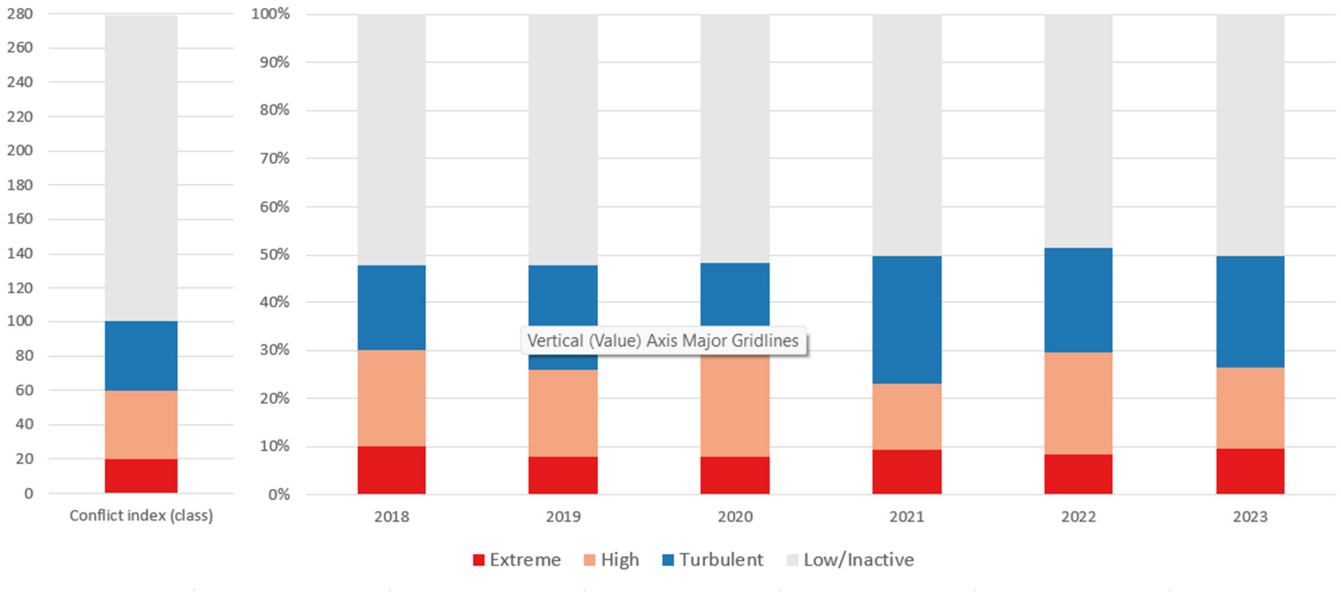
Following ACLED's conservative methodology, the total number of accumulated fatalities over the entire period considered amounts to at least 46,662 people, or approximately 0.05% of the total population in the G5 Sahel region. This fatality rate has not only increased more than fivefold, from 2,805 in 2018 to 14,201 in 2023, it has also accrued more rapidly than the corresponding number of events. This means that political violence became more lethal over time, especially in 2023, when on average 3.71 people died from every single event, as opposed to 2.83 people in 2018. However, this increase in lethality does not result from events becoming proportionately more civilian targeting over time. Indeed, while the number of events that target civilians did increase from 523 in 2018 to 1,893 in 2023, the civilian violence rate, defined as the proportion of events that have civilians as their sole or main target, largely remained stable around 52%. In total, around 337 distinct rebel groups and militias appear to operate across the G5 Sahel region over the entire period considered, of which the lion share (close to 80%) involves local identity militias, while the remainder is split equally across both rebel groups and political militias, each accounting for slightly more than 10% of all disruptive actors. The number of distinct rebel groups and militias has proliferated much in 2019 and 2020 (with more than 120 registered groups), after which it returned to around 80 groups in 2023.[11]

Applying ACLED's conflict index methodology to the G5 Sahel region, Figure 1 displays how many people are affected by different levels of political violence. As a reminder, the conflict index is a ranking-based measure with a fixed number of administrative entities each year being classified as extreme (top 20), high (next 40), turbulent (next 40), and low/inactive (179) – as shown in the far-left bar chart. Not surprisingly, political violence takes place in populated areas as can be inferred from the observation that extreme, high, and turbulent political violence roughly affects 50% of the total population while the same levels only represent 36% of all administrative units. Accounting for changes in the spatial pattern of conflict, we observe that extreme political violence took place in slightly less populated areas in 2019 and

[11] Contrary to the estimation of the fragmentation index, we did not put any limitation on the number of active identity militias.

2020 compared to 2018, after which the share of affected people again increased to around 10% in subsequent years. More substantial perhaps is that high levels of conflict have roughly affected less people over time (that is from 20% in 2018 to 17% in 2023), while more turbulence is observed in more populated areas in the G5 Sahel region (going from 18% in 2018 to 23% in 2023).

