# Conflict Networks in North and West Africa

Report launch

University of Florida
Sahel Research Group
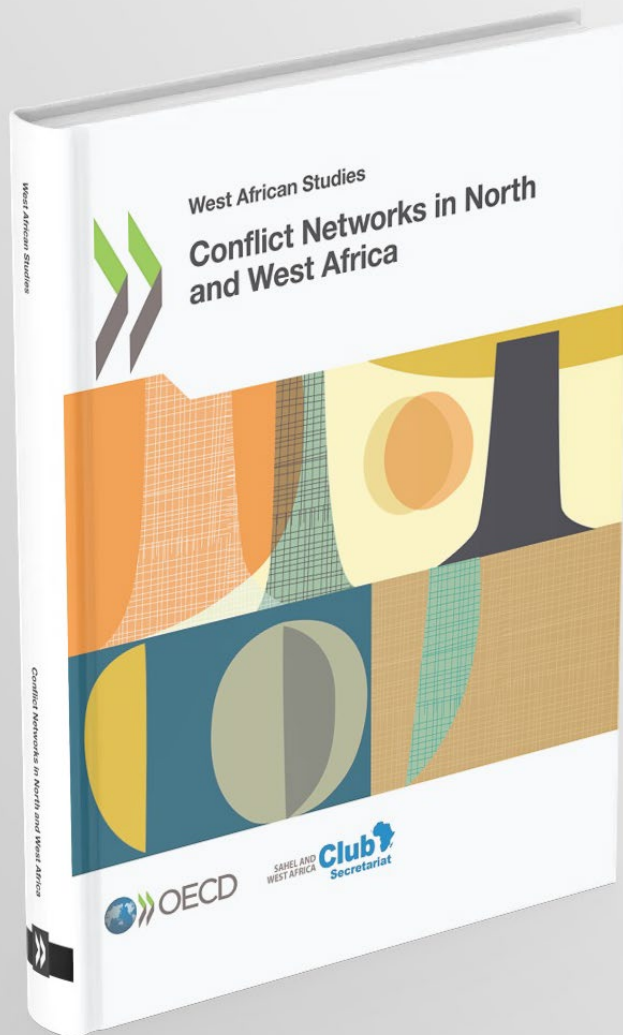
May 20th, 2021

# Program

- **Prof. Leonardo A. Villalón**, UF

- **Dr. Olivier Walther**, UF – Objectives

- **Mr. David Russell**, Princeton University – Dynamic network analysis

- **Dr. Steven Radil**, USAFA – Impact of military interventions

- **Dr. Marie Trémolières, Mrs. Christina Iannuzzi**, OECD – Conclusions

- **Dr. Alexander Thurston**, University of Cincinnati – Discussant

- Questions and Answers

# A new report on conflict networks



West African Studies

Conflict Networks in North and West Africa

OECD  SAHEL AND WEST AFRICA Club Secretariat

Read or download the report in English and French

- Political violence is on the rise

- Conflicts have become more difficult to resolve

- Complex relationships between belligerents

- Rivalries and alliances shape patterns of violence

# Mapping rivalries and alliances in NW Africa

- Who is allied and in conflict with whom?

- How do rivalries and alliances change over time?

- How do military interventions affect conflict networks?
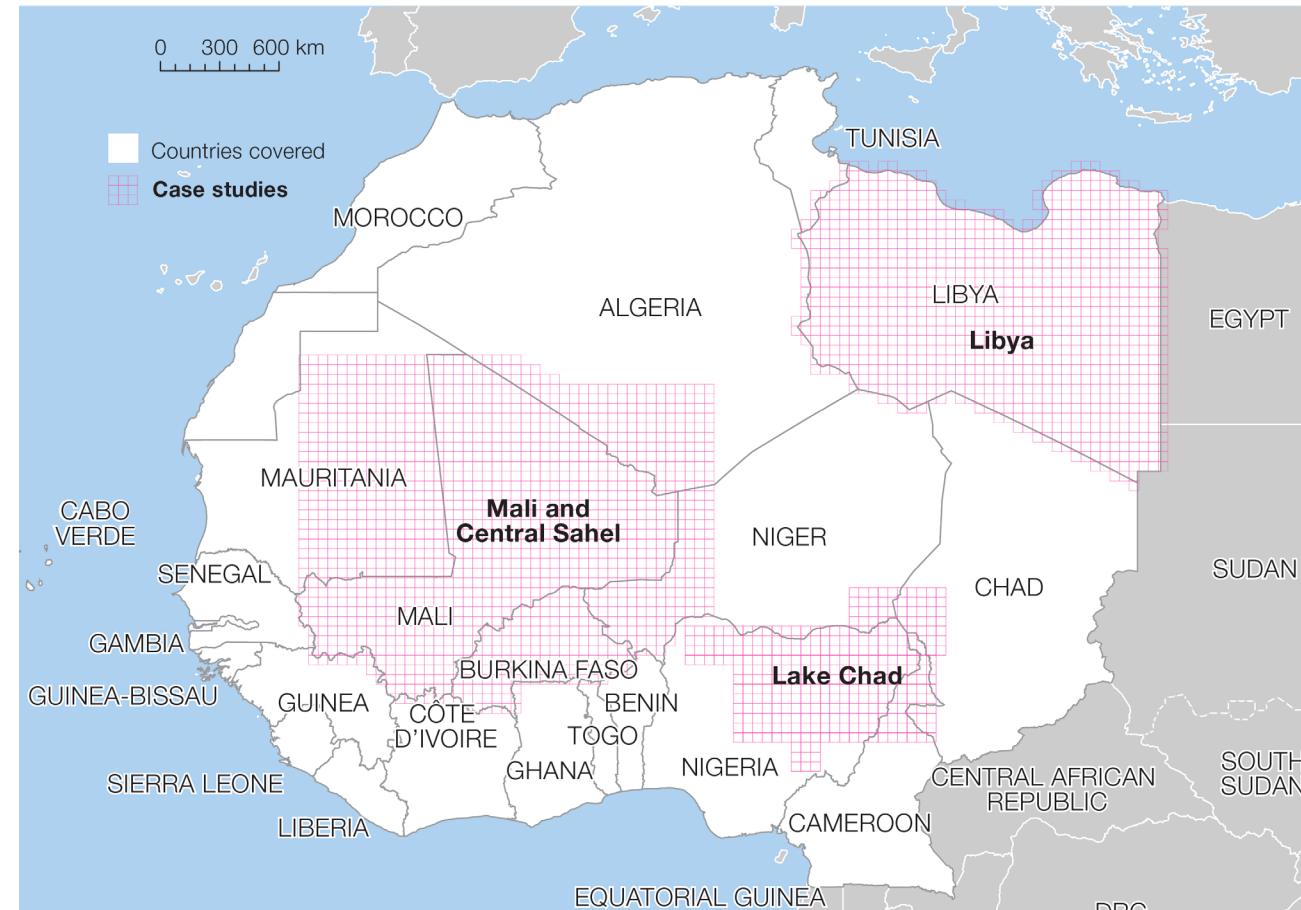


Source: OECD/SWAC (2021)

# More enemies than allies

- The number of belligerents has been multiplied by four since 2011

- Violent organizations often share a common enemy without developing an ideological project

- Alliances are explained by new military partnerships among state forces

Rivalries and alliances in North and West Africa, 1997–2020

Number of organisations

■ Rivalries ■ Alliances
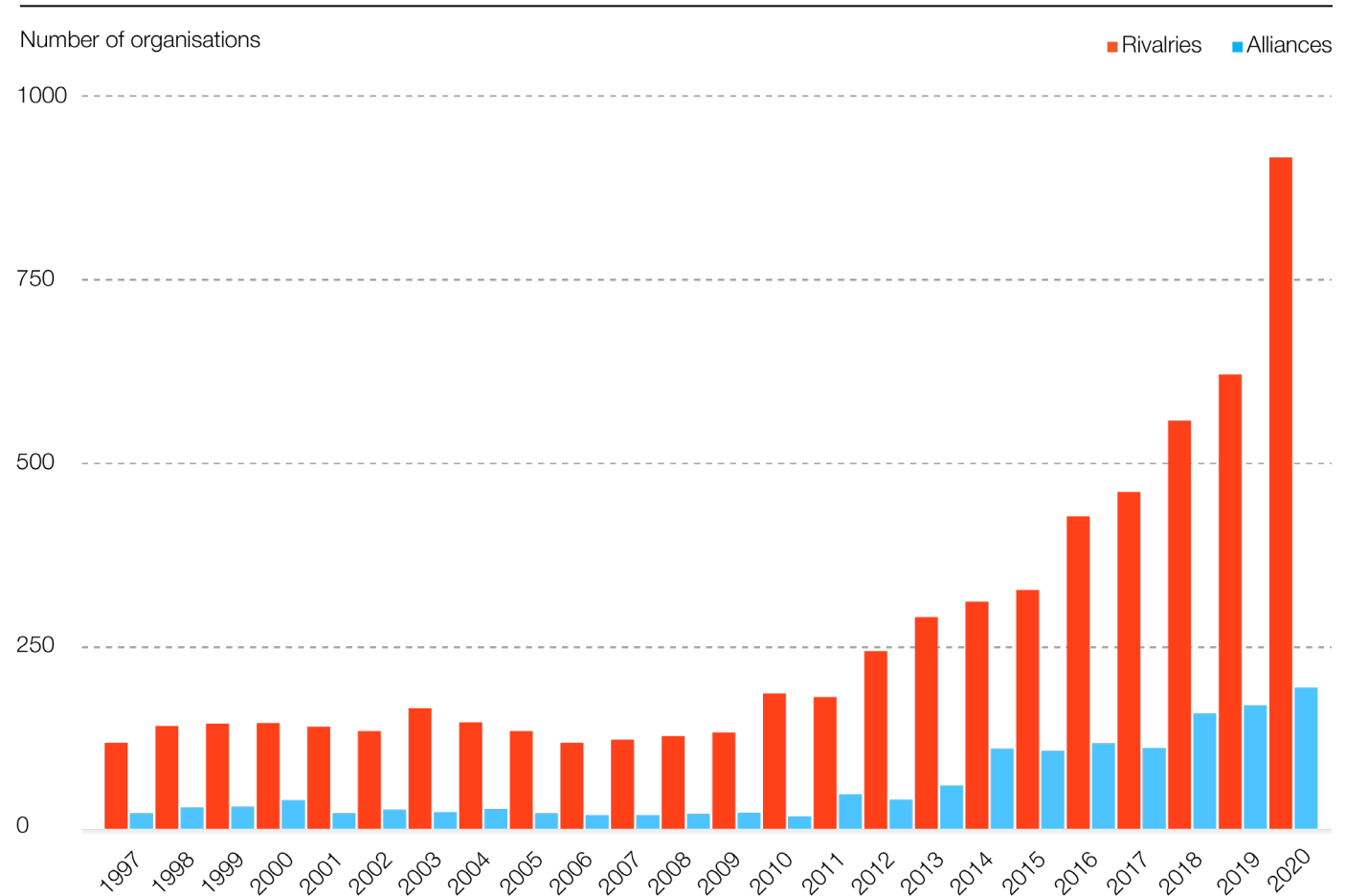


Source: OECD/SWAC (2021)

