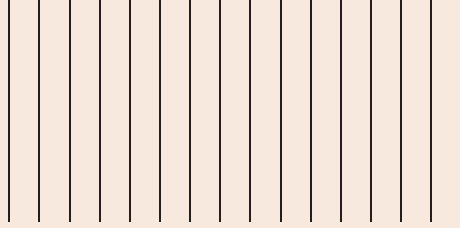# WEST AFRICAN PAPERS

>> **THE FRAGMENTATION OF CONFLICT NETWORKS IN NORTH AND WEST AFRICA**

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THE FRAGMENTATION OF CONFLICT NETWORKS IN NORTH AND WEST AFRICA

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OLIVIER WALTHER AND DAVID RUSSELL

WEST AFRICAN PAPERS

The West African Papers series explores African socio-economic, political and security transformations, their interactions and their effects. Intended for an audience of experts, researchers and decision makers, they aim to stimulate discussion and inform policy. The papers are available in English and/or French and can be downloaded from: https://doi.org/10.1787/24142026.

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Abstract:

African armed conflicts involve a myriad of state forces, rebel groups and extremist organisations bound by rapidly changing alliances and rivalries. Organisations that were allies one day can fight each other the next and co-operate later still. The objective of this note is to update the pioneer work on conflict networks conducted by the OECD Sahel and West Africa Club (SWAC) in the region by using a formal approach to networks known as dynamic social network analysis. Leveraging a dataset of 3 800 actors and 60 000 violent events from the Armed Conflict Location & Event Data Project (ACLED) from 1997-2023, the note monitors how the co-operative and rivalrous ties between violent actors have changed over time, both at the regional and local levels. The growing number of belligerents, increasing density of rivalrous relationships and growing polarisation of the conflict networks observed in this note are extremely worrying for the future of the region. Not only do they make peaceful efforts more difficult than ever, but they also contribute to increasing the number of potential victims among the civilian population.

The team and acknowledgements:

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THE SAHEL AND
WEST AFRICA CLUB

The Sahel and West Africa Club (SWAC) is an international platform whose Secretariat is hosted by the Organisation for Economic Co-operation and Development (OECD). SWAC/OECD produces and maps data, provides informed analyses and facilitates strategic dialogue, to help better anticipate transformations in the region and their territorial impacts. Through its retrospective and prospective approach, it promotes more contextualised policies as levers for regional integration, sustainable development and stability. Its areas of work include food dynamics, urbanisation, climate and security.

Its Members and financial partners are AFD (*Agence française de développement*), Austria, Belgium, Canada, CILSS (Permanent Interstate Committee for Drought Control in the Sahel), the ECOWAS (Economic Community of West African States) Commission, the European Commission, France, GIZ (*Deutsche Gesellschaft für Internationale Zusammenarbeit*), Luxembourg, the Netherlands, Spain, Switzerland, the UEMOA (West African Economic and Monetary Union) Commission and the United States.

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● FOREWORD

As part of the Coalition for the Sahel, which brings together more than 50 states and organisations across Africa and beyond, the Sahel and West Africa Club (SWAC) of the OECD is at the forefront of regional knowledge, alongside other actors including those from the academic and scientific world. Assessing the issues facing the Sahel and its populations objectively is essential to understanding the challenges and formulating appropriate responses.

One of these issues, and without doubt the most pressing, is the armed violence being inflicted on people in the region. From the very beginning of my mandate as High Representative of the Coalition in September 2023, I have witnessed how integral it is to mutual interests, particularly during talks at the United Nations.

Sadly, the Sahel is one of the regions of the world where violence has increased the most in a single year, with multiple negative effects. It weakens communities both economically and psychologically, wiping out development and education efforts, exacerbating humanitarian dependency and altering human geography. As a result, the second-largest city in my country, Mauritania, is now a refugee camp.

With all this in mind, I must pay tribute to the contribution of the Armed Conflict Location & Event Data Project (ACLED) database used by SWAC to build its Spatial Conflict Dynamics indicator (SCDi), which offers a valuable tool to portray the scale of this violence, particularly its actors, typology, networks and dynamics.

Given the urgency of the situation, I hope that this work will assist the formulation of national and regional public policies and international partnerships.

H.E. Mr Hamadi Meimou
High Representative of the Coalition for the Sahel

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● ACRONYMS

ACLED   Armed Conflict Location & Event Data Project

AQIM   Al Qaeda in the Islamic Maghreb

DSNA   Dynamic social network analysis

GATIA   Imghad Tuareg Self-Defense Group and Allies *(Groupe d'autodéfense touareg Imghad et alliés)*

GNA   Government of National Accord (Libya)

GNS   Government of National Stability (Libya)

GNU   Government of National Unity (Libya)

IS Sahel Islamic State Sahel Province

ISWAP   Islamic State West Africa Province

JNIM   Group for the Support of Islam and Muslims (*Jama'at Nusrat al-Islam wal-Muslimin*)

LNA   Libyan National Army

MNJTF   Multinational Joint Task Force

MSA   Movement for the Salvation of Azawad (*Mouvement pour le Salut de l'Azawad*)

SWAC   Sahel and West Africa Club

VDP   Volunteers for the Defense of the Homeland

EXECUTIVE SUMMARY

Armed conflicts in North and West Africa are characterised by a variety of violent actors. In addition to government forces, these conflicts involve a myriad of extremist groups, rebels, political and identity militias, and mercenaries. Alliances and rivalries between these actors are often short-lived. Organisations that were allies one day can fight each other the next and co-operate later still for opportunistic reasons.

To understand the changing nature of these relationships, the OECD's Sahel and West Africa Club (SWAC) launched one of the very first studies dedicated to conflict networks in North and West Africa in 2021 (OECD/SWAC, 2021[1]). The objective of this note is to update this work by using a formal approach to networks called dynamic social network analysis (DSNA). Leveraging a dataset of 3 800 actors and 60 000 violent events from the Armed Conflict Location & Event Data Project (ACLED), the note monitors how the co-operative and rivalrous ties between violent actors have changed from 1997-2023. The analysis is conducted at the regional level and in three major conflict regions: the Central Sahel, the Lake Chad region and Libya.

The findings confirm those of previous studies conducted by SWAC in the region. They highlight that the number of actors involved in political violence has increased without interruption since the late 2000s. In the first half of 2023, 480 actors were involved as victims or perpetrators in acts of violence, against 287 in 2013. Each actor has on average more than three enemies. This fragmentation of the conflict environment is reflected in the increasing number of rivalrous relationships, which reached 771 through June 2023, against 430 one decade ago. In this paper, rivalries are defined as a conflictual relationship between two actors that result in a violent event, while alliances refer to co-operative relationships between actors (see Box 1). While rivalries have always been more represented than alliances in the region, the gap between the two types of relationships has increased speedily since the early 2010s, with catastrophic consequences for the stability of the region and the security of civilian populations.

The analysis also suggests that the conflict environment is becoming increasingly centred around a few exceptionally violent actors. To monitor this evolution, the note measures both the density and centralisation of conflict networks. While network density provides a sense of how cohesive a network is, network centralisation indicates whether the network tends to be polarised by a few major players. The results confirm that the density of rivalrous relationships has remained consistently higher than the density of co-operative relationships over the past 23 years and has surged since the early 2010s. The development of jihadist insurgencies in the Sahel and the civil war in Libya explains this recent increase in violent relationships and violent actors.

The degradation of the security situation leads a growing number of state and non-state actors to seek formal or opportunistic alliances. The slight overall trend towards increased co-operation is mainly driven by the formation of a Government of National Unity (GNU) in Libya and secondarily by new partnerships between African governments, local militias and mercenaries, and by the consolidation of jihadist groups. This evolution contributes to polarising violent activities around a handful of powerful actors that have merged with allied groups or destroyed their enemies.

The growing number of belligerents, increasing density of rivalrous relationships and growing polarisation of conflict networks are extremely worrying for the future of the region. Not only do they make peaceful efforts more difficult than ever in the region, but they also contribute to increasing the number of potential victims among the civilian population.

CONFLICTS DOMINATED BY RIVALRY

African armed conflicts involve a growing number of violent actors who compete for the control of natural resources, civilian populations and trade routes. In addition to government forces, the conflict environment involves rebel groups, jihadist movements, militias defending ethnic and political interests, vigilante associations formed in response to insurgent threats, mercenaries, foreign military troops and peacekeeping forces (Walther, Leuprecht and Skillicorn, 2020[2]). In 2023, 141 actors were involved in violent attacks in the Central Sahel, against only 38 in 2012 when the civil war started in Mali, for example. This evolution is fuelled by the intensification of armed conflicts in the region and their transnational expansion to areas that had been peaceful until recently (OECD/SWAC, 2020[3]; Radil and Walther, 2024[4]).

Alliances and rivalries between violent actors are far from stable. Organisations that were allies one day can fight each other the next and co-operate later still. These relationships are shaped by internal struggles between factions and external pressures from states and their international allies. In some instances, violent organisations may temporarily ally to share intelligence, overcome military weaknesses or attack a common enemy. However, these alliances are often short-lived, as violent organisations are prone to fragmenting into competing factions. In Mali, for example, jihadist groups affiliated with Al Qaeda and the Islamic State have occasionally joined forces against the government and its allies before clashing over territorial and ideological issues (Nsaibia, Beevor and Berger, 2023[5]). Libya offers another example of a conflict region characterised by several episodes of consolidation and fragmentation of violent actors. Since the civil war started in 2011, government forces and militias have experienced a periodic rise and fall of alliances, culminating in the GNU in 2021 (Lacher, 2023[6]).