Figure 1: Population affected by levels of political violence, G5 Sahel (2018-2023)



Note: For easy reference, we use the same color codes as ACLED to indicate the four conflict index levels.
Source: Based on ACLED's curated dataset for Africa (5 January 2024).

Figure 2 provides more geographical insight into the changing pattern of conflict between 2018 and 2023.

Without a doubt, the epicenter of political violence in the G5 Sahel region over the past six years concerns "Liptako-Gourma", which is the area largely bordering Mali, Burkina Faso, and Niger (Carbone & Casola 2022). Indeed, most second-level administrative units characterized by extreme political violence are consistently located within this three-country border area. However, while Mali was clearly the most affected in 2018, political violence has crossed the border with Burkina Faso over time. While both countries now roughly share the burden of political violence in the Liptako-Gourma region, Niger's security situation is not only relatively better compared to Burkina Faso and Mali, but also roughly remained stable over time, with each year 5 to 7 areas being affected by extreme or high political violence.

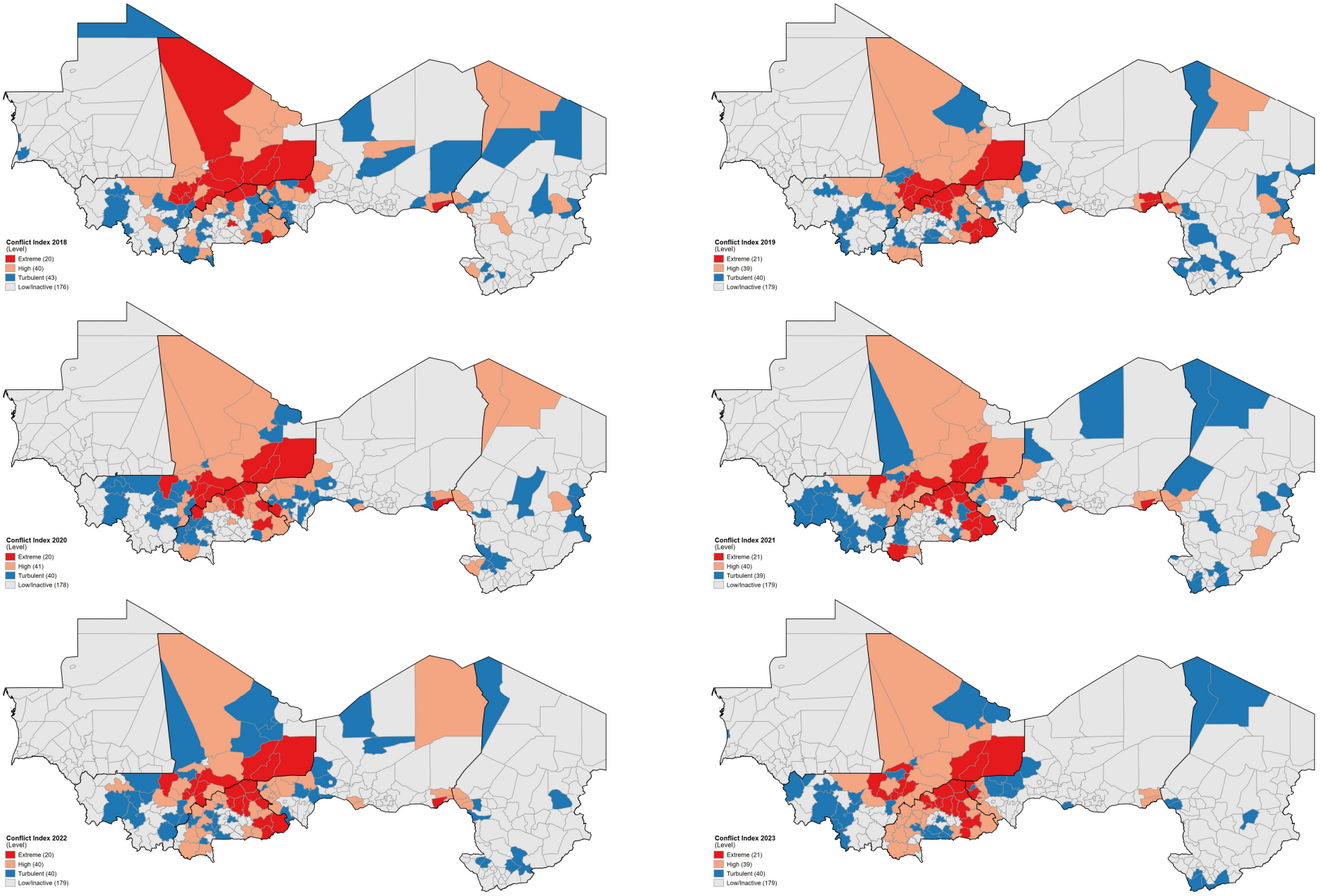
In contrast, we observe that both the North of Mali and the southeastern part of Niger (near Lake Chad) have become slightly less violent compared to the other G5 Sahel areas. Indeed, in both areas the occurrence of extreme and high levels of political violence has been generally replaced by high and turbulent conflict levels. Again, it is important to underscore that this trend relates to the relative weight of conflict within the entire G5 Sahel region and does not necessarily involve absolute reductions of political violence.