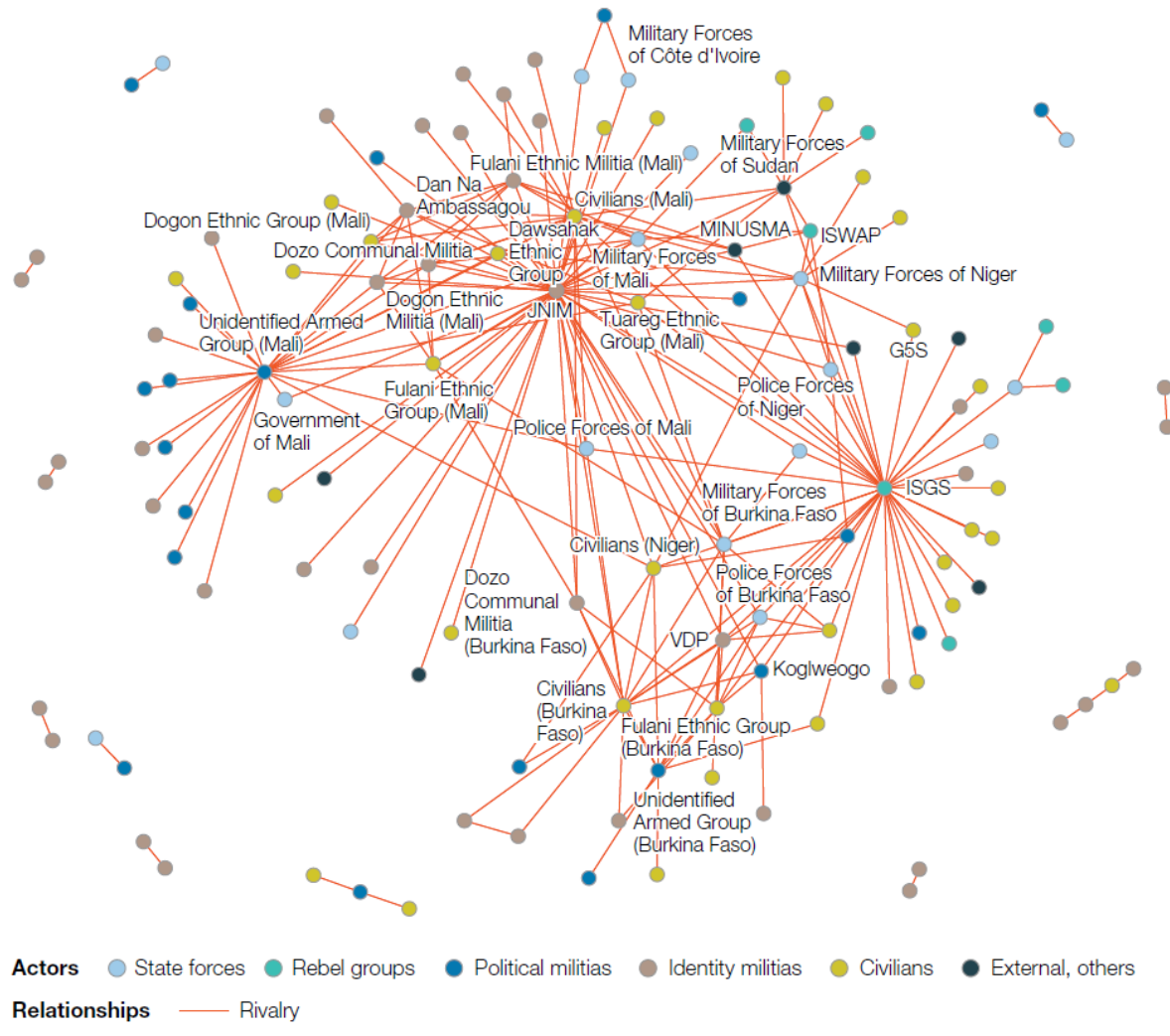# Conflict and cooperation networks look alike

- Both networks are rather decentralized and organized around a few key organizations

- Flexible and opportunistic nature of relationships that bind violent organizations



Opposition and co-operation networks in North and West Africa, 2020

Rivalries

Alliances

Source: OECD/SWAC (2021)
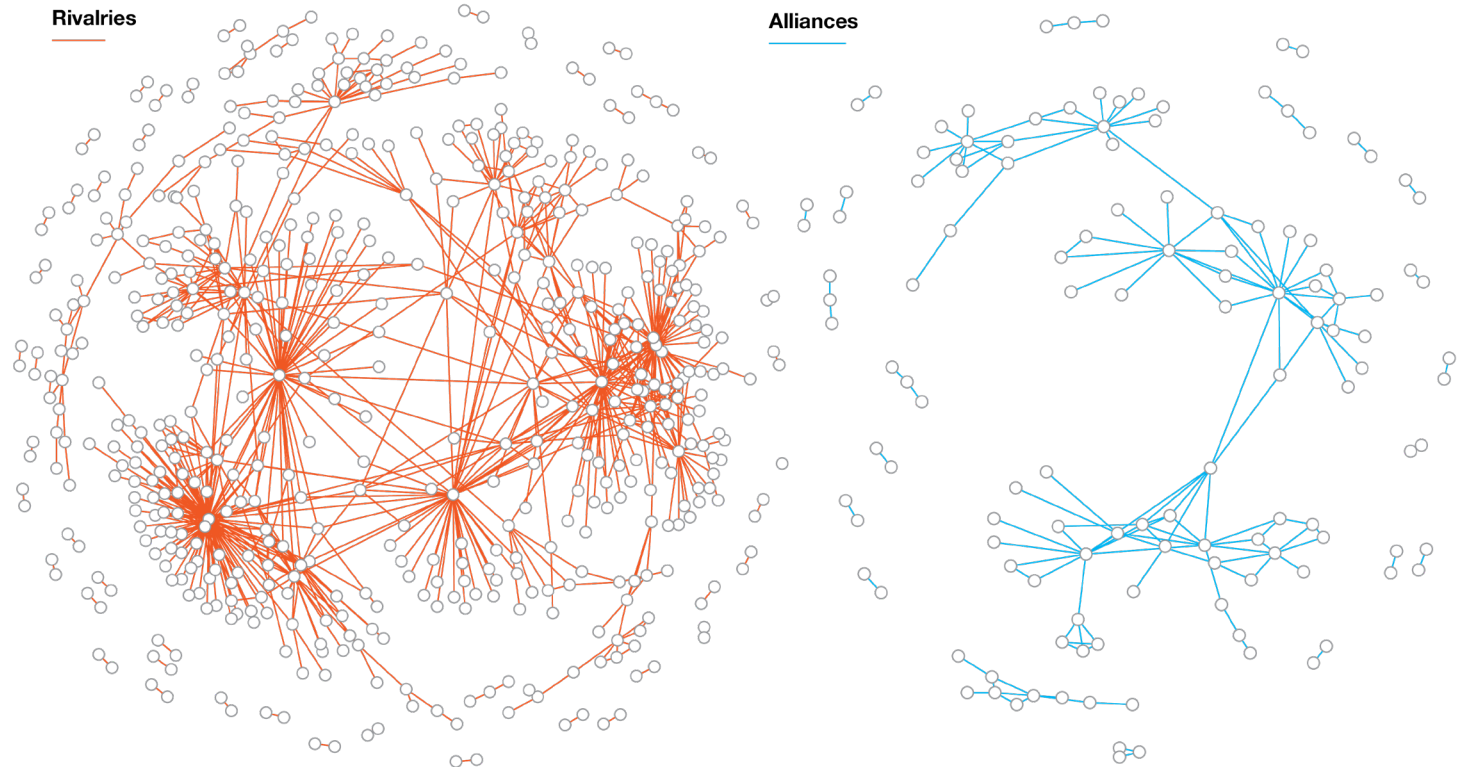
# Conflict and cooperation networks look alike

Opposition network in Mali and the Central Sahel, 2020



**Actors** — State forces · Rebel groups · Political militias · Identity militias · Civilians · External, others

**Relationships** — Rivalry

| Measure | Provincial networks | Cosmopolitan network |
|---|---|---|
| **Density**: % of existing ties compared to potential ties | High | **Low** |
| **Average degree**: Number of ties per actor | High | **Low** |
| **Agglomeration co-efficient**: Tendency to form tightly-knit cluster | High | **Low** |
| **Path length**: Separations between the actors | Low | **High** |

Source: OECD/SWAC (2021)

# A conflict network polarized by Jihadist groups

- JNIM and ISGS are the organizations with the most enemies and are the largest brokers

Source: OECD/SWAC (2021)