Monitoring alliances and rivalries between violent organisations in North and West Africa has long been a pressing issue for policy makers and researchers, due to the rapidly changing nature of their relationships and the growing number of actors involved. The objective of this paper is to update previous work based on a formal approach to networks known as dynamic social network analysis (DSNA). Leveraging a dataset of 3 800 actors and 60 000 violent events from ACLED from 1997-2023, the note monitors how the co-operative and rivalrous ties between violent actors have changed over time at the regional level and in three major conflict regions.

The findings highlight that the number of actors involved in political violence has increased without interruption since the late 2000s. They show that the region's conflicts are dominated by rivalrous relationships, while alliances are comparatively scarce. In other words, violent actors develop and maintain far more rivalrous relationships than co-operative relationships. The analysis also suggests that the conflict environment is becoming increasingly centred around a few actors that manage to consolidate their power through mergers with allied groups or the destruction of their enemies.

A DYNAMIC ANALYSIS OF CONFLICT NETWORKS

This report builds on DSNA, an approach that combines the relational approach of social network analysis with a temporal analysis that studies the evolution of social networks over time (Zammit-Mangion et al., 2013[7]). The study region maps the changing alliances and rivalries among state forces, non-state actors and civilians in 21 North and West African countries from 1997. It focuses on three conflict regions in which violent actors have developed rapidly, have extended beyond state boundaries and have caused significant numbers of deaths in the past two decades: the Central Sahel, the Lake Chad region and Libya (Map 1).

Map 1.
Countries and conflict regions
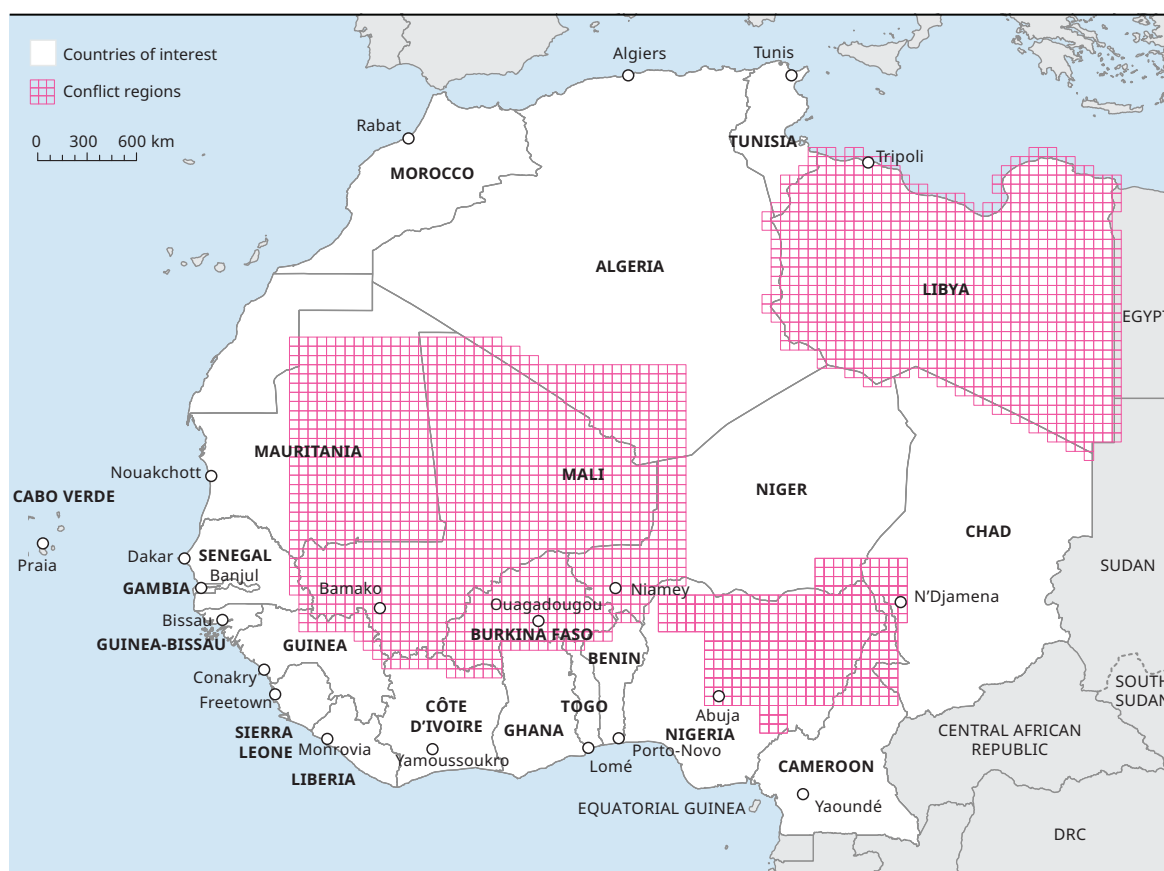
Note: Conflict regions are similar to those identified in previous OECD studies. They include all the regions in which political violence is particularly high in the Central Sahel and Lake Chad basin, as well as the whole of Libya.

Source: OECD/SWAC (2020[3])

This study uses event conflict data provided by ACLED for the 21 countries in the study region for the period between 1 January 1997 and 30 June 2023. The ACLED data are further subset to three event types: (i) battles, defined as "a violent interaction between two politically organised armed groups"; (ii) explosions and remote violence, defined as "one-sided violent events in which the tool for engaging in conflict creates asymmetry by taking away the ability of the target to respond"; and (iii) violence against civilians that include "violent events where an organised armed group deliberately inflicts violence upon unarmed non-combatants" (ACLED, 2017[8]). The result is a dataset of 59 548 unique events.

This information is used to build a single database representing the ties between actors over time (Box 1). The ties can take two forms: co-operative and rivalrous. A co-operative tie between two actors means that they have established some kind of co-operative relationship. Alliances can include formal partnerships between military forces, such as during the Barkhane Operation in Mali (2014-22), long-term collaborations between non-state actors or opportunistic associations against a common enemy. The second kind of tie is a rivalrous one. Conflict between actors can take various forms and does not necessarily involve fatalities. Considering both these types of ties forms a social network, in which the nodes represent actors and the ties represent co-operative or rivalrous relationships (Box 2).

Box 1
ACLED actors

In this note, the term "actor" is used to describe state, non-state or civilian entities involved in acts of violence, as perpetrators or victims, since not all of them are formal organisations. ACLED event data describe up to four types of actors involved in the event: a primary actor A; an associated actor C, who may have collaborated with A; a second primary actor B, in conflict with A and C; and a second associated actor D, allied with B. The list of events provided by ACLED is transformed into a series of dyadic relationships between all the actors involved in violent events since 1997. This means multiplying the number of events by possible dyadic relationships. If A and C are involved in a violent event against B and D, for example, this event will be listed six times in the dataset to consider all the pairs of actors simultaneously (A co-operates with C, B co-operates with D, A fights B, A fights D, C fights B, C fights D).

ACLED identifies eight categories of actors based on their goals and structure: state forces, rebels, political militias, identity militias, rioters, protesters, civilians and external forces. This study builds on these categories and makes two minor changes to the ACLED dataset's naming of actors.

First, the different names given by ACLED for a single actor are merged to reduce the number of actors on which the co-operation and rivalry networks are based. For example, the "police forces of Egypt" are listed under 10 different names according to the regime they have served and the unit that participated in a violent event. The only exception is Libya, where "military forces of Libya", "military forces of Libya Haftar Faction" and "military forces of Libya Government of National Accord" are represented as separate entities. These changes explain why the number of state forces is notably smaller than in previous studies (OECD/SWAC, 2021[1]).

Second, ACLED identifies numerous categories of civilians, such as fishermen, farmers, health workers, teachers and women. Again, to reduce the number of potential actors in the networks, these actors are regarded as "civilians" and merged into a single category by country (e.g., "civilians [Mali]").

Box 2.
Different types of networks

Networks can be visualised as a set of actors (nodes) that represent individuals, groups or regions, connected to each other through social, religious, economic or political relationships (ties). When the only information available about a network is the existence of ties between nodes, the network is undirected and unweighted (Figure 1). A network can be directed when the relationship between nodes implies some form of direction;

for example, when one knows who sends money to whom. A network can also be weighted when a numerical value is assigned to the ties, as when one counts the number of days that two persons have spent together. Finally, some networks are signed, meaning that they represent both positive and negative ties.

Figure 1.
Undirected, directed, weighted and signed networks
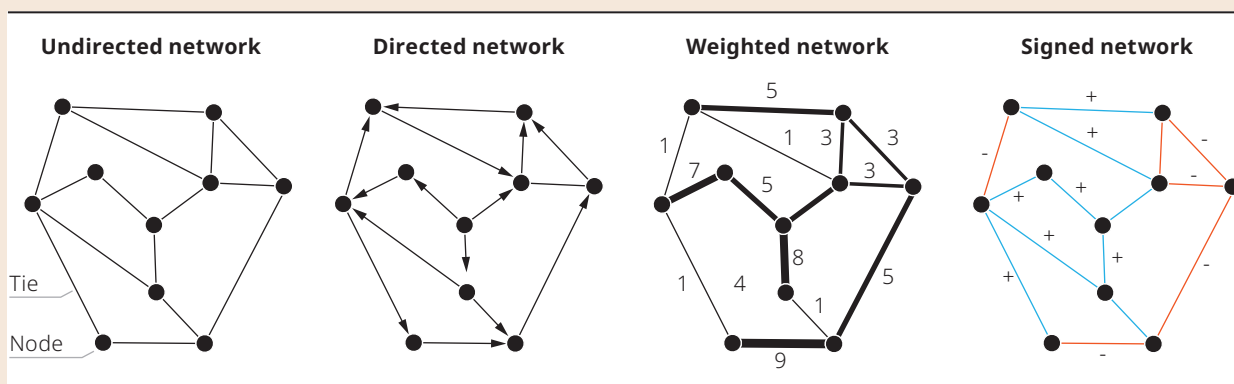
Source: Adapted from OECD/SWAC (2021[1]) by the authors.