Another main epicenter of political violence involves the southeastern part of Burkina Faso. While extreme conflict levels were still the exception in 2018, this situation has considerably worsened since 2019 when they roughly became the norm. Another area of increased political violence is the Segou region in Mali, and especially the Niono Cercle, which, since 2020, consistently ranked among the 20 administrative areas characterized by extreme political violence. Further, high conflict levels are typically observed

as well in several administrative areas in the southwestern part of Burkina Faso and around Lake Chad on the Chadian side of the border.

Compared to Mali, Burkina Faso, and Niger, where most political violence took place over the past six years, the security situation in Chad and especially Mauritania is not only markedly better, but it also relatively improved over time. In Chad, the situation evolved from eight administrative units scattered across the country suffering from high levels of conflict in 2018 to one (N'Djamena) in 2023. Likewise, in Mauritania, it went from only three administrative entities characterized as turbulent to one (Nouakchott) over the same period considered. While capital cities on average are the more violent places in Chad and Mauritania, the cities of Bamako (in Mali), Ouagadougou (Burkina Faso), and Niamey (in Niger) appear to be relatively deprived from political violence – at least compared to their hinterland and aside from some episodes of turbulence.

Figure 2: Levels of political violence, G5 Sahel (2018-2023)

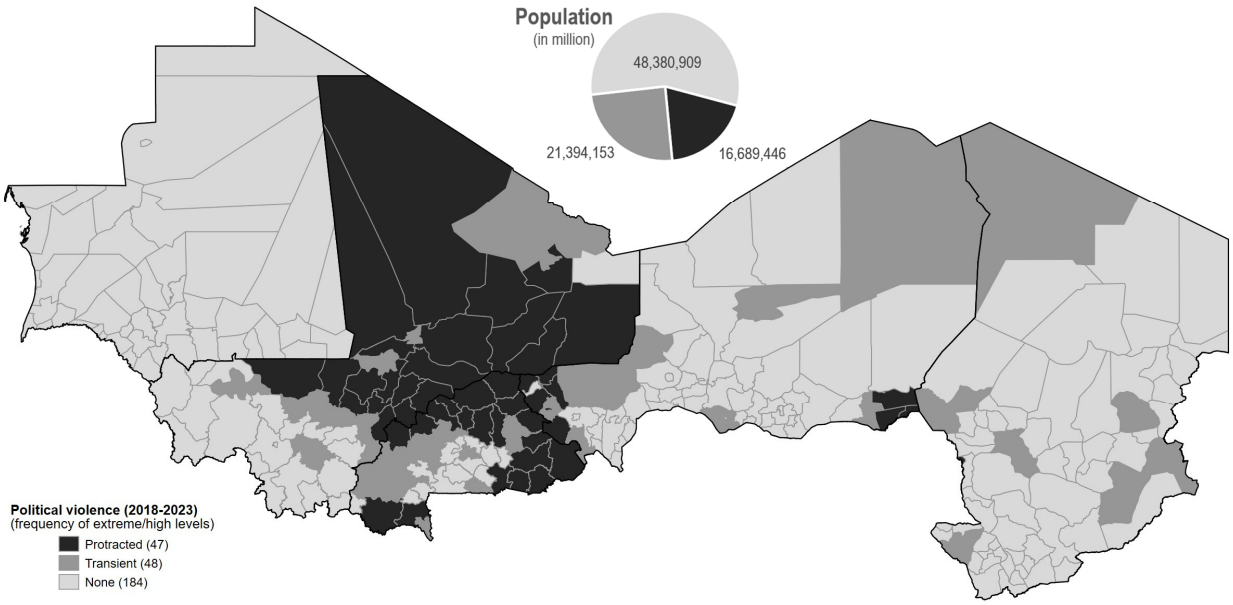


Source: Based on ACLED's curated dataset for Africa (5 January 2024).

Based on the frequency of extreme and high levels of conflict over time, Figure 3 distinguishes between protracted and transient forms of political violence. The “protracted” label is assigned to administrative units when conflict levels are high or extreme in 2023 (that is, the last year of the period considered) as well as in at least three other years between 2018 and 2022. In contrast, political violence is considered “transient” when high or extreme levels of conflict in 2023 are combined with fewer than three such episodes in the preceding period, or when conflict levels in 2023 are at most turbulent while at least one other year is characterized by extreme or high political violence. In all other cases, there is not a single episode of extreme or high conflict levels over the period considered in this analysis.