Centrality for top-scoring organisations in Mali and the Central Sahel, 2020

■ Degree: Number of ties per organisation    ■ Betweenness: Ability to play a brokerage role
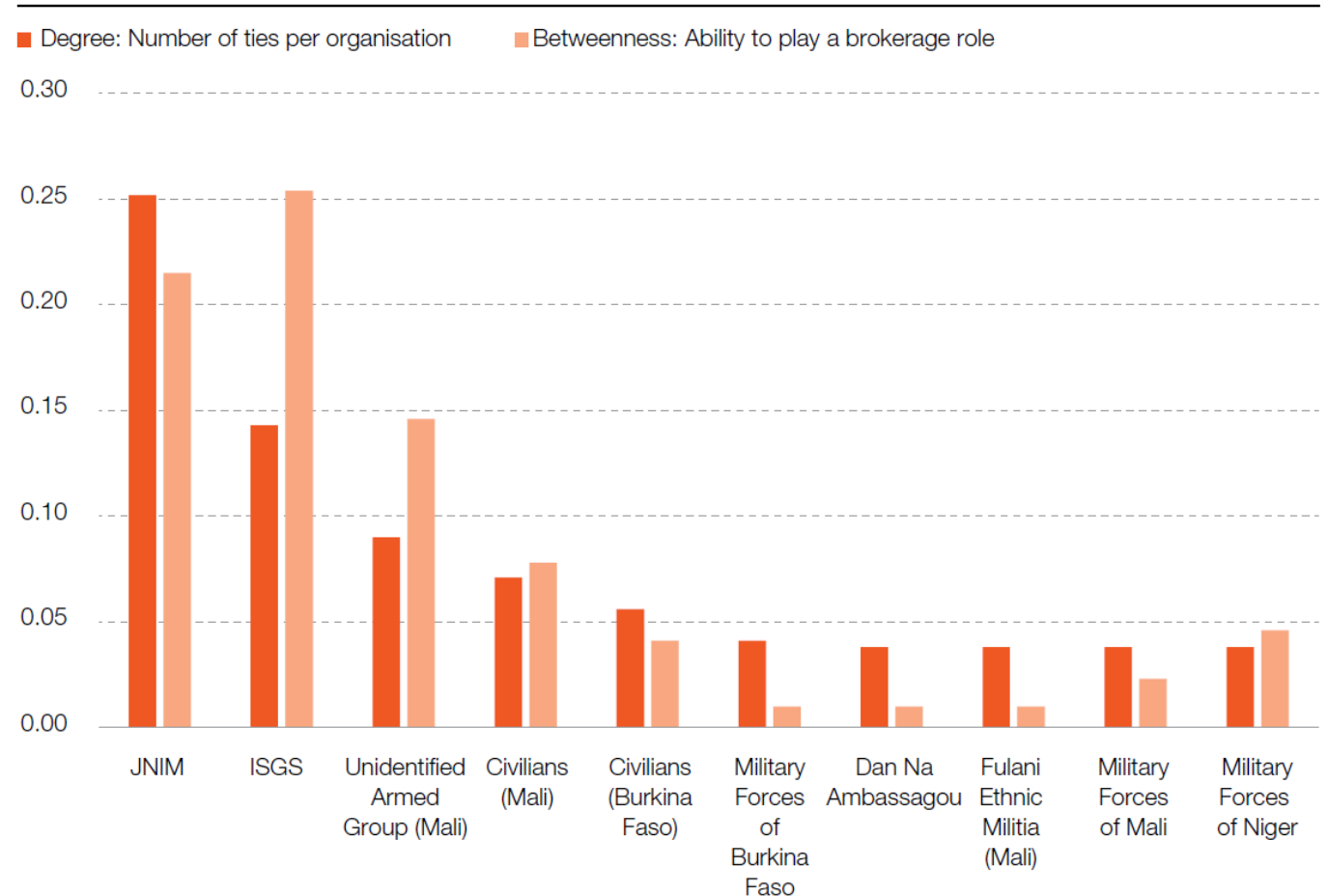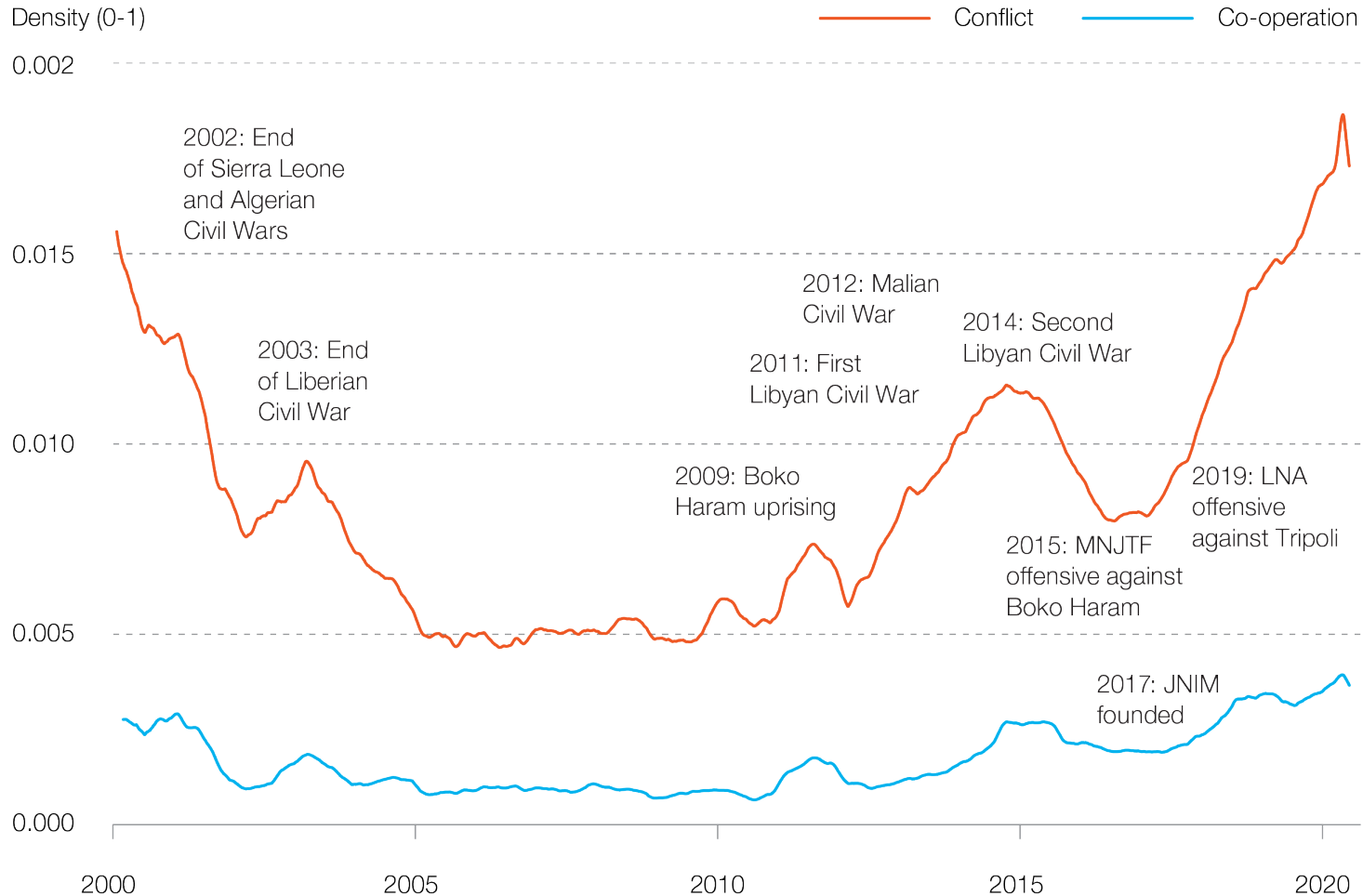


Note: Degree centrality represents the number of ties an organisation has. Betweenness centrality refers to the ability of an organisation to bridge several parts of the network (brokers). These measures are standardised so that networks of different size can be compared, by dividing the number of actual ties by the maximum number of possible ties. Data available through 30 June 2020.
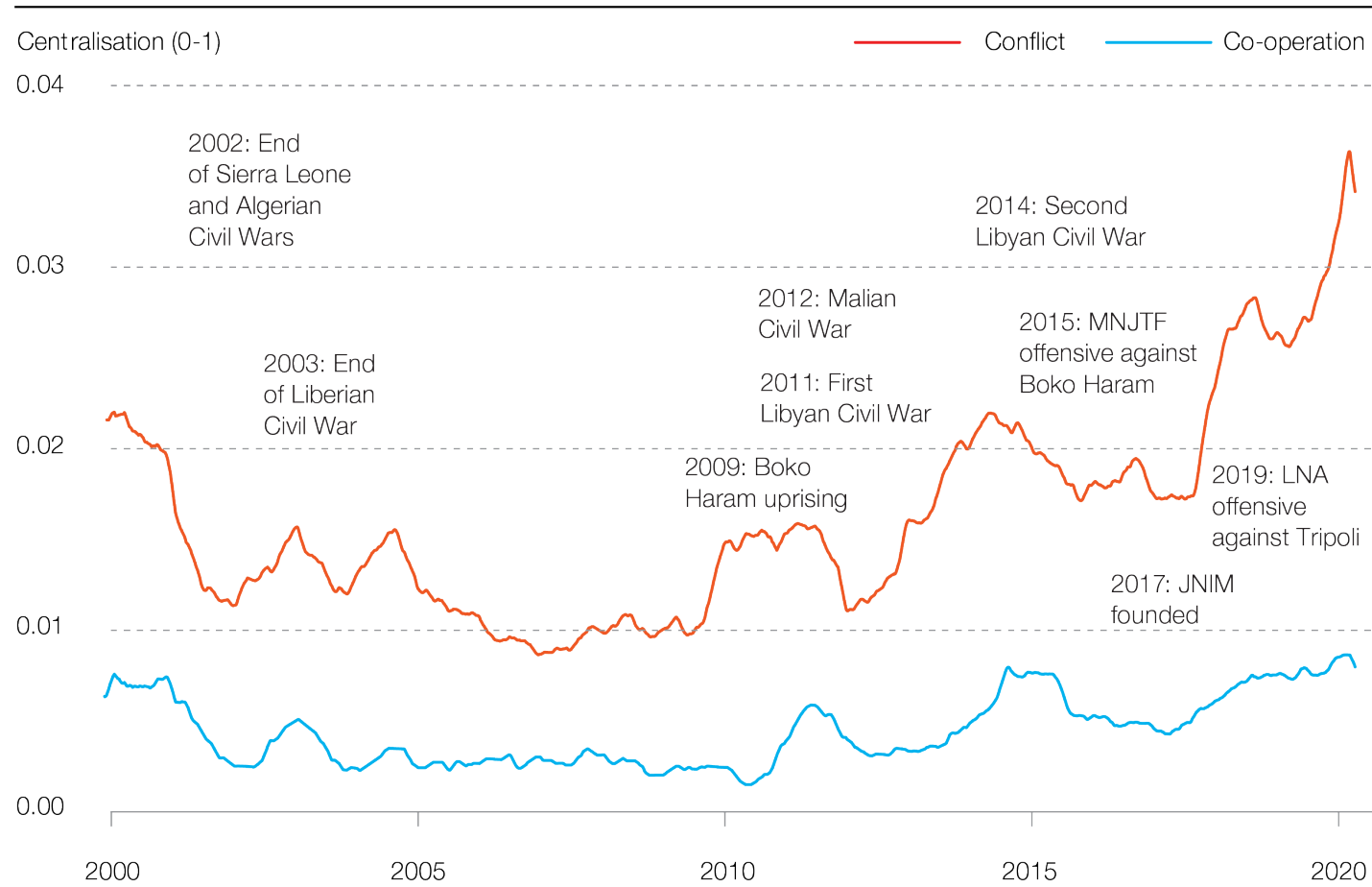
# An increasingly dense network of enemies

Network density in North and West Africa, 2000–20

Density (0-1)

Conflict ——— Co-operation

2002: End
of Sierra Leone
and Algerian
Civil Wars

2003: End
of Liberian
Civil War

2012: Malian
Civil War

2011: First
Libyan Civil War

2014: Second
Libyan Civil War

2009: Boko
Haram uprising

2019: LNA
offensive
against Tripoli

2015: MNJTF
offensive against
Boko Haram

2017: JNIM
founded

0.002
0.015
0.010
0.005
0.000

2000    2005    2010    2015    2020

* Data available through 30 June 30 2020.

Source: OECD/SWAC, based on data from ACLED (2020)

- An alarming sign for the region due to three major conflicts

# An increasingly centralized network of enemies

Network centralisation in North and West Africa, 2000–20

Centralisation (0-1)

— Conflict   — Co-operation

0.04

2002: End
of Sierra Leone
and Algerian
Civil Wars

2014: Second
Libyan Civil War

0.03

2012: Malian
Civil War

2015: MNJTF
offensive against
Boko Haram

2003: End
of Liberian
Civil War

2011: First
Libyan Civil War

2009: Boko
Haram uprising

2019: LNA
offensive
against Tripoli

0.02

2017: JNIM
founded

0.01

0.00

2000        2005        2010        2015        2020

* Data available through 30 June 30 2020.

Source: OECD/SWAC, based on data from ACLED (2020)

- Towards a star-like structure: many conflicts with a few key organizations

Centralisation in networks

**Star**          **Hub-and-spoke**          **Fully-connected**

**Centralised**                              **Decentralised**
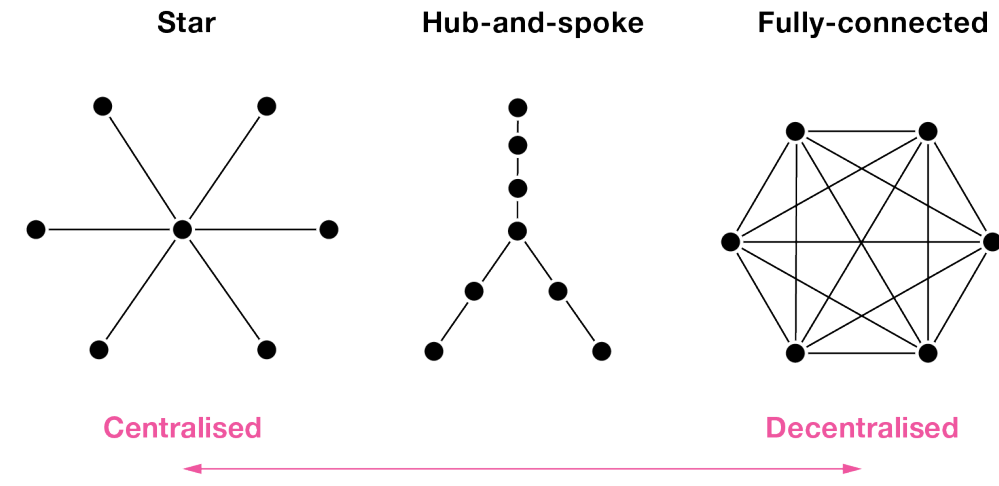
Source: OECD/SWAC (2021)