In this report, the conflict networks representing alliances and rivalries are signed and undirected since the ACLED dataset does not indicate who is the perpetrator and the victim of a violent event. The only exception is civilians, who are always considered unarmed and victims of another actor. For this reason, a dyad composed of a civilian actor and another actor can only result in a negative relationship.

This list of dyadic events is transformed into a series of relationships over time. When actors co-operate in an event, it is assumed that they are in a co-operative relationship for a certain period after that event, and vice versa. To account for the temporal variation of ties, it is assumed that co-operative and rivalrous ties have a limited duration of 30 days, after which the relationships between actors ends if no new event is recorded between them. A new event of the same kind (co-operation or rivalry) renews that relationship. This threshold is based on the median duration between dyadic relationships observed in the ACLED database.

The study also considers the fact that co-operative and rivalrous ties may sometimes be consecutive, so it is assumed that an event of another type will interrupt the existing tie and replace it with one of the other types. If two actors were fighting, their rivalrous tie will last until 30 days have gone by without another fighting event between them, or until they suddenly co-operate, at which point they will have a co-operative tie. This analysis is conducted using the temporal social network analysis package in R (Bender-deMoll and Morris, 2021[9]).

The study calculates two metrics to detect changes in co-operation and rivalry networks: density and centralisation. Both metrics characterise the structure of the whole network, rather than the structural position of an actor. While density provides a sense of how cohesive a network is, centralisation indicates whether the network tends to be polarised by a few exceptionally central actors. Both metrics complement each other and are ideally suited to model the temporal evolution of conflict networks.

Network density represents the number of ties present in a network compared with the number of ties that could potentially exist if every actor were connected to every other actor. Density varies between 0, when there are no connections at all, and 1, when the network is fully connected. Network density varies

with the size of a network: large networks tend to have a lower density than small ones, because there is a limit to the number of simultaneous relationships that an actor can have. In a co-operation network, an increase in density suggests that actors form more alliances and/or that the number of actors decreases, perhaps because of a consolidation of power between allied forces. Similarly, in a rivalry network, an increase in density suggests that the number of clashes between actors is increasing and/or that there are fewer actors involved in violent events.

Network centralisation describes to what extent a network is centralised around a few key actors. Centralisation varies from 0 if the network is completely decentralised and all actors have the same number of ties, to 1 if all actors are connected to a central actor without being connected to each other, as in a 'star' network (Borgatti, Everett and Johnson, 2018[10]). In a co-operation network, an increase in centralisation suggests that a dominant actor polarises an increasing number of alliances. This could happen after the signature of a peace agreement between the government and a myriad of rebel groups and local militias. If centralisation increases in a rivalry network, this suggests that violent actors are increasingly in conflict with a dominant actor without necessarily fighting each other. This may happen when a violent extremist organisation is opposed to both state forces and non-state actors and has no ally in a region, for example.

● NETWORKS OF VIOLENCE

A growing number of actors in conflict

Armed conflicts in North and West Africa are characterised by a growing number of violent actors. The latest projections suggest that the number of actors involved in rivalries should approach 960 at the end of 2023, the second-highest number recorded since 1997. These actors have always been more represented than those involved in alliances since detailed data were collected in the region (Figure 2). However, the gap between the number of actors involved in alliances and rivalries has increased speedily since the early 2010s, with catastrophic consequences for the stability of the region and the security of civilian populations.

Figure 2.
Actors involved in alliances and rivalries in North and West Africa, 1997-2023
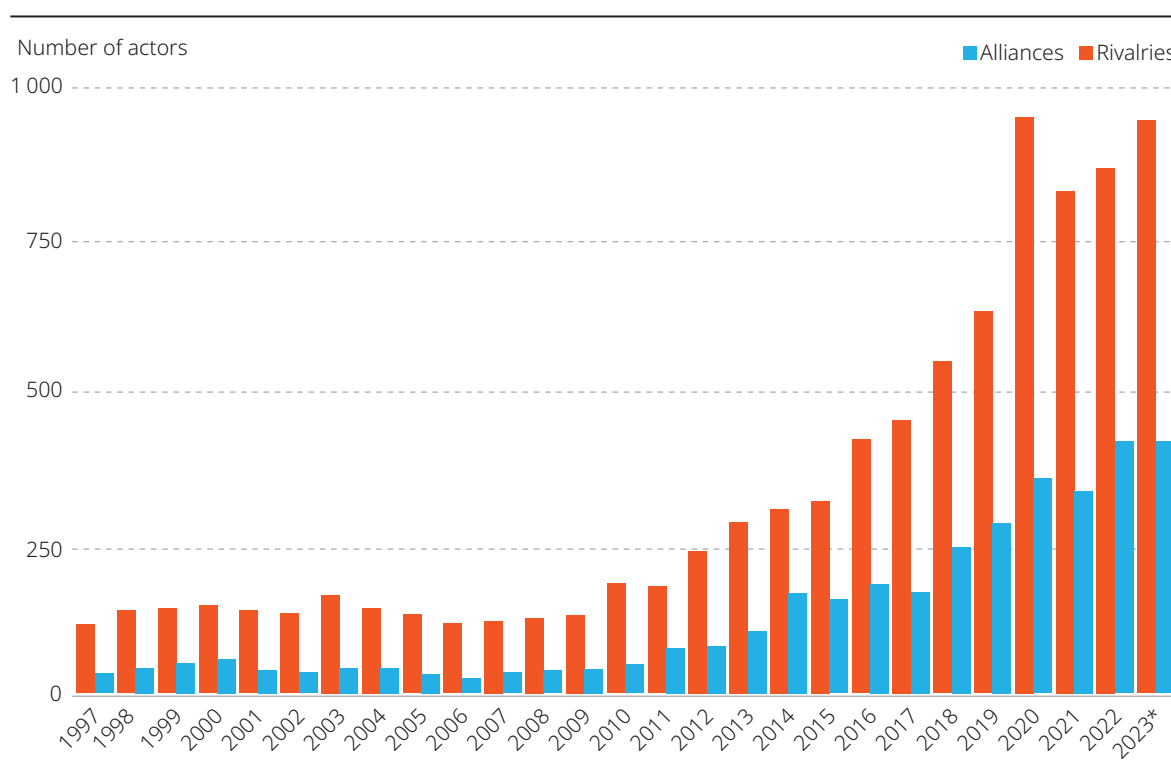
Note: 2023 data are projections based on the number of events recorded through 30 June doubling to year end.

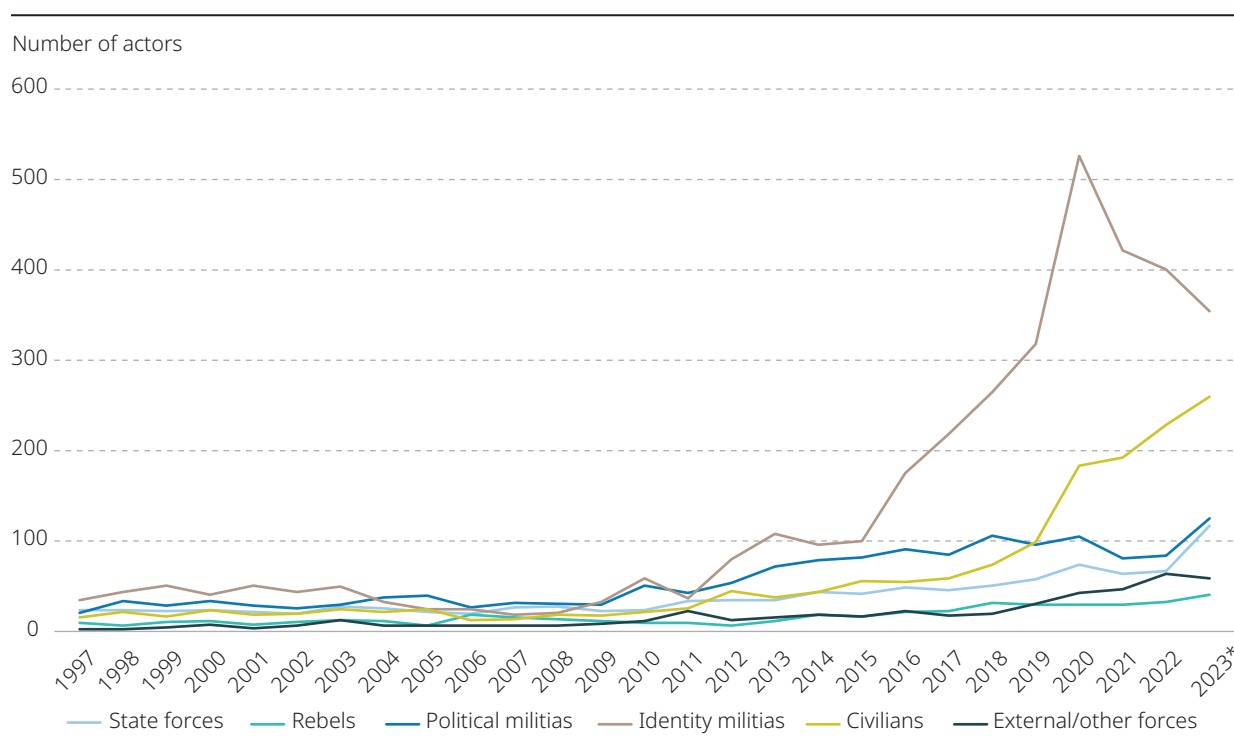Source: Authors based on ACLED data (ACLED, 2023[11]).