Following these definitions, we observe that political violence is lingering in 47 administrative entities – affecting around 17 million people.[12] The location of these areas largely aligns with the discussion above and not only involves the Liptako-Gourma region, but also includes various regions where extreme levels of political violence may have somewhat disappeared with time, such as the northern part of Mali, and the Niger’s side of the Lake Chad area. This in fact means that extreme levels of conflict in those areas on average have been simply replaced by high levels of conflict. In line with the discussion above, the southeastern and southwestern part of Burkina Faso are clearly suffering from protracted political violence too. Transient political violence affects around 21 million people in 48 administrative entities, mainly located adjacent to areas characterized by protracted conflict, as well as in several other areas scattered across the Sahel region. This scattered nature appears more common in Chad and in the North of Niger. More than half of all population in the G5 Sahel region (around 48 million people) did not experience any episode of extreme or high political violence in the past six years, with Mauritania being completely spared.

Figure 3: Protracted and transient political violence, G5 Sahel (2018-2023)



Source: Based on ACLED’s curated dataset for Africa (5 January 2024).

[12] This estimate is based on the same WorldPop datasets as used for the diffusion indicator.

Figure 4 presents the conflict index rankings of 2023 while at the same time adding information on the recurrent nature of extreme and high political violence in the preceding period between 2018 and 2022. As such, it combines the last map of Figure 2 with the distinction between protracted and transient conflict as displayed in Figure 3, which is indicated here by "!" and "*" respectively. This summary map also uses a more continuous coloring scheme to better capture the relative ranking of administrative units within each conflict level, while highlighting the areas with the highest ranking on each individual conflict dimension. In the latter respect, Table 5 provides more detail on scores and rankings for deadliness, danger, diffusion, and fragmentation for all 21 administrative entities characterized by extreme political violence.[13]

Eleven out of the 21 administrative units with the highest conflict ranking are located in Burkina Faso, while the remaining can be found in Mali (9) and Niger (1). These areas almost represent an uninterrupted belt that crosses the Liptako-Gourma region, stretching from Niono in Mali to the most northern provinces in Burkina Faso, and finally to Menaka, again in Mali. Two exceptions, however, stand out. The first relates to two areas in the southeastern part of Burkina Faso (Koulpelogo and Gourma), which share the same extreme level of conflict while being a bit disconnected from the violence belt in the north. The second involves Koro, which is still characterized by protracted political violence, but as it appears only ranks 54 in 2023, thus acting as an island of relative security against a highly violent surrounding. Based on the ACLED data, this relative security is fairly recent as Koro still had the highest conflict ranking of the entire G5 Sahel region in 2018 and the second highest in 2019 and 2020, after which the situation gradually improved since 2021. This achieving of relative peace in Koro stems from various negotiations and agreements between the Fulani and Dogon communities within several areas across the cercle.[14]

At the geographical center of the violence belt, we find Yatenga in Burkina Faso, which appears to be the deadliest area of the entire G5 Sahel region with at least 703 fatalities recorded in 2023. After a period of sporadic and low-level militant activities in 2017 and 2018, violence in fact quickly escalated when nearly 25 civilians were killed by government forces in 2019. Since then, the cycle of violence has further intensified, with the massacre carried out by government forces in the village of Karma in April 2023 being the deadliest event. According to Human Rights Watch (HRW), 156 civilians (including 28 woman and 45 children) were killed in this single attack.[15] Despite being home to only three distinct rebel and militia groups (thus ranking 21st on fragmentation), this area has recorded 56 events targeting civilians and at least 3 events in 26% of its populated surface area, thus ranking sixth on danger and third on diffusion. Combining all dimensions, Yatenga has the second highest conflict index of all second-tier administrative units in the G5 Sahel.

In contrast, Gao in Mali appears to be the most dangerous area, with 92 civilian-targeting events in 2023, as well as the one where most distinct rebel and militia groups operate (that is, not less

[13] Gourma and Zondoma appear to share the same average ranking across the four conflict dimensions, thus resulting in 21 areas characterized by extreme levels of political violence.

[14] For more information and examples of these agreements, see: RFI (www.rfi.fr/fr/afrique/20210227-accord-de-paix-dans-le-cercle-de-koro-entre-peuls-et-dogons) and HD Centre (www.hdcentre.org/wp-content/uploads/2018/08/Accord-de-paix-entre-les-communautés-Dogon-et-Peulh-du-cercle-de-Koro-28-août-2018.pdf).