# Mapping conflict networks

- Armed Conflict Location & Event Data Project (ACLED)

- 33 000 violent events

- 155 000 deaths

- Events always involve multiple actors, and we can use this information to construct a sociogram
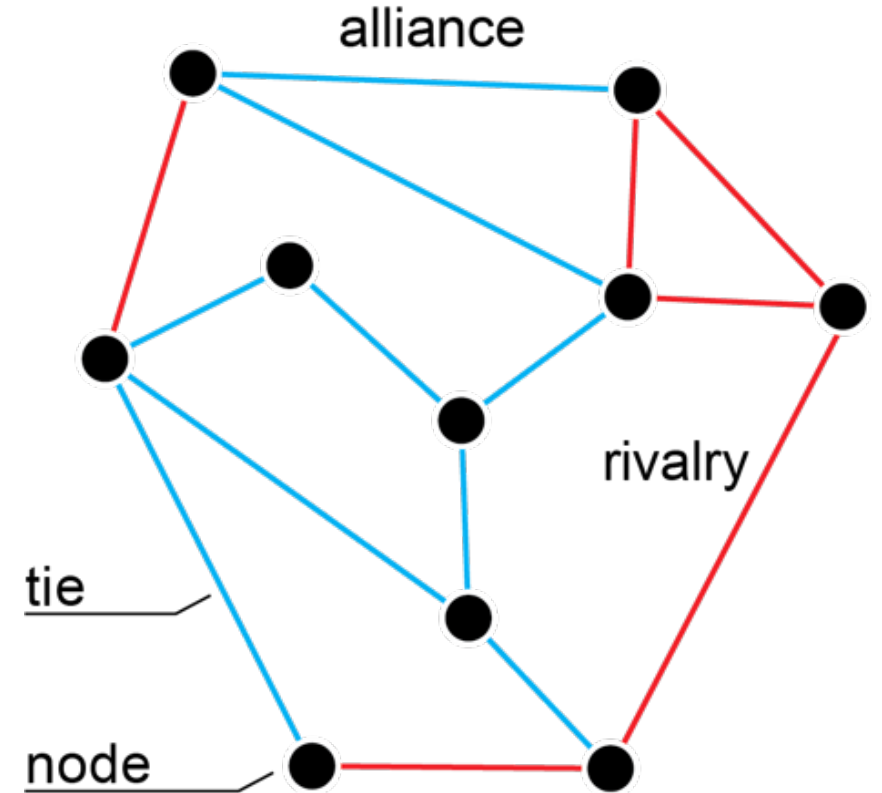
# DSNA – From events to dyads

- Event data with lists of participants can be turned into lists of relationships between all possible pairs of actors

- Each pair of actors forms a dyad. Its relationship can be cooperative or conflictual, depending on event details

Events involving Libya's Haftar Faction and the Shura Council of Mujahideen in Darnah

| Event date | Actor 1 | Associate actor 1 | Actor 2 | Associate actor 2 |
|---|---|---|---|---|
| 1 September 2015 | Haftar Faction | | Shura Council | |
| 25 September 2015 | Haftar Faction | | Shura Council | |
| 11 February 2016 | Haftar Faction | | Shura Council | |
| 22 February 2016 | Islamic State | | Shura Council | Haftar Faction |
| 20 April 2016 | Haftar Faction | Shura Council | Islamic State | |
| 21 April 2016 | Haftar Faction | | Shura Council | |

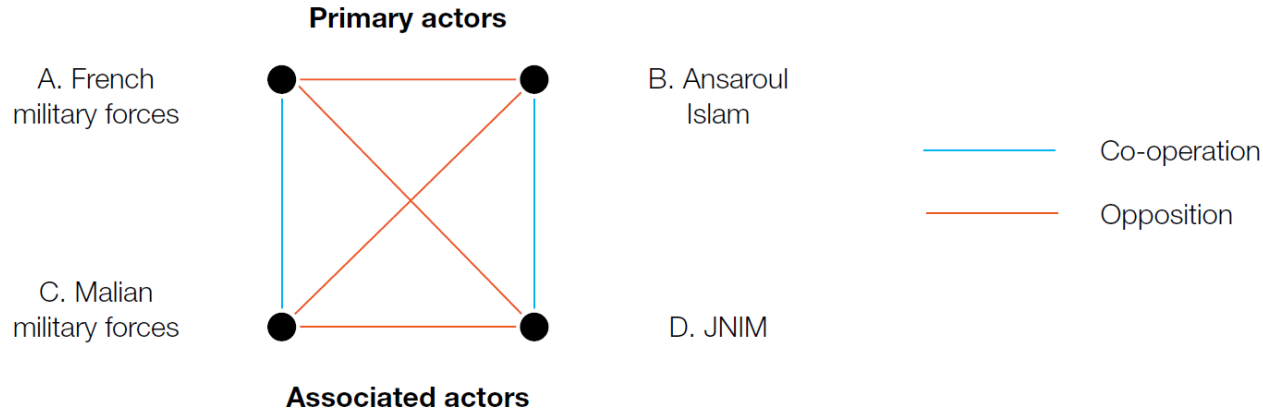ACLED events transformed into pairs of actors

| Event type | Event date | Actor X | Actor Y |
|---|---|---|---|
| Opposition | 1 September 2015 | Haftar Faction | Shura Council |
| Opposition | 25 September 2015 | Haftar Faction | Shura Council |
| Opposition | 11 February 2016 | Haftar Faction | Shura Council |
| Opposition | 22 February 2016 | Islamic State | Shura Council |
| Opposition | 22 February 2016 | Islamic State | Haftar Faction |
| *Co-operation* | *22 February 2016* | *Haftar Faction* | *Shura Council* |
| Opposition | 20 April 2016 | Haftar Faction | Islamic State |
| Opposition | 20 April 2016 | Shura Council | Islamic State |
| *Co-operation* | *20 April 2016* | *Haftar Faction* | *Shura Council* |
| Opposition | 21 April 2016 | Haftar Faction | Shura Council |

Note: Co-operative events are indicated in blue and italic, oppositional events in red.

Source: OECD/SWAC (2021)

# DSNA – Opposition and cooperation networks

Primary actors and associated actors

**Primary actors**

A. French military forces

B. Ansaroul Islam

C. Malian military forces

D. JNIM

Co-operation

Opposition

**Associated actors**

Opposition and co-operation networks

**Opposition network**

Each node represents an actor.
Ties represent conflictual events.

Ansar Dine

MUJAO

19

61

17

72

Malian forces

French forces

**Co-operation network**

Each node represents an actor.
Ties represent co-operative events.

Ansar Dine

11

MUJAO

Malian forces

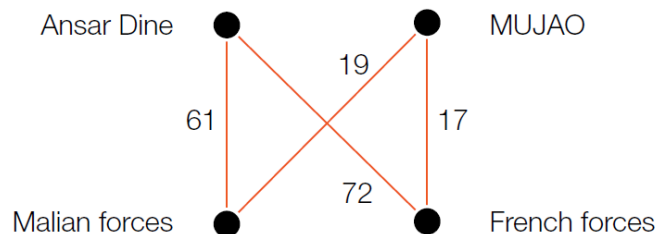52

French forces

Source: OECD/SWAC (2021)

- Active ties between dyads can be cooperative or conflictual

- Cooperative and conflictual ties can be considered together (signed network) or separately (unsigned networks)
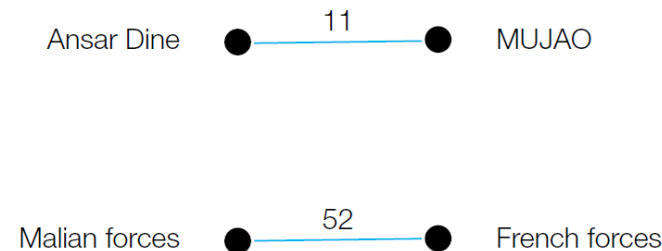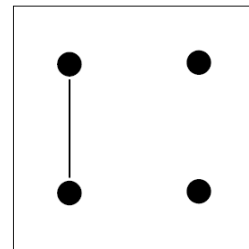
- Ties can be weighted by the number of events involving both actors/nodes

# DSNA – Networks over time

- A dynamic network can be a series of static networks at different snapshots in time

- Network measures like density and centralization can be measured at temporal intervals
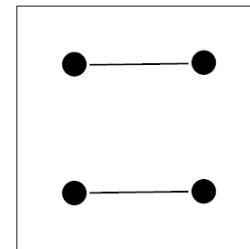
Dynamic and static social network analysis
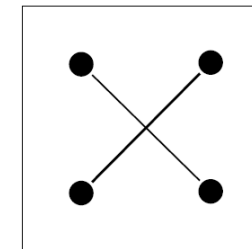
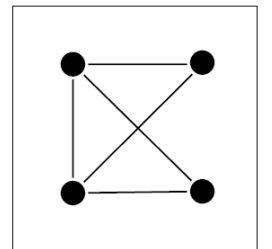**Dynamic networks over Time**
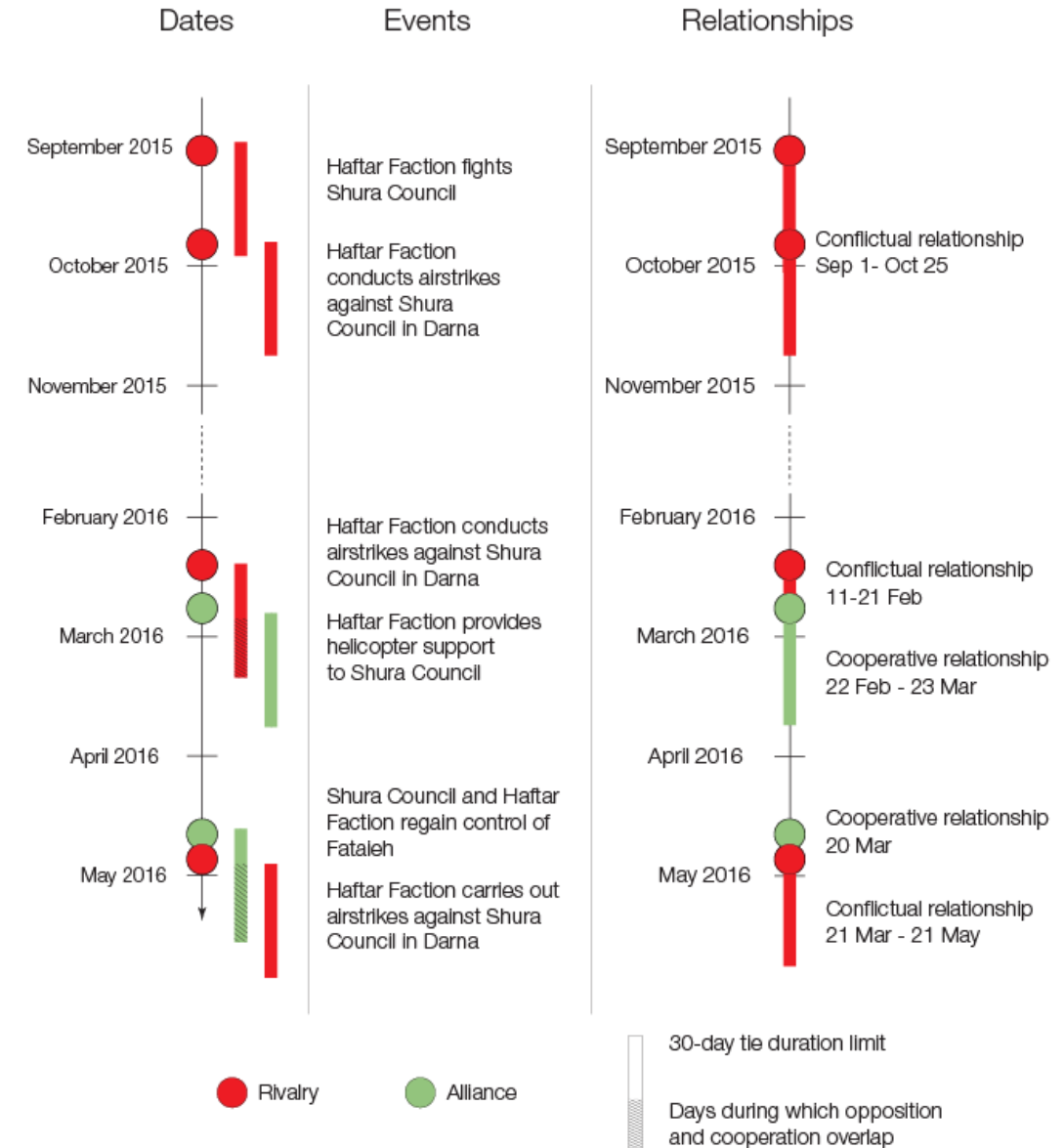
**Static network**

Day 1 + Day 2 + Day 3 = All days combined

time

Source: Adapted from Uddin, S., A. Khan and M. Piraveenan (2015[18]), "A set of measures to quantify the dynamicity of longitudinal social networks", *Complexity*, Vol. 21/6, pp. 309–320.