There has been a rapid increase in all types of actors since the beginning of the Boko Haram insurgency in 2009 and the Malian conflict in 2012 (Figure 3). Militias are by far the most represented type of violent actor, representing half of the actors in conflict in North and West Africa in 2023. ACLED identifies two types of militias: political militias correspond to organisations whose goals is to influence government, security and policy in a particular country, and identity militias, who represent a heterogeneous group of ethnic, religious, regional or communal interests embedded in mostly local conflicts over resources and power. In Mali, for example, the Imghad Tuareg Self-Defense Group and Allies (GATIA) and the Movement for the Salvation of Azawad (MSA) are coded as political militias, while the Dogon group Dan Na Ambassagou and all the other Dozo, Fulani or Tuareg militias are identity militias.

The slight decrease in the number of identity militias observed in recent years is explained by the end of the civil war in Libya, where political and identity militias were involved in 117 fatalities in 2022, against 2 433 in 2014, according to ACLED. In West Africa, however, identity militias and political militias are responsible for a large share of the current violence, as in the rest of the continent (Raleigh, 2016[12]). The development of these groups is particularly worrying since militias are often used by states, religious leaders and community strongmen to strengthen local power, gain better access to natural resources and settle disputes, with little regard for human rights.

The impact of their activities is reflected in the strong increase in the number of civilian actors affected by violence across the region. Never in the recent history of the region have civilians been the target of so many violent actors: ACLED reports 8 116 civilians killed in 2022 in North and West Africa, against 1 532 in 2012. Since the end of the civil unrest that followed the Arab Spring and the civil war in Libya, most civilian victims have been in West Africa, particularly in Nigeria, Burkina Faso, Mali, Cameroon and Niger (OECD/SWAC, 2023[13]).

Figure 3.
Actors in conflict by type in North and West Africa, 1997-2023

Note: 2023 data are projections based on the number of events recorded through 30 June doubling to year end.

Source: Authors based on ACLED data (ACLED, 2023[11]).

The multiplication of actors has major consequences for the regional conflict environment. A novel way to represent this complex network is to use a sociogram in which each node is an actor involved in violence (as victim or perpetrator) and the ties represent acts of violence between them. Figure 4 shows that 480 actors were involved, as victims or perpetrators, in acts of violence in the first half of 2023 throughout North and West Africa, resulting in 771 rivalrous relationships. Each actor has on average three enemies. To highlight

the main belligerents, the width of the ties is proportional to the number of times that two actors are in conflict over the period of observation.

The network is remarkably compact considering the size of the region, the number of countries involved, and the various actors implicated in acts of violence. Most of the actors are connected to the main component of the network occupying the centre of the sociogram and there are very few isolated groups of two actors (dyads) or three actors (triads). This confirms that the region has become one large theatre of military conflict, in which violent activities are no longer isolated but part of a wider conflict environment.

Nigerian civilians occupy the centre of this network, because they are targeted by both governmental forces, extremist violent organisations and other armed groups. In the first six months of 2023, 527 clashes between unidentified armed groups and civilians were recorded by ACLED in Nigeria, resulting in 554 deaths. In the Central Sahel, the Group for the Support of Islam and Muslim or Jama'at Nusrat al-Islam wal-Muslimin (JNIM) is not only the largest coalition of jihadist organisations in the region but also the one with the largest number of enemies. JNIM is fighting military forces in Burkina Faso, Mali and Niger, ethnic militias such as Dan Na Ambassagou, self-defence groups such as the Volunteers for the Defense of the Homeland (VDP), other jihadist groups such as the Islamic State Sahel Province (IS Sahel) and civilians.

Figure 4.
Rivalry network in North and West Africa, 2023
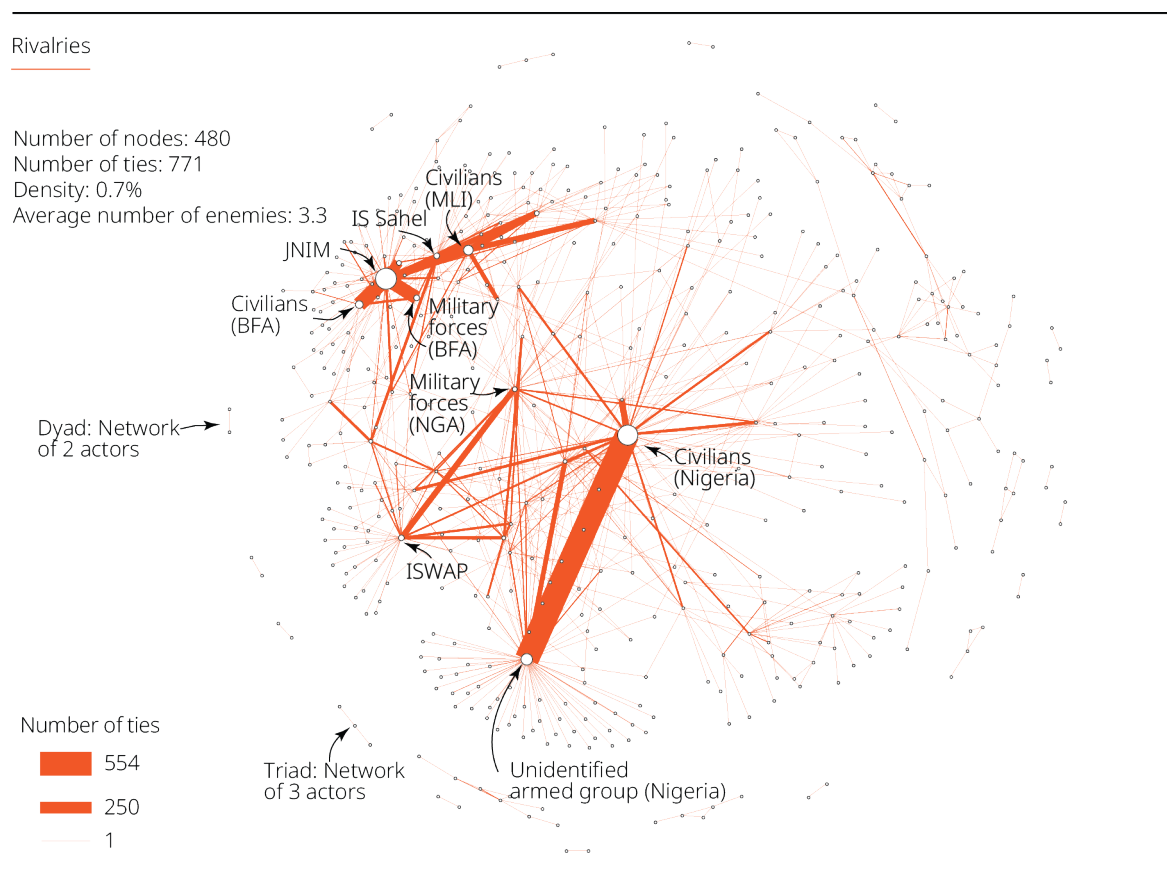

Note: Data are available through 30 June 2023. The width of the ties is proportional to the number of rivalrous ties between actors involved in violent events in North and West Africa. The size of the nodes is proportional to the number of ties they have with other actors (degree centrality). BFA=Burkina Faso, MLI=Mali, NGA=Nigeria.

Source: Authors based on ACLED data (ACLED, 2023[11]).

The need to respond to multiple conflicts across the region explains why the number of alliances has been on the rise in North and West Africa since the early 2010s (Figure 5). As armed conflicts spread to areas that were previously unaffected by violence, state and non-state actors develop co-operative relationships that can potentially help them protect their interests. All types of actors have experienced this evolution, particularly state forces, which have established military alliances with foreign forces, other countries of the region or mercenaries such as the Wagner Group in Mali (Elischer, 2022[14]). As with the number of actors in conflict, the recent decline in the number of co-operative actors is due to the end of the Second Civil War in Libya, in which militias were highly represented. These militias have now become an important part of the Libyan state.