[15] HRW (www.hrw.org/news/2023/05/04/burkina-faso-army-linked-massacre-156-civilians).

than 14 groups). Despite ranking first place on both dimensions, Gao's overall rank is only eleventh, which is due to conflict being relatively less deadly (264 fatalities, rank 17) and especially more geographically concentrated, with only 4% of its populated territory having suffered from three or more conflict events in 2023 (rank 45). Indeed, inspecting their exact location, we can observe that most of the 2023 conflict events took place along the national roads RN17 and RN18, which connect the regional capital of Gao to the smaller cities of Ansongo in the south and Bourem in the north, respectively. The urban and rural geography of this region in fact harbors locally diverse and overlapping conflict dynamics, which provides a cross-section of the various types of armed actors that operate within the broader conflict landscape. While the northern Bourem cercle is dominated by JNIM and the southern Ansongo cercle by IS Sahel, the cercle of Gao in-between is contested by a variety of armed actors. At the same time, pro-government forces and militias are also strongly represented in urban centers, such as Gao and Ansongo, to help address criminal networks and, bandit gangs, but have sometimes themselves been involved in criminal activities like kidnappings, robberies, extortion, and burglaries.

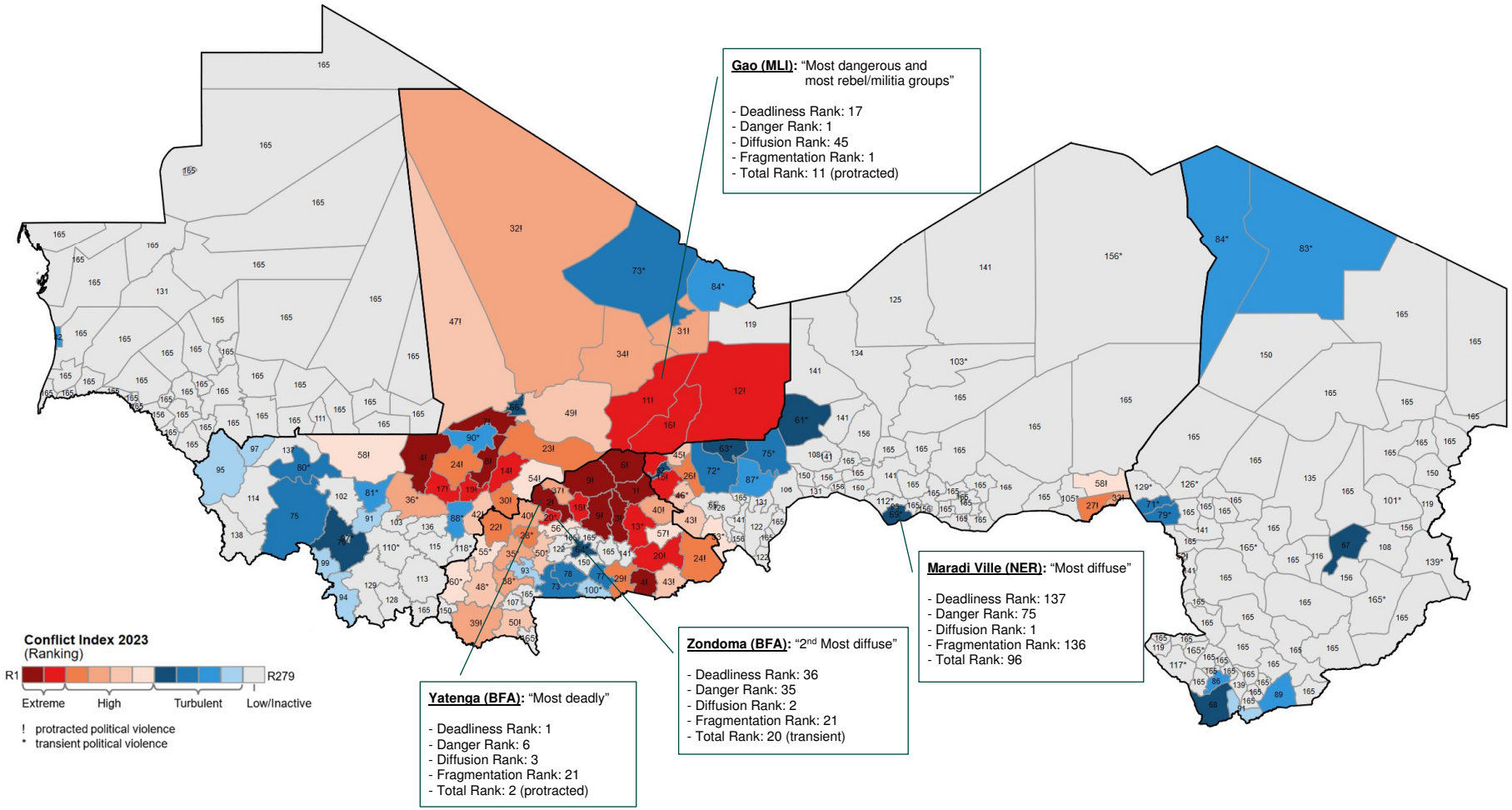
Regarding the remaining dimension of the conflict index, the city of Maradi in Niger has a diffusion score of 100%, which is by far the highest of all administrative areas in the G5 Sahel region. This result, however, is the perfect illustration of an important drawback of this indicator. In this case, the surface area of Maradi basically consists of only one 10x10km grid cell, where, as it appears, four political conflict events were recorded in 2023 – thus resulting in a score of 100%. In more general terms, smaller areas, by construction, will likely score higher on the diffusion indicator. The second-highest score in this respect is measured in Zondoma (in Burkina Faso), where almost 30% of the populated land area has suffered from at least three conflict events in 2023. The overall conflict ranking of this administrative area however amounts to only 20, which stems from the relatively lower scores and corresponding rankings on the other three dimensions, that is a ranking of 36 for deadliness, 35 for danger, and 21 for fragmentation.