Source: OECD/SWAC (2021)

# DSNA – From dyads to edges

- Relational data over time is most efficiently stored as a list of relationships with beginning and end dates: an **edgelist**

- Edges can be cooperative, conflictual, or non-existent (lapsed)

- An **edge duration limit** specifies how long a relationship will last after its last event

Source: OECD/SWAC (2021)



| Dates | Events | Relationships |
|---|---|---|
| September 2015 | Haftar Faction fights Shura Council | September 2015 |
| October 2015 | Haftar Faction conducts airstrikes against Shura Council in Darna | Conflictual relationship Sep 1- Oct 25 / October 2015 |
| November 2015 | | November 2015 |
| February 2016 | Haftar Faction conducts airstrikes against Shura Council in Darna | February 2016 |
| March 2016 | Haftar Faction provides helicopter support to Shura Council | Conflictual relationship 11-21 Feb / Cooperative relationship 22 Feb - 23 Mar / March 2016 |
| April 2016 | | April 2016 |
| May 2016 | Shura Council and Haftar Faction regain control of Fataleh / Haftar Faction carries out airstrikes against Shura Council in Darna | Cooperative relationship 20 Mar / Conflictual relationship 21 Mar - 21 May / May 2016 |

● Rivalry     ● Alliance

30-day tie duration limit

Days during which opposition and cooperation overlap

# Military interventions and conflict networks

- Military interventions are frequently used conflict resolution efforts

- Two main types
  - Partisan – tries to tip balance toward one belligerent
  - Mediatory – tries to stand in between belligerent

- Both intend to produce conditions that allow cessation of violence
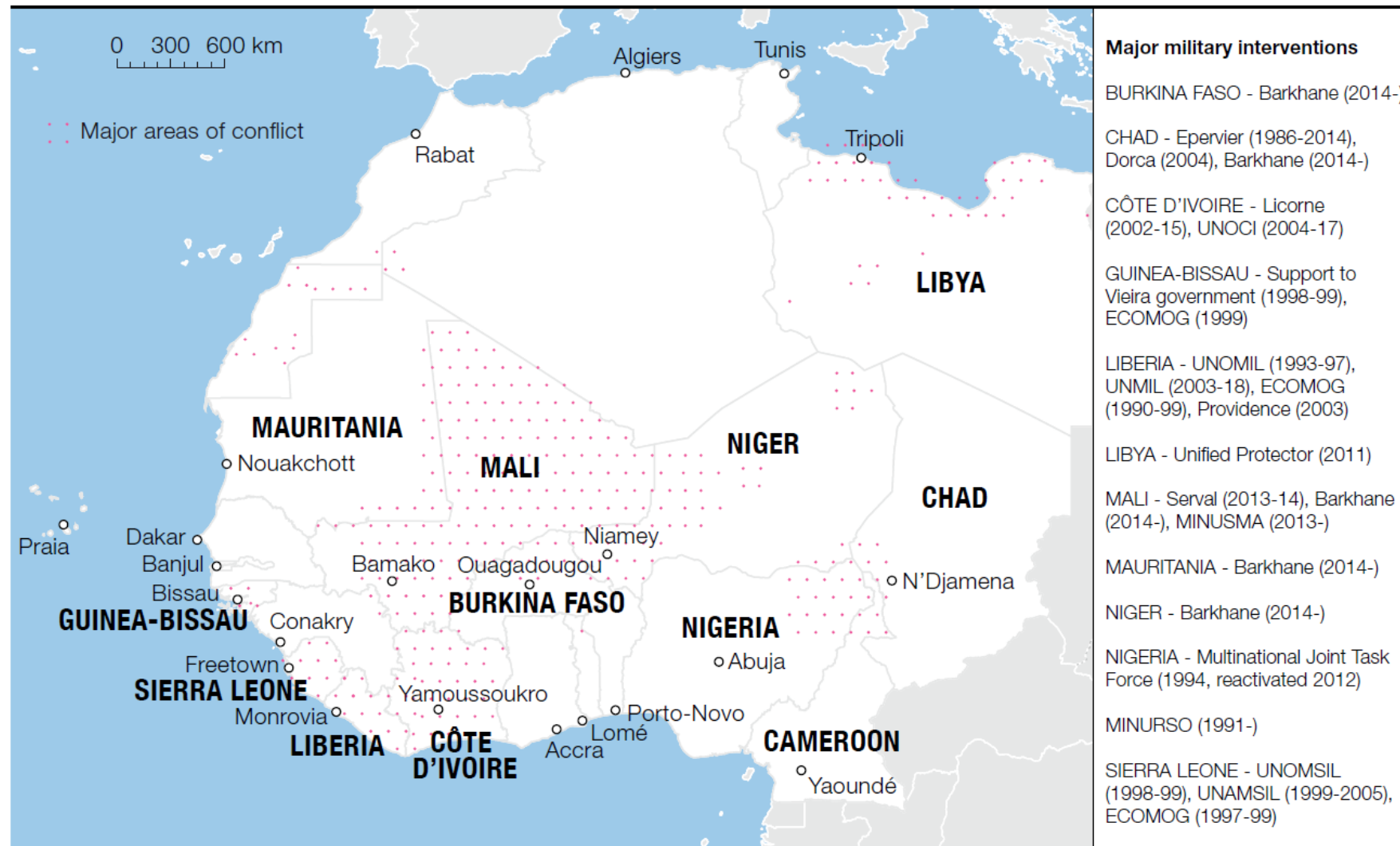


The UN's MINUSMA 'stabilization' mission in Mali is an example of a mediatory intervention.
Source: UN

# Numerous interventions within the region since 1997

Major military interventions in North and West Africa, 1997–2020



Major military interventions

BURKINA FASO - Barkhane (2014-)

CHAD - Epervier (1986-2014), Dorca (2004), Barkhane (2014-)

CÔTE D'IVOIRE - Licorne (2002-15), UNOCI (2004-17)

GUINEA-BISSAU - Support to Vieira government (1998-99), ECOMOG (1999)

LIBERIA - UNOMIL (1993-97), UNMIL (2003-18), ECOMOG (1990-99), Providence (2003)

LIBYA - Unified Protector (2011)

MALI - Serval (2013-14), Barkhane (2014-), MINUSMA (2013-)

MAURITANIA - Barkhane (2014-)

NIGER - Barkhane (2014-)

NIGERIA - Multinational Joint Task Force (1994, reactivated 2012)

MINURSO (1991-)

SIERRA LEONE - UNOMSIL (1998-99), UNAMSIL (1999-2005), ECOMOG (1997-99)

# Partisan interventions likely to lead to more violence

Events and fatalities in Libya per month, 2011-19
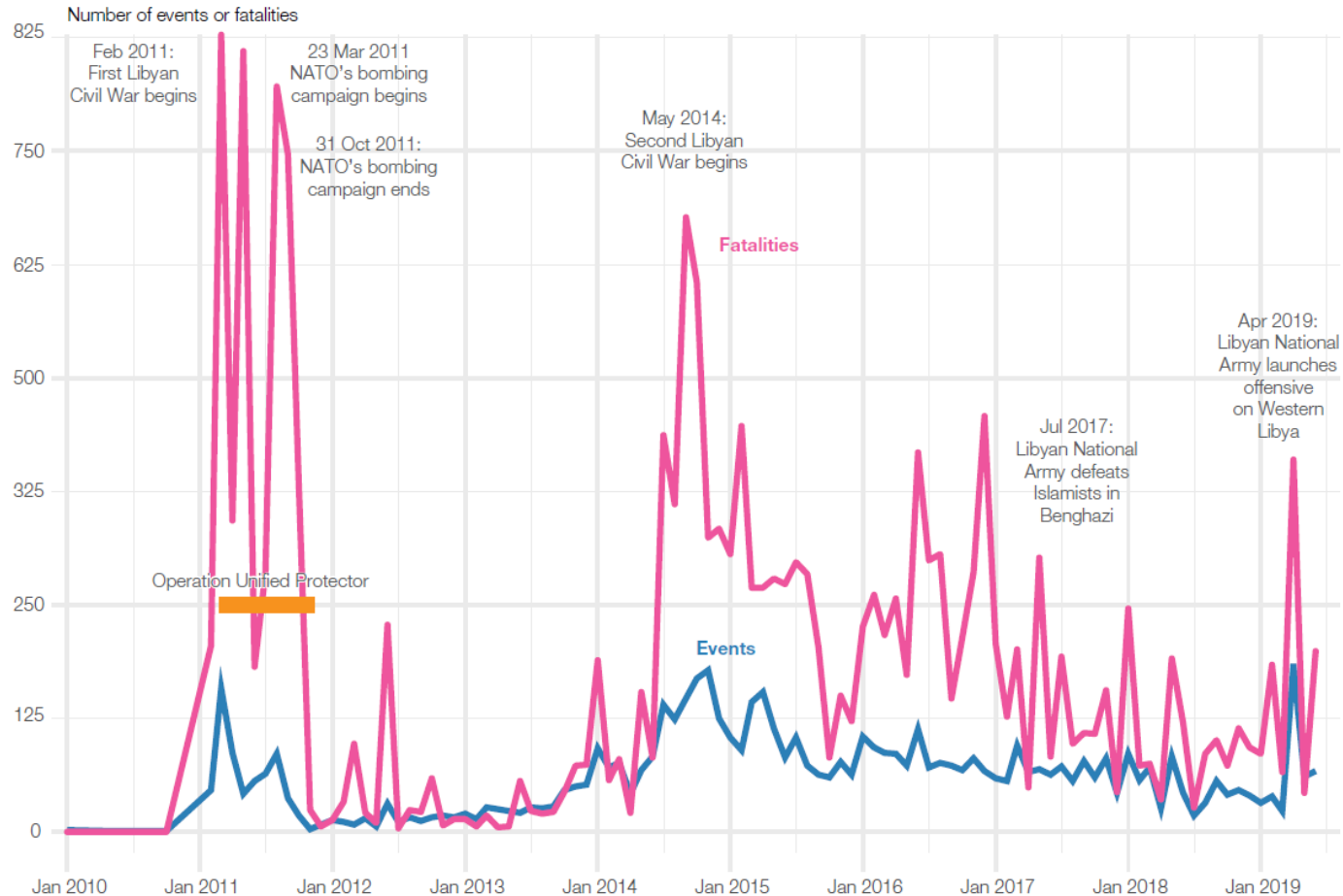