Figure 5.
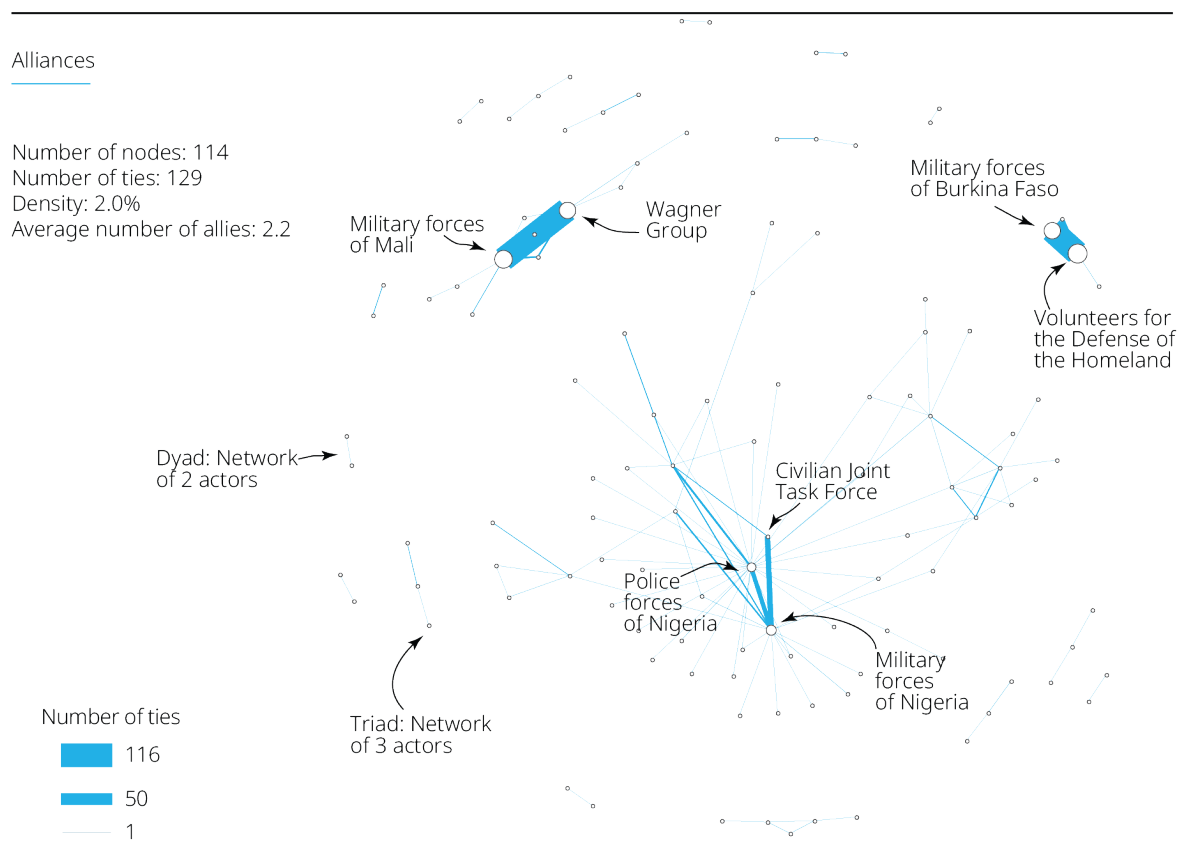Co-operative actors by type in North and West Africa, 1997-2023
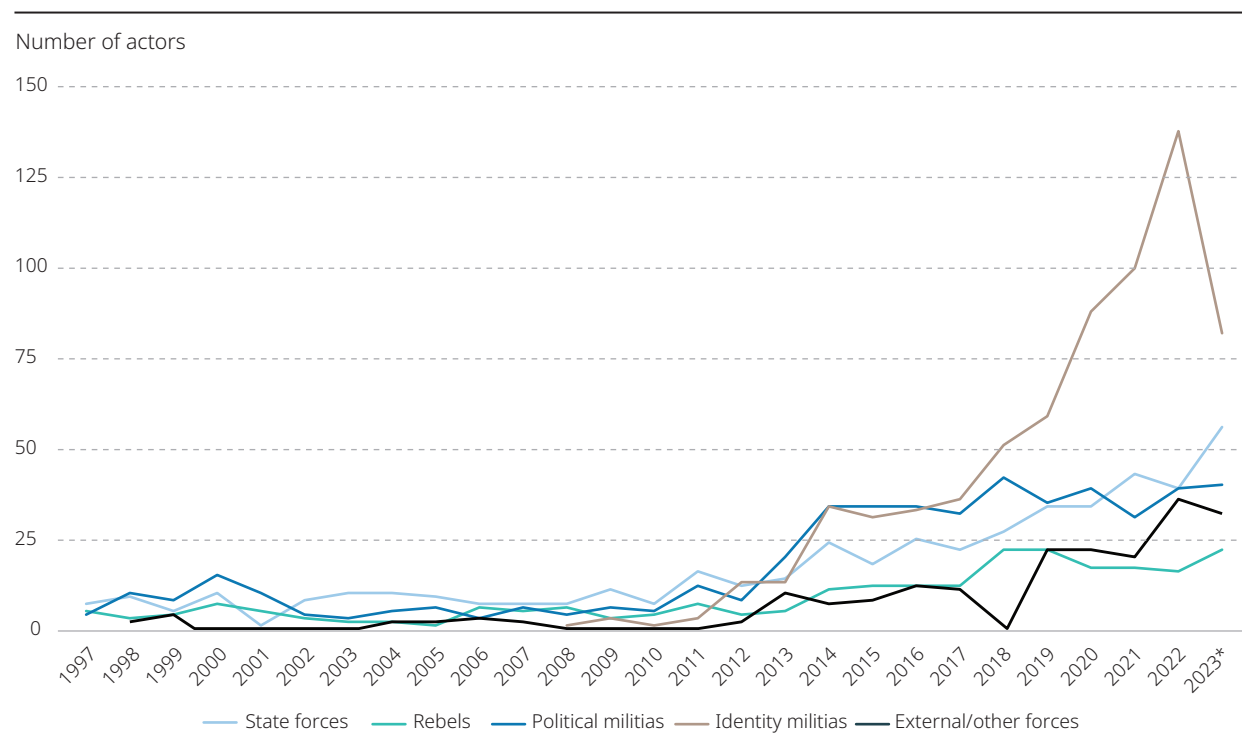
Note: 2023 data are projections based on the number of events recorded through 30 June doubling to year end. Civilians are, by definition, unarmed and cannot engage in co-operative relationships, which explains why they are not represented on the graph.

Source: Authors based on ACLED data (ACLED, 2023[11]).

The network connecting actors who voluntarily engage in alliances is much smaller than the one connecting rivalrous actors, with only 114 actors and 129 co-operative relationships through 30 June 2023 (Figure 6). Each actor has, on average, a little more than two allies. This network is dominated by alliances between governmental forces and their allied militias. The main component of the network brings together the Nigerian military and police forces and the Civilian Joint Task Force, a federation of militias created to fight Boko Haram. In the Central Sahel, the most active alliances are those between the military forces of Mali and the Wagner Group (115 joint events), and between the military forces of Burkina Faso and the VDP (116 joint events), an auxiliary force created in 2019, which is primarily involved in fighting JNIM.

Figure 6.
Co-operation network in North and West Africa, 2023

Note: The data are available through 30 June 2023. The width of the ties is proportional to the number of co-operative ties between actors involved in violent events in North and West Africa. The size of the nodes is proportional to the number of ties they have with other actors (degree centrality).

Source: Authors based on ACLED data (ACLED, 2023[11]).

## An increasing density of rivalrous relationships

Conflict networks change constantly, as new actors emerge or disappear, forge new co-operative ties or fight each other. This is particularly true in North and West Africa, where relationships between groups are very volatile (Bencherif and Campana, 2018[15]). In this study, the long-term evolution of the conflict environment is first examined by looking at the density of the co-operation and rivalry networks, at both the regional level and in each of the conflict regions. Density measures the proportion of ties that are present in a network. In dense rivalry networks, actors have lots of enemies, while in co-operation networks they have numerous allies. An increase in network density usually means that the number of actors and/or ties decreases. This evolution is often accompanied by the formation of numerous subgroups of actors that either fight each other regularly or establish durable coalitions.

The past 23 years suggest first that North and West Africa is dominated by conflict rather than co-operation: the density of rivalrous relationships has remained consistently higher than the density of co-operative relationships (Figure 7). Conflict data also show that the gap between the two has widened twice over the

past two decades, suggesting that the region has experienced two major waves of violence. The impact of the conflicts that affected the Gulf of Guinea is clearly visible on Figure 7: initially very high, network density declines as the civil wars in Algeria, Sierra Leone and Liberia come to an end in the mid-2000s. These tumultuous times are followed by a short period of relative calm that ends with the beginning of the Boko Haram insurgency in 2009, the First Libyan Civil War in 2011 and the war in Mali in 2012. Three of the most violent conflicts that have affected North and West Africa in recent decades have started within three years of each other. Each major episode of violence is marked by a sudden increase in network density, as a growing number of violent actors fight an increasing number of enemies.

The temporal evolution of alliances is far less contrasted: the density of co-operative ties increases occasionally, when state forces come together to fight a common enemy, or when coalitions of extremist groups form larger alliances. In 2015, for example, Nigeria and its neighbours launched a major offensive against Boko Haram under the umbrella of the Multinational Joint Task Force (MNJTF), which remains the deadliest military intervention recorded in the region since the late 1990s (OECD/SWAC, 2021[1]).