Similar to the discussion of areas with the highest individual rankings, Table 5 more generally illustrates the pronounced diversity in conflict characteristics within the category of extreme political violence. Whereas the overall ranking for some areas may be driven by one particular dimension, others may suffer from a combination of conflict factors, while still other areas can rather be characterized by a relatively *better* score on one particular conflict dimension. For example, the following areas seem to suffer from a relatively bad score on only one of the four conflict indicators. That is, Sanmatenga and Gourma (regarding deadliness); Seno and Mopti (regarding danger); Djenne and Zondoma (regarding diffusion); and Niafunke, Gnagna, and Téra (regarding fragmentation). In contrast, Namentenga, Oudalan, and Soum appear to be areas where political violence is both relatively deadly and fragmented. Finally, most of the remaining areas in Table 5 are similar in that they are performing relatively well on one dimension. That is the case for Niono, Gao, Menaka, and Ansongo, where political violence seems to be highly geographically concentrated (i.e., relatively low diffusion scores), and in Yatenga, Koulpelogo, Bandiagara, Macina, and Bam, where fewer rebel and militia groups seem to operate (i.e., relatively low fragmentation scores). In addition to information generated directly by the four constituent dimensions of the conflict index, we also observe that the 2023 extreme conflict levels observed in Gnagna and Zondoma (both in Burkina Faso) are of transient nature, meaning that they are rather exceptional compared to previous years.

Despite this diversity, a common denominator however is the pronounced combination of militant, militia, and state violence that is driving the escalation. For example, JNIM militants fight against the state-backed Burkinabe militias, such as the Volunteers for the Defense of the Homeland (VDP) in the provinces of Yatenga, Namentenga, Sanmatenga, and much more recently in Koulpelogo. In Bandiagara in Mali, the most important rival non-state actors are JNIM and the majority ethnic-Dogon militia Dan Na Ambassagou, while the province of Seno in Burkina Faso is the only area in which IS Sahel is the most active actor. While the jihadist insurgency certainly plays a central role, the presence and proliferation of local militias in most of the administrative units affected by extreme violence are often key in further provoking and fueling insecurity and instability throughout the G5 Sahel region. At the local level, these conflicts are best described as “communal wars”, which feature hybrid forms of violence that combine community self-defense, inter-ethnic and communal rivalries, and competing visions of social order.[16]

[16] For more information, see: https://acleddata.com/conflict-watchlist-2024/sahel.

Figure 4: Political violence, G5 Sahel (2023)



Source: Based on ACLED's curated dataset for Africa (5 January 2024).

Table 5: Extreme political violence, G5 Sahel (2023)