- Ex: violence was highest during NATO's 2011 mission in Libya

Source: OECD/SWAC (2020)

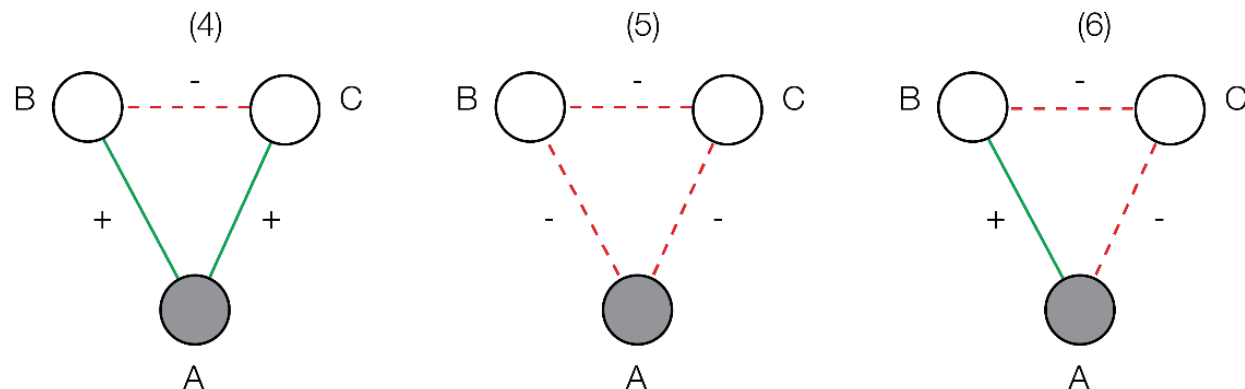# Military interventions alter conflict networks



**Intervention in a cooperative dyad**
A is the intervening power, B and C are two allies
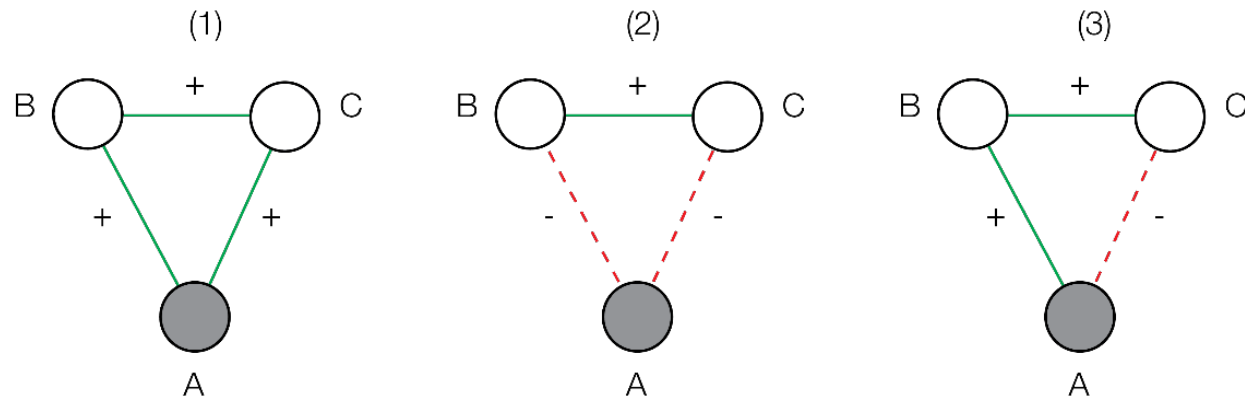
**Intervention in a conflictual dyad**
A is the intervening power, B and C are two enemies

External interventions, impact on a conflict network and violence

| Scenario | Type of external intervention | Outcome |
|---|---|---|
| 1 | Mediatory | Less violence |
| 2 | Mediatory | **More violence** |
| 3 | **Partisan** | **More violence** |
| 4 | Mediatory | Less violence |
| 5 | Mediatory | Less violence |
| 6 | **Partisan** | **More violence** |

Source: OECD/SWAC (2021)

# Interventions alter 'power' of actors

- Positive-Negative centrality: 'Power' depends on mix of direct and indirect positive and negative ties

- The most powerful actors are those with fewer constraints

- Ex: allies who are have few other allies and enemies who themselves have lots of enemies
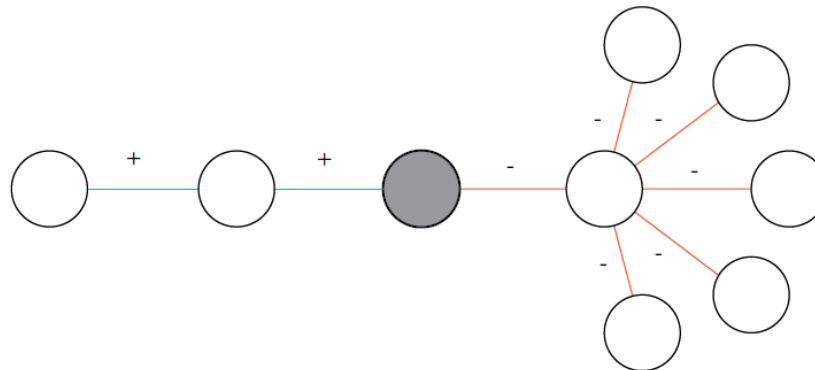
How low and high Positive-Negative centrality scores relate to political power

**A - Low PN score**
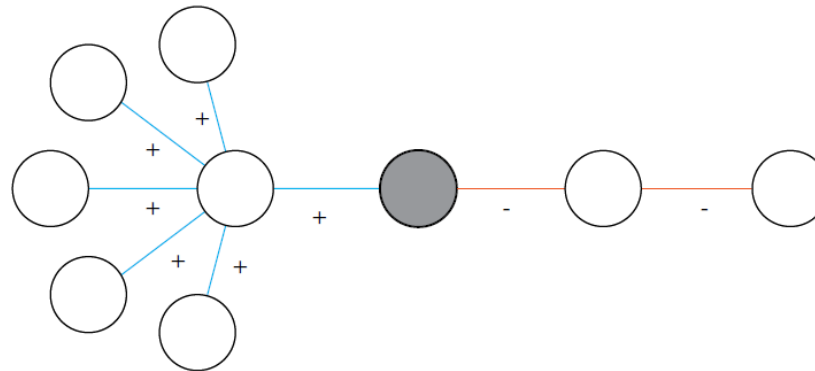
The focal actor (in grey) has a low PN score. It is allied with a group that has many other allies and is opposed to a group with few opponents of their own.
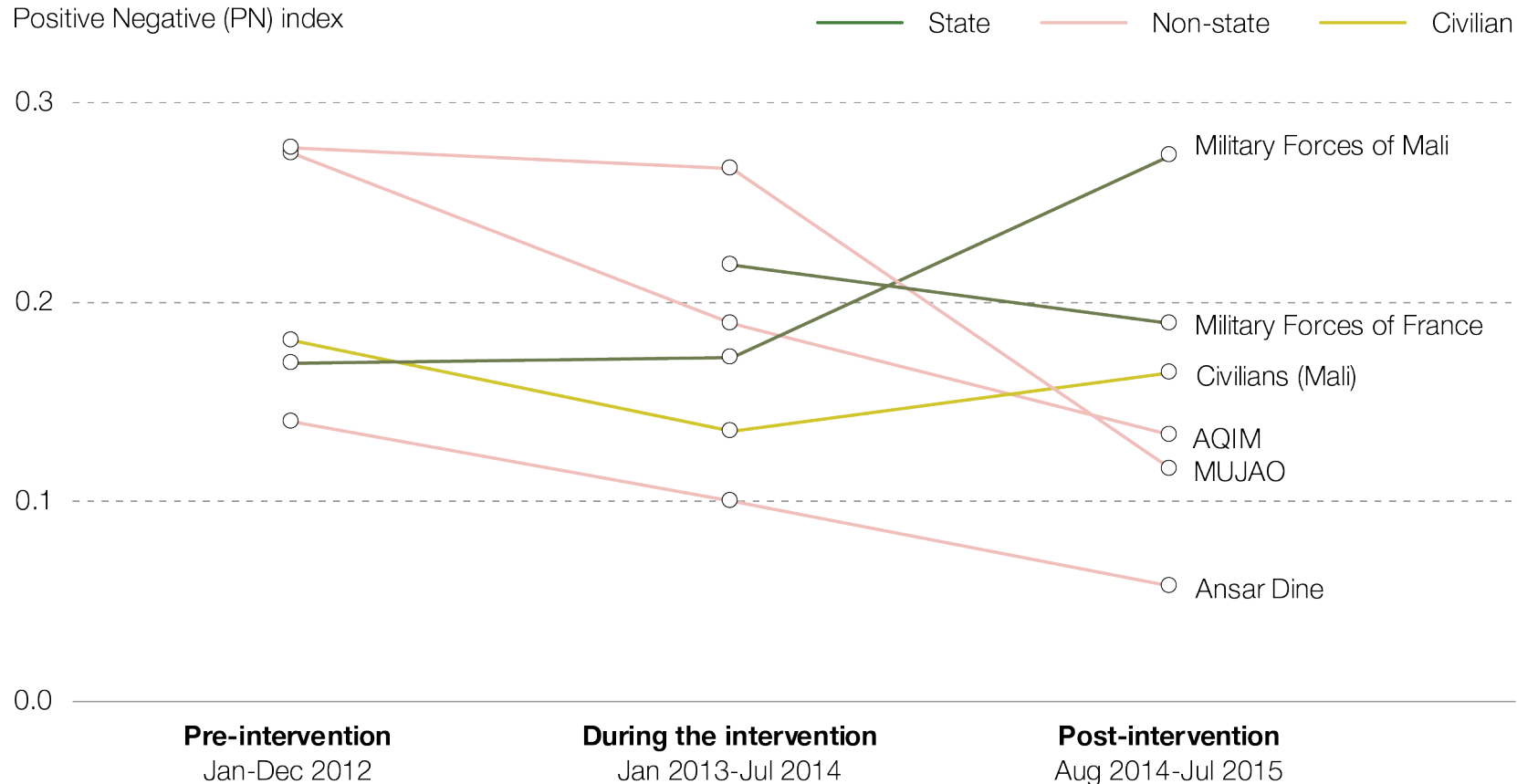
**B - High PN score**

The focal actor (in grey) has a high PN score. It is allied with a group that has few allies of their own and is opposed to a group with many other opponents.