Figure 7.
Network density in North and West Africa, 2000-23
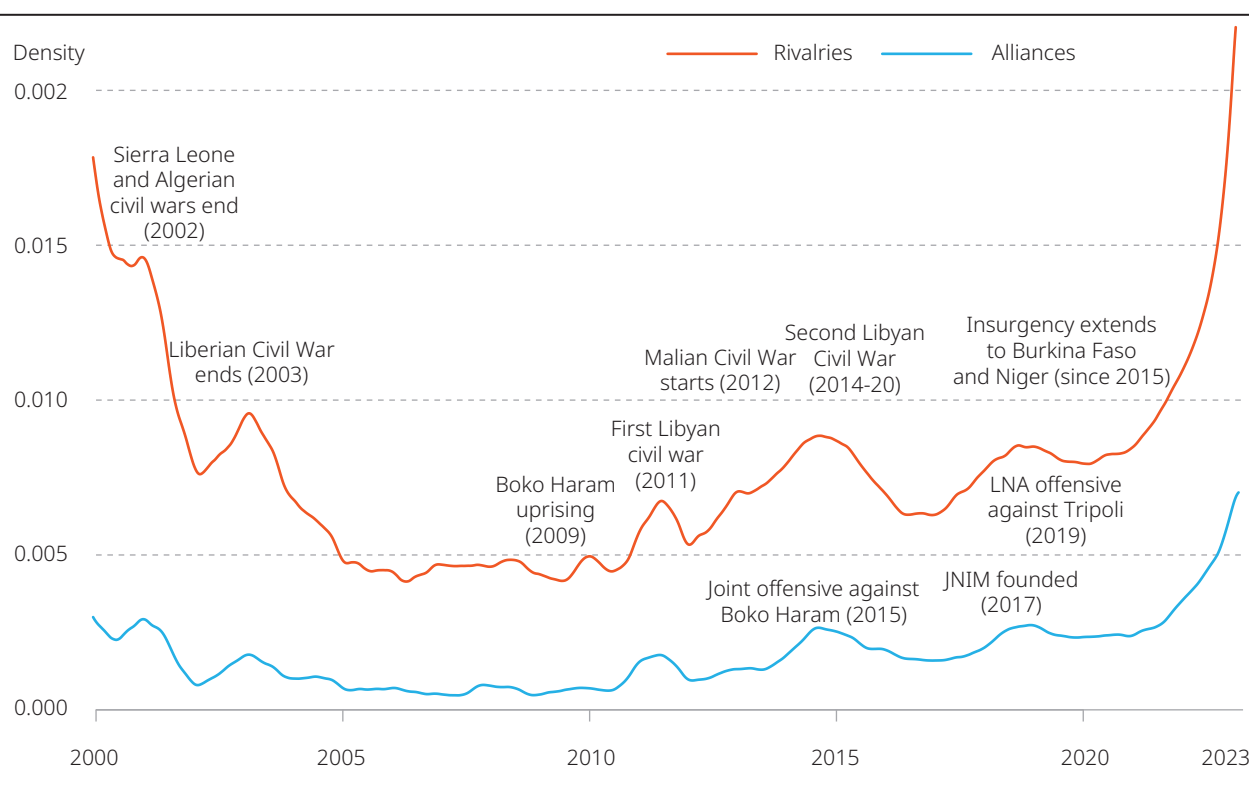
Note: The data are available through 30 June 2023. The temporal evolution of the data is smoothed using a classical seasonal decomposition by moving averages with a 90-day window.

Source: Authors based on ACLED data (ACLED, 2023[11]).

Each of the three conflict regions has experienced an increase in rivalry network density (Figure 8). This is a worrying evolution because density is increasing even as the number of actors is growing, which normally should reduce the density of the network. Libya is the conflict region that is the most volatile when it comes to the conflict environment. This evolution is explained by the nature of the Libyan conflict, which is less asymmetric than elsewhere in the region. The formation of the GNU in 2021 marks the beginning of a new consolidation era in Libya: as violent actors merge or cease to fight, density logically increases between those who remain in conflict. Both the Central Sahel and the Lake Chad region exhibit a gradual upward climb since 2020.

Figure 8.
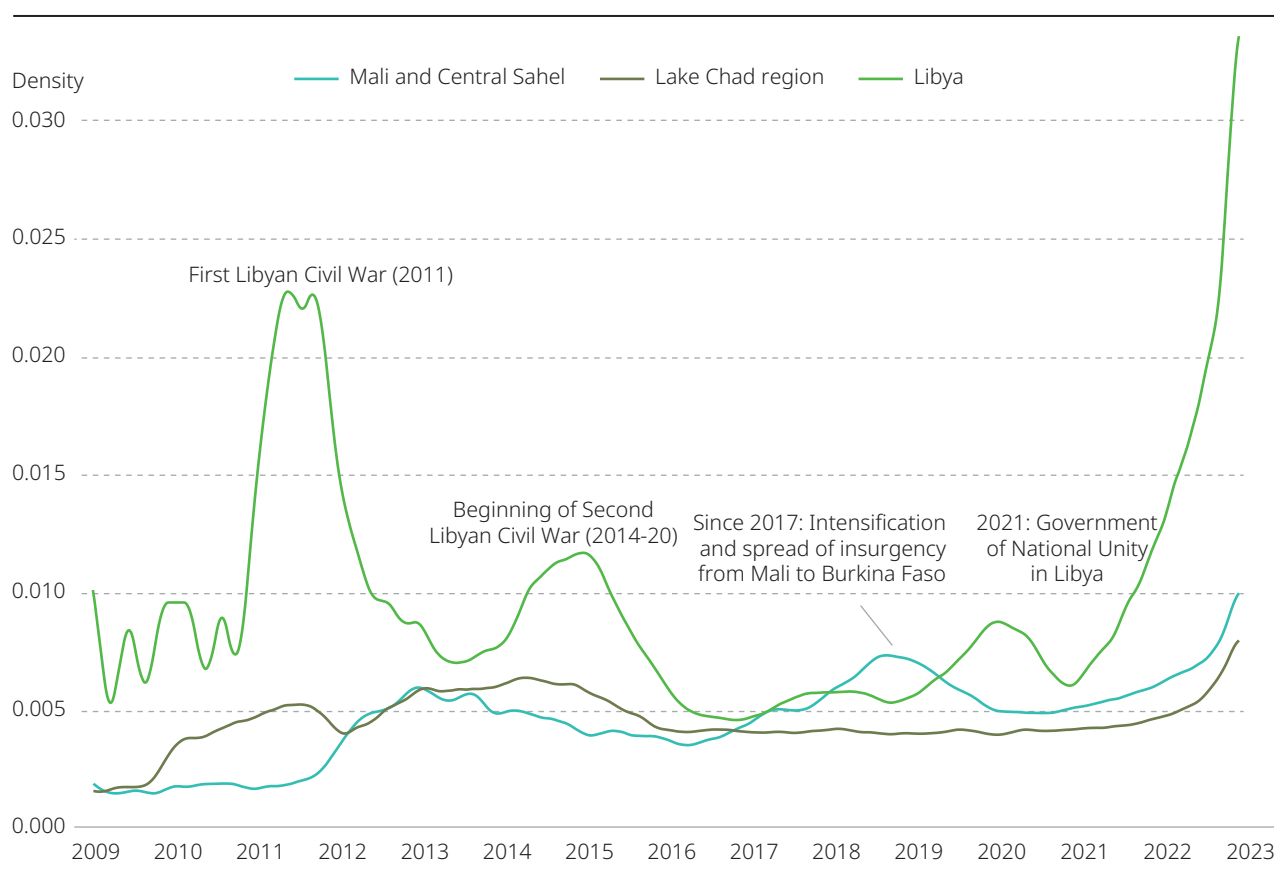Rivalry network density by conflict region, 2009-23

Note: The data are available through 30 June 2023. The temporal evolution of the data is smoothed using a classical seasonal decomposition by moving averages with a 90-day window.

Source: Authors based on ACLED data (ACLED, 2023[11]).

The slight overall trend towards increased co-operation observed at the regional level is driven by the higher level of alliances present in the Central Sahel, Lake Chad region and Libya (Figure 9). This supported previous studies (OECD/SWAC, 2021[1]), which noted that co-operation between both state and non-state actors had been on the rise in Libya and the Central Sahel since 2017. North of the Sahara, violence in Libya has decreased drastically since the GNU united the Tripoli-based Government of National Accord (GNA) and the Tobruk-based government of Abdullah al-Thani in March 2021. Despite

the GNU's relative success, it is not recognised by Khalifa Haftar, who commanded the Tobruk-based Libyan National Army (LNA). Haftar and his allies instead recognise the Sirte-based Government of National Stability (GNS) formed in March 2022. Furthermore, the various governing bodies in Libya have all managed to consolidate power and broker peace through the process of institutionalising a wide range of militia groups (Lacher, 2023[6]). These remaining divisions under a façade of unity mean that conflict could still reignite in Libya.

South of the Sahara, the most powerful alliance is the one forged by the merger of Al-Mourabitoun, Ansar Dine, Katibat Macina and the Saharan units of Al Qaeda in the Islamic Maghreb (AQIM) in 2017 to form JNIM. JNIM has evolved into an integrated organisation capable of addressing internal dissent and countering competing organisations such as IS Sahel (Nsaibia, Beevor and Berger, 2023[5]). By contrast, the Lake Chad theatre has been less volatile than the other regions. Co-operation between non-state actors is very limited around Lake Chad since neither Boko Haram nor its splinter group, the Islamic State West Africa Province (ISWAP), have been able to build political alliances with other extremist organisations.