Conflict Index			Name	Country	Population	Deadliness		Danger		Diffusion		Fragmentation	
(rank)	(level)	(frequency)				(number)	(rank)	(number)	(rank)	(%)	(rank)	(number)	(rank)
1	Extreme	Protracted	**Seno**	Burkina Faso	358,707	466	9	82	2	20.5	8	4	6
2	Extreme	Protracted	**Yatenga**	Burkina Faso	671,746	703	1	56	6	26.1	3	3	21
3	Extreme	Protracted	**Namentenga**	Burkina Faso	438,238	498	8	31	20	18.8	10	4	6
4	Extreme	Protracted	**Niono**	Mali	516,947	313	14	56	6	9.9	26	5	2
4	Extreme	Protracted	**Koulpelogo**	Burkina Faso	374,754	520	7	39	13	24.1	7	3	21
6	Extreme	Protracted	**Oudalan**	Burkina Faso	299,187	547	5	34	16	10.6	22	4	6
7	Extreme	Protracted	**Niafunke**	Mali	225,498	258	18	40	12	10.8	20	4	6
8	Extreme	Protracted	**Mopti**	Mali	453,489	223	21	58	5	16	13	3	21
9	Extreme	Protracted	**Soum**	Burkina Faso	490,454	679	2	27	26	9.4	27	4	6
9	Extreme	Protracted	**Sanmatenga**	Burkina Faso	785,436	544	6	31	20	15.8	14	3	21
11	Extreme	Protracted	**Gao**	Mali	380,827	264	17	92	1	4.3	45	14	1
12	Extreme	Protracted	**Menaka**	Mali	75,300	563	4	63	3	2.9	57	5	2
13	Extreme	Transient	**Gnagna**	Burkina Faso	558,826	213	23	28	24	9.9	25	5	2
14	Extreme	Protracted	**Bandiagara**	Mali	396,649	405	12	46	11	19.8	9	2	45
15	Extreme	Protracted	**Téra**	Niger	538,198	187	27	37	15	8.9	30	4	6
16	Extreme	Protracted	**Ansongo**	Mali	192,850	217	22	50	9	4.2	46	4	6
17	Extreme	Protracted	**Macina**	Mali	289,466	199	24	60	4	18.2	11	2	45
18	Extreme	Protracted	**Bam**	Burkina Faso	366,088	406	11	26	29	25.6	4	2	45
19	Extreme	Protracted	**Djenne**	Mali	283,841	150	33	28	24	17.8	12	3	21
20	Extreme	Protracted	**Gourma**	Burkina Faso	453,731	573	3	24	31	6.9	39	3	21
20	Extreme	Transient	**Zondoma**	Burkina Faso	222,284	140	36	21	35	28.6	2	3	21

Source: Based on ACLED's curated dataset for Africa (5 January 2024).

Conclusions

This study applied ACLED's conflict index methodology to the second-tier administrative levels of the G5 Sahel region between 2018 and 2023. Going beyond mere event and fatality counts, this methodology aims to enrich the analysis of conflict and political violence by capturing and aggregating four distinct dimensions into a composite ranking index. The dimensions involve deadliness, danger, diffusion, and fragmentation, which respectively focus on the death toll of political violence, the extent that civilians are targeted, the geographical spread of events, and the number of distinct rebel and militia groups being involved.

The methodological contribution of this study is limited in that the standard approach is largely reproduced – though with a few minor changes to fit our case study. These changes relate to the use of different population and event thresholds for the diffusion indicator, the truncation to maximum one identity militia per third-level administrative unit, and a wider classification of the aggregate conflict index into extreme, high, and turbulent levels of political violence. Based on the frequency of extreme and high conflict levels over the six-year period considered, the study also introduced the notion of protracted and transient political violence to add another layer of information to the analysis.

The data used for this study are extracted from ACLED's curated dataset for Africa published in January 2024. The subset of data for Mauritania, Mali, Burkina Faso, Niger, and Chad covering the period from 2018 to 2023 in total comprises 23,195 conflict events and 15,237 political violence events, which have been sourced and systematically coded, using explicit protocols, with information on dates, actors, locations, fatalities, event types, descriptive tags, and other attributes.

Based on this temporally and spatially refined conflict profile, the following three main findings stand out.

First, regarding evolution, political violence has clearly intensified over the period considered, especially in Mali, Burkina Faso, and Niger. Not only did the total number of political violence events almost quadruple over the period considered, they also affected twice as many people within a range of 5 km and became roughly more lethal, especially in 2023, which all contributed to an increase of total fatalities by factor five. Despite the increase in total events, the share in which civilians were targeted, roughly remained stable around 50%. Similarly, the total number of distinct rebel and militia groups substantially increased in 2019 and 2020, before returning to the baseline level in 2023.

Second, regarding hotspots, most of the political violence clearly took place in the tri-state border area of Liptako-Gourma, with Mali being the most affected in the beginning of the 2018-2023 period and Burkina Faso getting gradually drawn into a negative spiral of increased insecurity in later years. Although less severe compared to Mali and Burkina Faso, the insecurity situation on the Niger side of the border continued to remain problematic between 2018 and 2023. Next to Liptako-Gourma, political violence has also substantially increased in the southeastern part of Burkina Faso since 2019 and in the Segou region in Mali since 2020. Despite some variation over time or even slight improvements, several areas in the southwestern part of Burkina Faso and around Lake Chad have remained highly prone to conflict over the period considered. In contrast, the North of Mali has become relatively less violent compared to the other G5 Sahel areas. Relative to Mali, Burkina Faso, and Niger, which share most of the conflict burden in the G5 Sahel region, the security situation in Chad and especially Mauritania is not only markedly better, it also relatively improved over time.

Third, regarding the nature of political violence, the 21 administrative areas with the highest conflict indexes have very diverse conflict profiles. This diversity stems from a substantial variation in scores and

rankings on the four conflict dimensions as well as in frequency of high and extreme political violence over time. While most of these conflict characteristics are interrelated and while most of the areas characterized by extreme violence share a similar overall conflict landscape, these diverse profiles are an important reminder that conflict is essentially the outcome of highly localized processes. As a result, strategies to address political violence across the G5 Sahel region can only be successful if they draw on an accurate understanding of the local conflict dynamics at play, covering the interests and motives of all actors involved, and especially those of the impoverished and vulnerable populations.