Source: OECD/SWAC (2021)

# Interventions can increase power of actors

How France's Operation Serval affected political power in Mali, 2012–15

Positive Negative (PN) index

State    Non-state    Civilian

0.3

Military Forces of Mali

0.2

Military Forces of France

Civilians (Mali)

AQIM

MUJAO

0.1

Ansar Dine

0.0

**Pre-intervention**
Jan-Dec 2012

**During the intervention**
Jan 2013-Jul 2014

**Post-intervention**
Aug 2014-Jul 2015

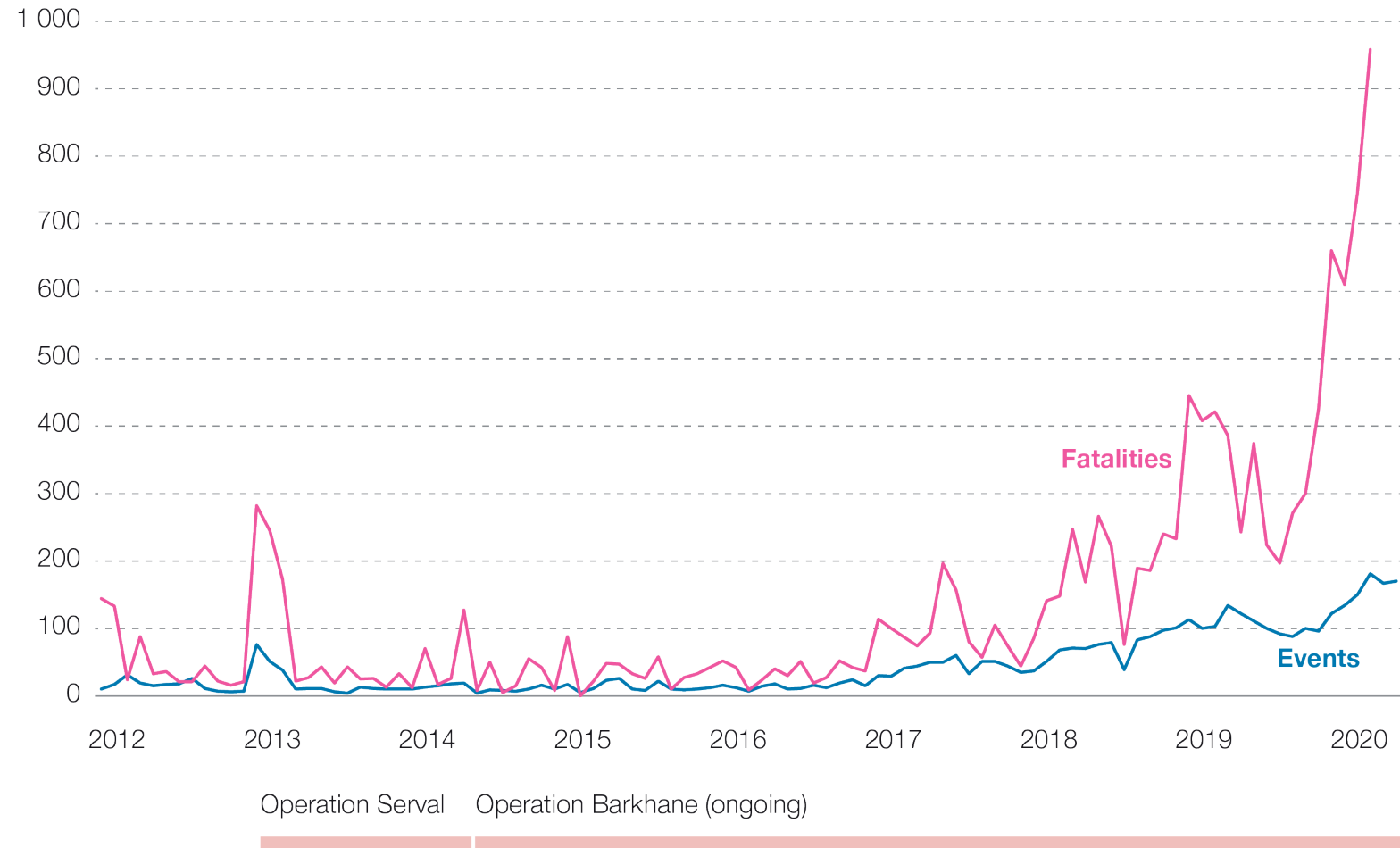Source: OECD/SWAC (2021) based on data from ACLED (2020)

- In Mali, the French military interventions temporarily weakened their opponents, which in turn benefitted the Malian state's overall position

# Interventions have not led to peace

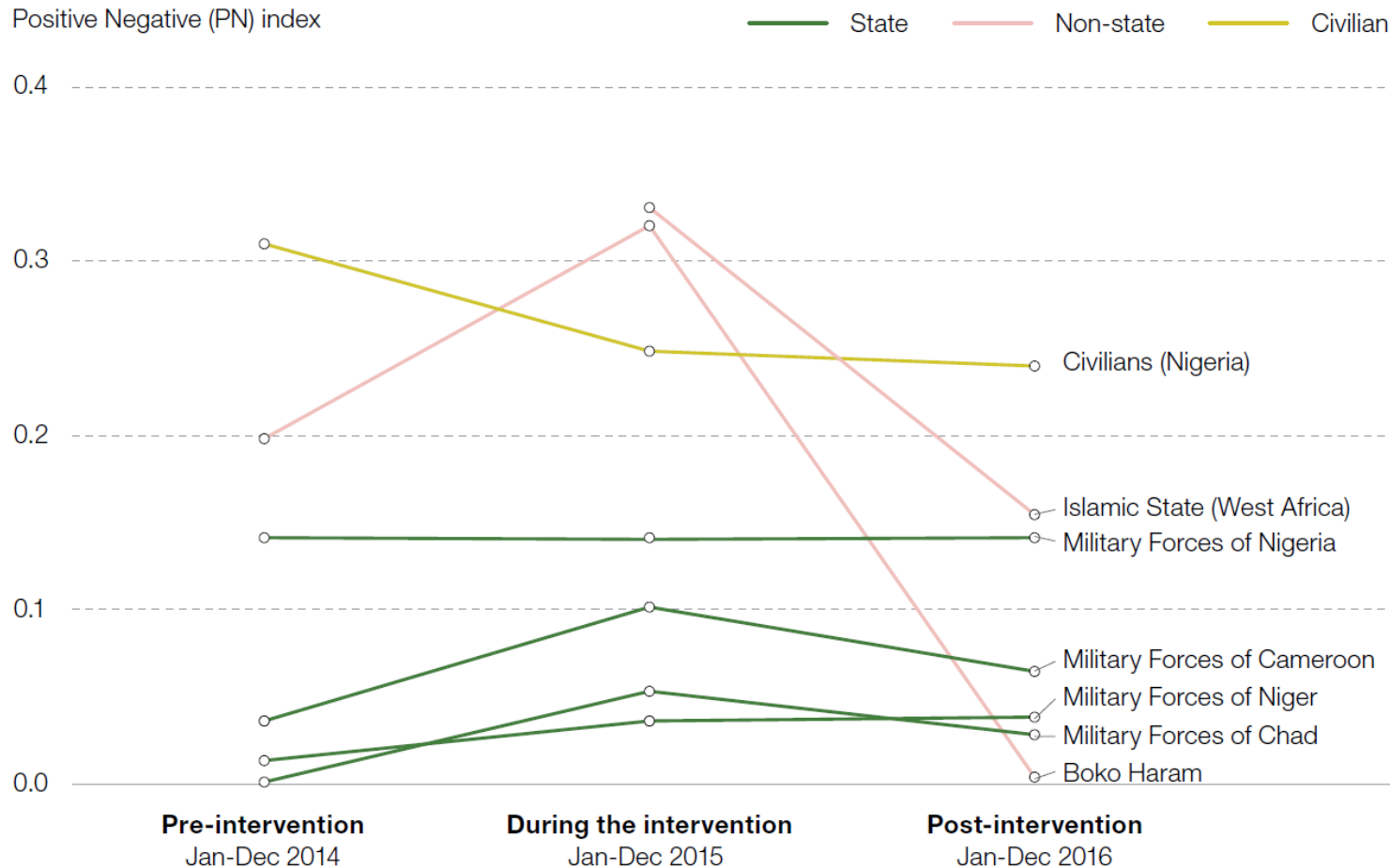Events and fatalities in Mali and Central Sahel, 2012–20

Number of events or fatalities



- Ex: Weakened opponents and a more empowered Malian state have not yielded conditions for peace

Operation Serval    Operation Barkhane (ongoing)

# Who have benefitted from interventions?

How the multinational intervention affected political power around Lake Chad, 2014–16

Positive Negative (PN) index

State — Non-state — Civilian

- Civilians (Nigeria)
- Islamic State (West Africa)
- Military Forces of Nigeria
- Military Forces of Cameroon
- Military Forces of Niger
- Military Forces of Chad
- Boko Haram

0.4
0.3
0.2
0.1
0.0

**Pre-intervention**
Jan-Dec 2014

**During the intervention**
Jan-Dec 2015

**Post-intervention**
Jan-Dec 2016

Source: Authors, based on data from ACLED (2020[11]), *The Armed Conflict Location & Event Data Project*, https://acleddata.com/data-export-tool/.

- State actors have benefitted most from partisan interventions

- Yet none of the major interventions within the region have led to a durable reduction in violence

- Civilians increasingly bear the brunt of violence even as non-states actors are diminished

# Protecting civilians should become a priority

- The control of civilians has become the main objective of conflicts

- The most effective way to counter jihadist insurgencies is by addressing civilian issues, particularly in rural and border regions

Violent events by type in West Africa, 1997-2020

**Number of violent events**



Source: OECD/SWAC (2021)
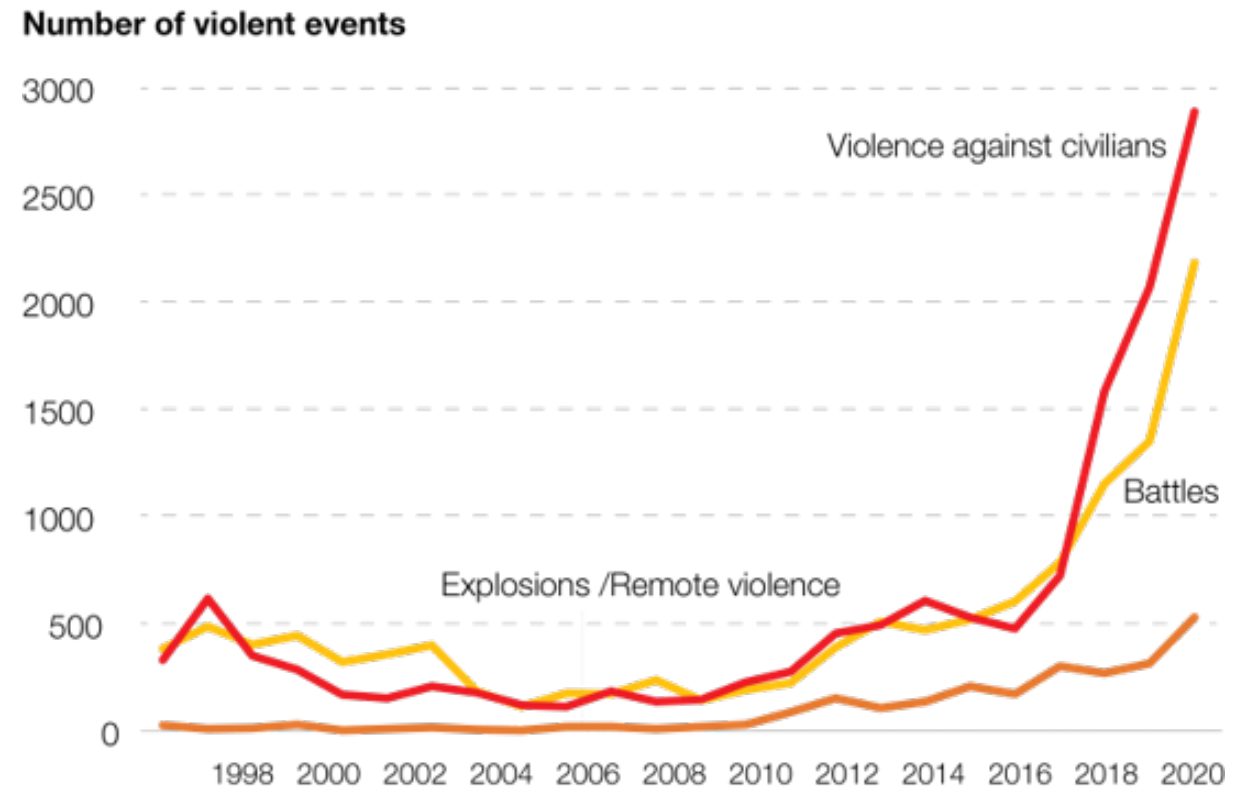
# Protecting civilians should become a priority