Figure 9.
Alliance network density by conflict region, 2009-23

Note: The data are available through 30 June 2023. The temporal evolution of the data is smoothed using a classical seasonal decomposition by moving averages with a 90-day window.
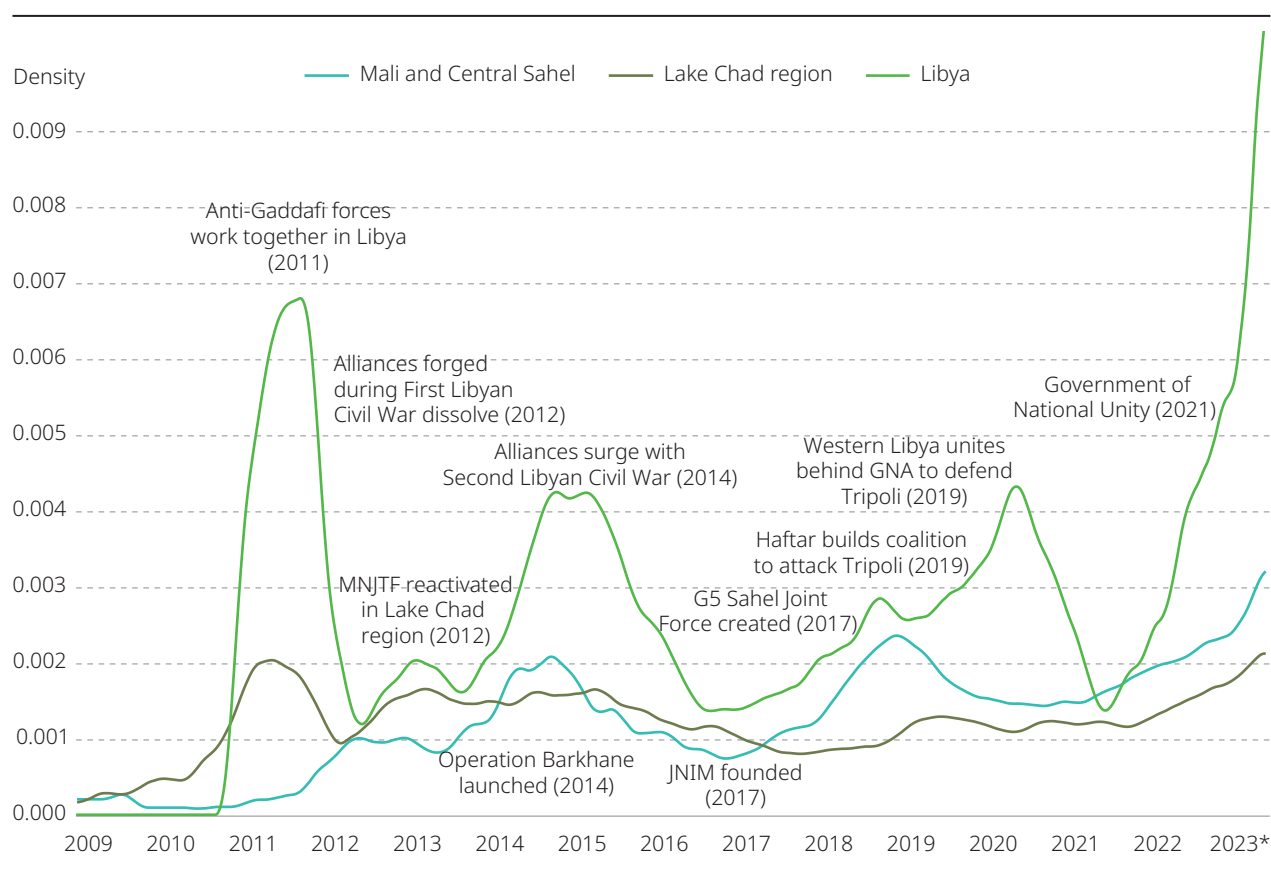
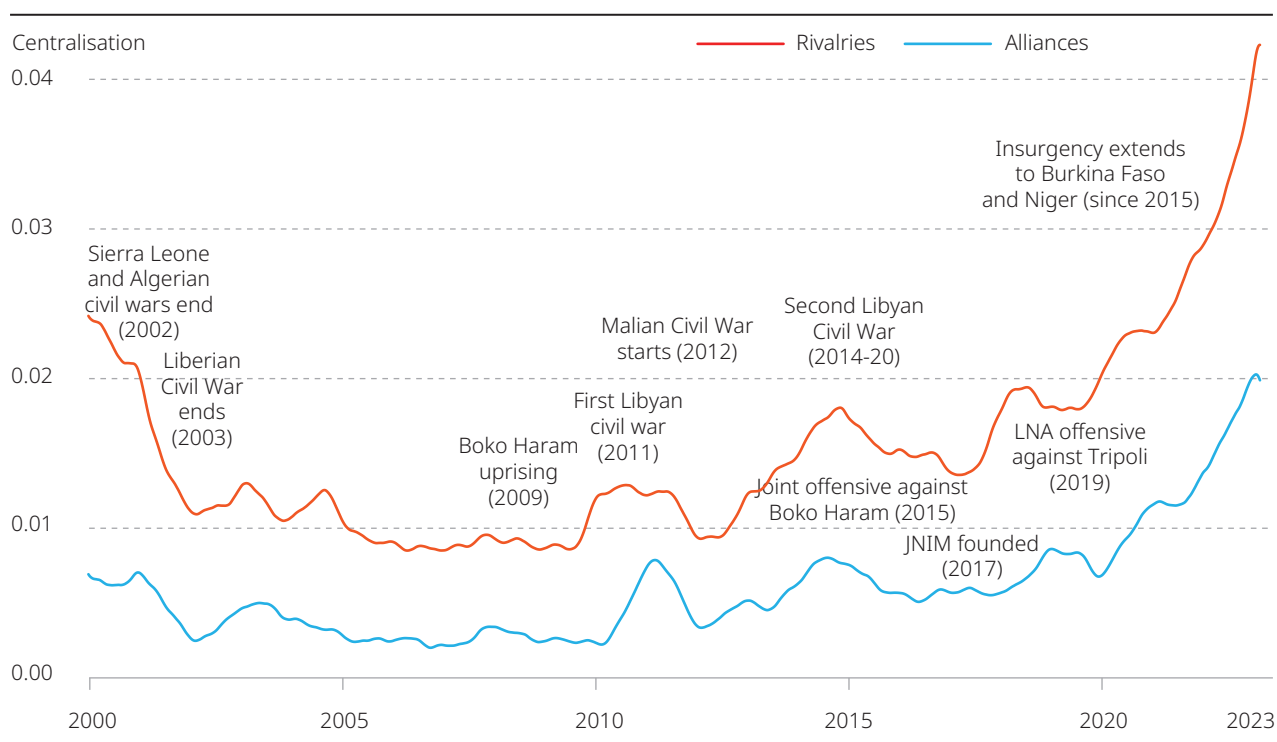Source: Authors based on ACLED data (ACLED, 2023[11]).

A growing polarisation on powerful actors

The study shows that political violence in both North and West Africa is becoming increasingly centralised. To illustrate this, the note measures network centralisation. High centralisation scores suggest that the network is dominated by one or just a few very central actors, who have numerous ties to other actors.

In a rivalry network, this means that a dominant actor, in conflict with many enemies, has emerged. This kind of conflict environment leads to a core-periphery structure, in which powerful actors fight each other regularly, while being surrounded by actors marginally involved in acts of violence. In a co-operation network, high centralisation suggests that one or a handful of influential actors have managed to create a large coalition around them, which typically take the form of a star network in which numerous actors are tied to a central actor without being connected to each other. In other words, high centralisation in a rivalry network is a worrying sign that a conflict is becoming increasingly polarised, while high centralisation in a co-operation network is a sign that alliances are being formed.

Both can evolve simultaneously, as conflict intensifies and spreads to new regions. Figure 10, which monitors network centralisation in North and West Africa since 2000, suggests that this is indeed the case. The emergence of major conflicts is characterised by a surge in network centralisation at the regional level since the early 2010s.

Figure 10.
Network centralisation in North and West Africa, 2000-23

Note: The data are available through 30 June 2023. The temporal evolution of the data is smoothed using a classical seasonal decomposition by moving averages with a 90-day window.

Source: Authors based on ACLED data (ACLED, 2023[11]).

Following the consolidation of power in Libya and in the Central Sahel, centralisation has achieved unprecedented levels (Figure 11) and shows no sign of reversing.

Figure 11.
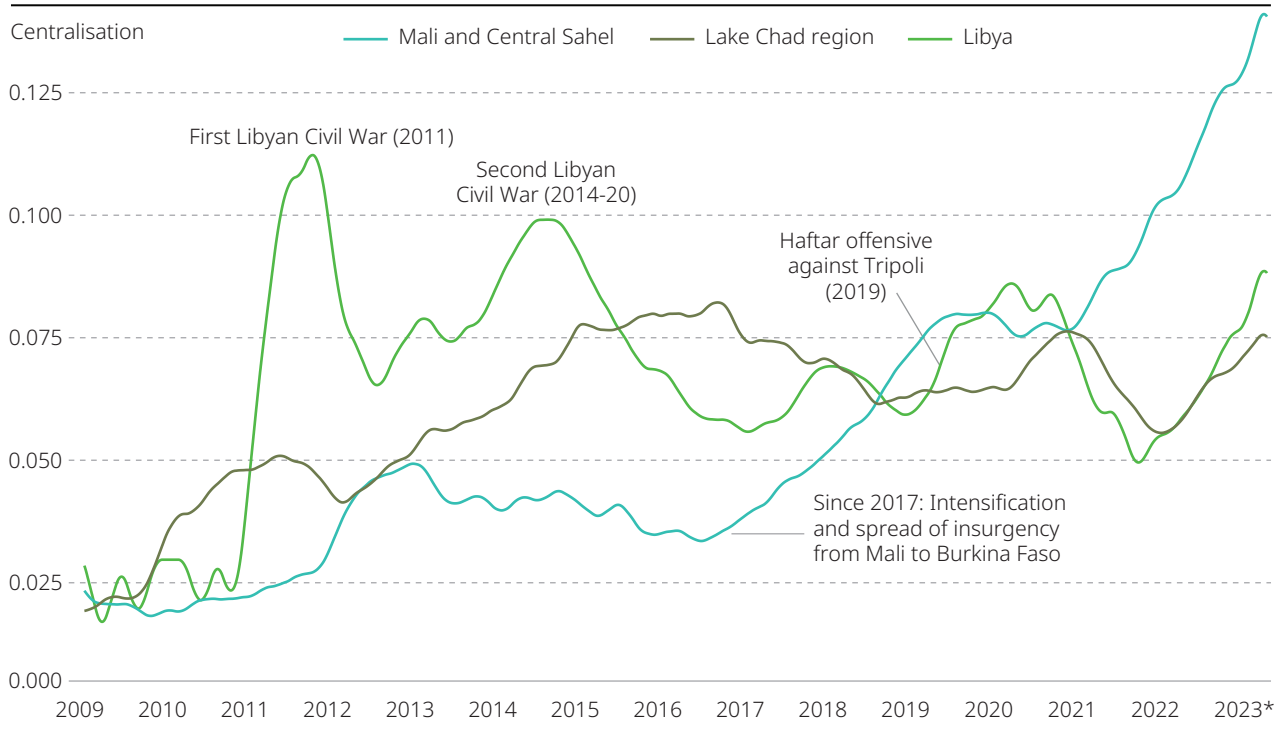Rivalry network centralisation by conflict region, 2009-23

Note: The data are available through 30 June 2023. The temporal evolution of the data is smoothed using a classical seasonal decomposition by moving averages with a 90-day window.