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ACKNOWLEDGMENTS

The authors are very grateful to Katayoun Kishi and Linda Steinhübel for their research support and assistance in reproducing ACLED's Conflict Index for the G5 Sahel region. All errors remain of course the authors' sole responsibility.

REFERENCES

Barrett, C.B., Carter, M.R. (2010) "The Power and Pitfalls of Experiments in Development Economics: Some Non-random Reflections", Applied Economic Perspectives and Policy, 32(4); 515–548, https://doi.org/10.1093/aepp/ppq023

Borderon, M., Sakdapolrak, P., Muttarak, R., Kebede, E., Pagogna, R., Sporer, E. (2019) "Migration influenced by environmental change in Africa: A systematic review of empirical evidence", Demographic Research, 41:491–544, https://www.jstor.org/stable/26850658

Carbone, G., Casola, C. (eds.) (2022) Sahel: 10 Years of Instability. Local, Regional and International Dynamics. Milan (Italy): Ledizioni LediPublishing.

CILSS (2023) Au Sahel, en Afrique de l'Ouest et au Cameroun: Résultats de l'analyse de l'insécurité alimentaire et nutritionnelle aiguë courante en mars-mai 2023 et projetée en juin-août 2023. Ouagadougou: Comité Inter-État de Lutte contre la Sécheresse au Sahel. Downloaded on 21 December 2023: https://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/ch/Fiche_com_Mars_2023_VF.pdf

Gangneron, F., Pierre, C., Robert, E., Kergoat, L., Grippa, M., Guichard, F., Hiernaux, P., Leauthaud, C. (2022) "Persistence and success of the Sahel desertification narrative", Regional Environmental Change, 22:118, https://doi.org/10.1007/s10113-022-01969-1

Glasman, J. (2020) Humanitarianism and the Quantification of Human Needs: Minimal Humanity. Abingdon, UK: Routledge.

Hilhorst, D. (2018) "Classical humanitarianism and resilience humanitarianism: making sense of two brands of humanitarian action", Journal of International Humanitarian Action, 3:15, https://doi.org/10.1186/s41018-018-0043-6

Martin-Shields, C.P., Stojetz, W. (2019) "Food security and conflict: Empirical challenges and future opportunities for research and policy making on food security and conflict", World Development, 119:150–164, https://doi.org/10.1016/j.worlddev.2018.07.011

Miller, E., Kishi, R., Raleigh, C., Dowd, C. (2022) "An agenda for addressing bias in conflict data", Scientific Data, 9:593, https://doi.org/10.1038/s41597-022-01705-8

Nsaibia, H. (2022) The Sahel. Persistent, expanding, and escalating instability (10 Conflicts to Worry About in 2022). Downloaded on 21 December 2023: https://acleddata.com/10-conflicts-to-worry-about-in-2022/sahel

Raleigh, C., Kishi, R. (2019) Comparing Conflict Data: Similarities and Differences across Conflict Datasets. ACLED Working Paper. Downloaded on 21 December 2023: https://acleddata.com/acleddatanew/wp-content/uploads/2022/02/ACLED_WorkingPaper_ComparisonAnalysis_2019.pdf

Raleigh, C., Kishi, R., Linke, A. (2023) "Political instability patterns are obscured by conflict dataset scope conditions, sources, and coding choices", Humanities & Social Sciences Communications, 10:74, https://doi.org/10.1057/s41599-023-01559-4

UNOCHA (2023) Sahel Humanitarian Needs and Requirements Overview 2023. New York/Geneva: United Nations Office for the Coordination of Humanitarian Affairs. Downloaded on 21 December 2023: https://reliefweb.int/attachments/8abc9206-aa06-498e-99a5-0c95ec180f0c/Sahel-2023-HNRO-ENG-20230602.pdf

WFP & FAO (2023) Hunger Hotspots. FAO–WFP Early warnings on acute food insecurity: November 2023 to April 2024 Outlook. Rome: World Food Programme and Food and Agriculture Organization of the United Nations. Downloaded on 21 December 2023: https://doi.org/10.4060/cc8419en

Yobom, O. (2020) "Climate change and variability: empirical evidence for countries and agroecological zones of the Sahel", Climatic Change, 159:365–384, https://doi.org/10.1007/s10584-019-02606-3

This work was supported by the Norwegian Agency for Development Cooperation (NORAD) under the project titled, "Learning Support for a Sub-Saharan Africa Multi-Country Climate Resilience Program for Food Security", and by the donors who fund the CGIAR Research Initiative on Fragility, Conflict, and Migration (FCM), through their contributions to the CGIAR Trust Fund: https://www.cgiar.org/funders.

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