- Lake Chad: deadliest conflict of the region

- 59 000 deaths since 2009 (6 times more than in Mali), including more than 36 000 civilians

- Boko Haram + ISWAP: deadliest groups in the region (20% of all events recorded)

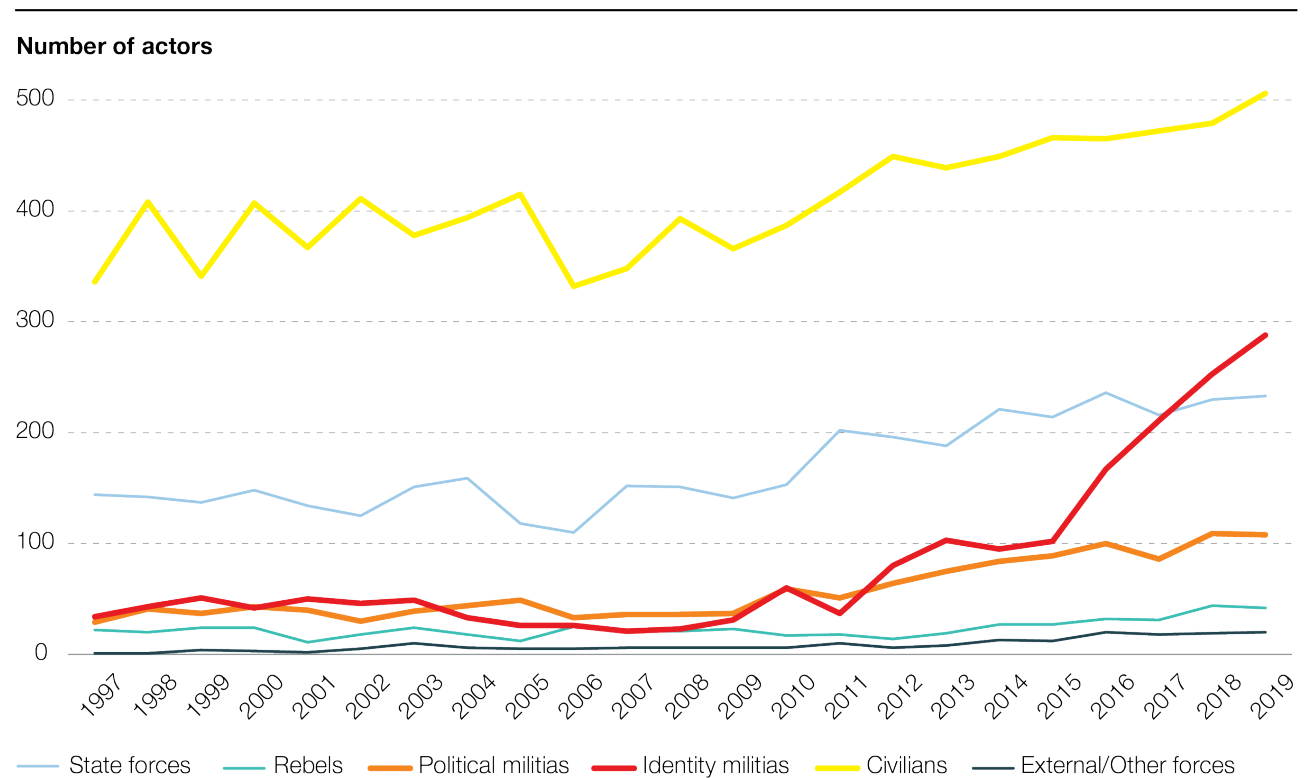Fatalities involving Boko Haram, ISWAP and government forces, 2009–20
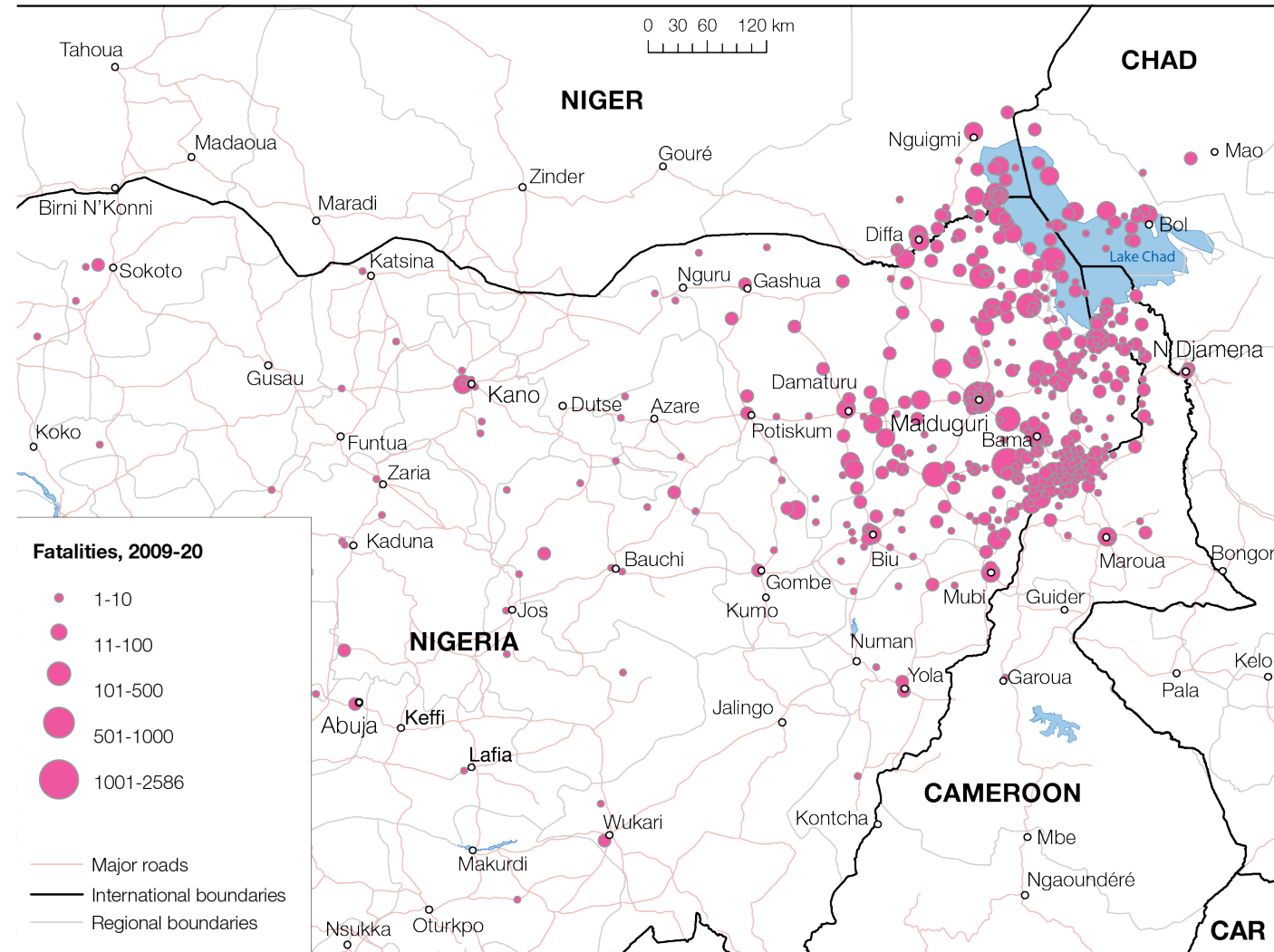


Source: OECD/SWAC (2021), based on data from ACLED (2020)

# Militias should be demilitarized

- Militias represent one-third of the organizations in conflict in NW Africa

- A primary cause of political insecurity in democratizing states

- Used by political, religious and community leaders as private armies to compete for power and resources

Organisations in conflict by type in North and West Africa, 1997–2019

**Number of actors**



State forces — Rebels — Political militias — Identity militias — Civilians — External/Other forces

\* Data available through 30 June 30 2020.

Source: OECD/SWAC, based on data from ACLED (2020)

# Military interventions should keep belligerents apart

- Jihadist groups weakened by military interventions have either pledged allegiance to violent global organizations, split according to ethnic and geographical lines or merged with other groups

- Jihadist groups have also moved to more remote or less monitored areas, participating in the regional diffusion of violence observed in North and West Africa since the late 2000s

- Intervene militarily to keep parties apart rather than to take sides

# Conflicts that cannot end?

- A peaceful resolution of the conflicts is more is elusive than ever
  - Increasing number of belligerents
  - Increasing density of conflictual relationships
  - Polarization among powerful organizations

- Political violence has evolved and coalesced into multiple conflict theatres that have resisted all efforts of resolution to date

- Conflict networks will continue to enlarge, intensify, and centralize

# Contacts

- Read or download the report in [English](#) and [French](#)
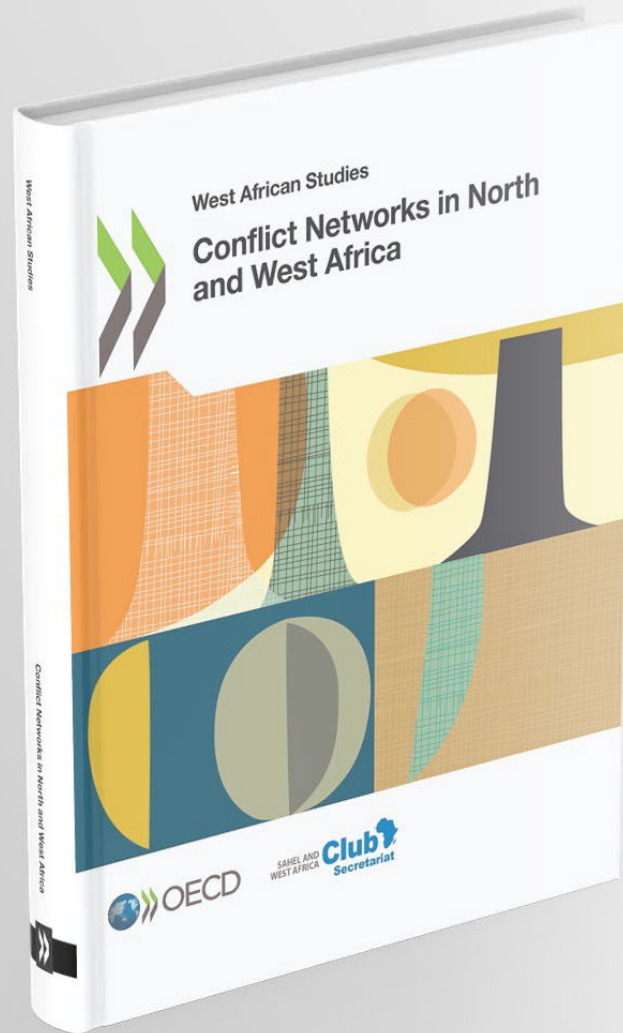
- Olivier Walther, Ph.D., Department of Geography, University of Florida, email: [owalther@ufl.edu](mailto:owalther@ufl.edu)

- Marie Trémolières, Ph.D., OECD, SWAC Secretariat, email: [marie.tremolieres@oecd.org](mailto:marie.tremolieres@oecd.org)

West African Studies

**Conflict Networks in North and West Africa**

OECD

SAHEL AND WEST AFRICA Club Secretariat