Source: Authors based on ACLED data (ACLED, 2023[11]).

Alliance centralisation continues to follow a familiar pattern from the previous years in each major conflict region. The network of allies remains far less centralised than the network of enemies, despite a slow rise in the number of alliances observed since the mid-2010s (Figure 12). Libya exhibits the highest levels of alliance centralisation. Although 2022 saw the formation of the GNS, the proxy forces of the two rival governments have not yet clashed with each other. In the Central Sahel and Lake Chad region, alliances remain comparatively rare. The fact that several West African states have recently decided to work primarily with Russian mercenaries did not really contribute to make the network more centralised. In other words, the density of the alliance network remained constant because the new alliances between Sahelian states and Russian actors merely replaced existing military partnerships with France, Germany and the United Nations.

Figure 12.

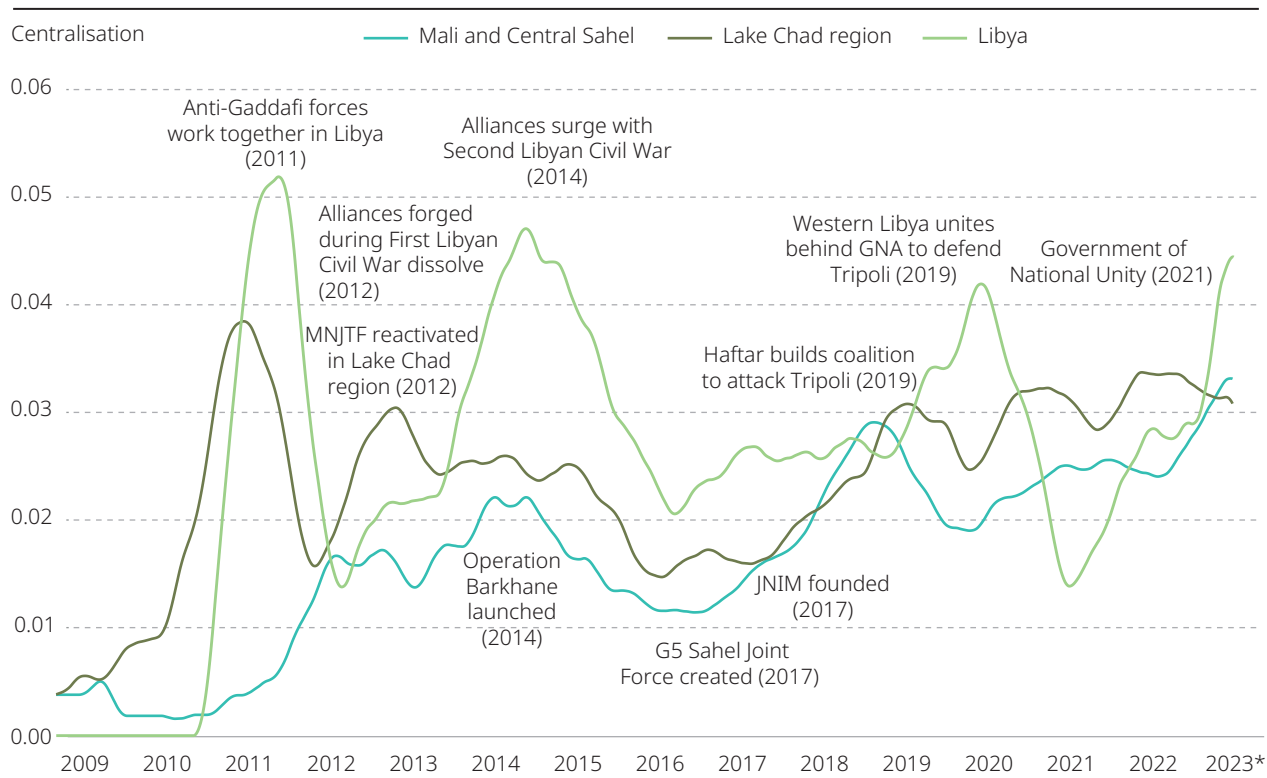Alliance network centralisation by conflict region, 2009-23

Note: The data are available through 30 June 2023. The temporal evolution of the data is smoothed using a classical seasonal decomposition by moving averages with a 90-day window.

Source: Authors based on ACLED data (ACLED, 2023[11]).

● PERSPECTIVES

This study confirms that the conflict trends observed in the region in previous studies are well entrenched (OECD/SWAC, 2021[1]). Both North and West Africa are experiencing a growing number of belligerents, an increasing density of rivalrous relationships and a growing polarisation of their conflict network around a few powerful actors. While extremely worrying for the stability of the region, these trends reflect different realities on both "shores" of the Sahara.

North of the Sahara, political violence has reached an all-time low since the end of the Second Libyan War in 2020. Because Libya has experienced successive phases of escalation and de-escalation since 2011, the potential for conflict between the various armed groups remains high. While relatively inactive at the moment, these armed groups still exist and many have been incorporated into the Libyan state apparatus (Lacher, 2023[6]). South of the Sahara, the end of the foreign military interventions in the Sahel and the recent military coups in Burkina Faso, Guinea, Niger and Mali have led to unprecedented levels of violence. All major forms of political violence once again increased south of the Sahara in 2023, according to ACLED (2023[11]). Violence against civilians have reached an all-time high with more than 4 300 individual incidents recorded in 2023, against 3 300 incidents in 2020. The year 2023 was the most violent year ever recorded in West Africa since detailed conflict data have been collected in the region. Sahelian countries such as Burkina Faso, Mali and Niger were particularly affected by political violence in 2023, with more than 3 600 incidents, which have caused the death of nearly 14 000 people. This represents 4 000 more victims than in 2022. One-third of the victims recorded in these three countries were civilians. Nowhere else in the world are so many neighbouring countries simultaneously affected by such political instability. Not only do these volatile environments make peaceful efforts more difficult than ever in the region; they also contribute to increasing the number of potential victims among the civilian population.

A network approach can make a valuable contribution to the study of these armed conflicts and their policy implications. First, such an approach contributes to a clear assessment of the structural importance of each actor of the network, considering its co-operative and rivalrous relationships. Thus far, only a handful of studies have explicitly adopted a formal approach to conflict networks and tried to map the temporal evolution of complex patterns of relationships (Dorf, Gallop and Minhas, 2020[16]; Kim, Liu and Desmarais, 2023[17]). This note contributes to enhance these efforts, using two metrics that are particularly adapted to model conflicts, where belligerents are very mobile or are connected through short-lived alliances.

Second, a network approach that incorporates time allows an assessment of changing patterns of violence across a region and the documentation of the life cycle of a conflict. When the structure of a conflict network follows recognisable patterns as it nears periods of conflict intensification, the network approach incorporating time can highlight potential danger. This approach can also shed light on the relative strengths and shifting positions of individual actors jockeying for power as groups rise and fall in importance over time. As violence spreads to new regions, it affects a growing number of violent actors, who will join the insurgents or try to build new alliances to counter them.

Third, adopting a network approach allows better anticipation of policy outcomes. This approach involves the integrated study of how all parties to a conflict are intertwined and how seemingly small changes can have large effects on the conflict as a whole. If, as this paper argues, belligerents are connected through the conflict environment, the introduction of new actors, such as external forces or mercenaries, can have unexpected consequences that can only be understood if the totality of the network is mapped. By considering international interventions, state forces, rebels and militias as part of a single conflict system, the network approach can better detail threats to civilians and stability in a comprehensive way.

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WEST AFRICAN PAPERS

THE FRAGMENTATION OF CONFLICT NETWORKS IN NORTH AND WEST AFRICA

African armed conflicts involve a myriad of state forces, rebel groups and extremist organisations bound by rapidly changing alliances and rivalries. Organisations that were allies one day can fight each other the next and co-operate later still. The objective of this note is to update the pioneer work on conflict networks conducted by the OECD Sahel and West Africa Club (SWAC) in the region by using a formal approach to networks known as dynamic social network analysis. Leveraging a dataset of 3 800 actors and 60 000 violent events from the Armed Conflict Location & Event Data Project (ACLED) from 1997-2023, the note monitors how the co-operative and rivalrous ties between violent actors have changed over time, both at the regional and local levels. The growing number of belligerents, increasing density of rivalrous relationships and growing polarisation of the conflict networks observed in this note are extremely worrying for the future of the region. Not only do they make peaceful efforts more difficult than ever, but they also contribute to increasing the number of potential victims among the civilian population.