

COMPARATIVE ANALYSIS OF CONFLICT ACTIVITIES BETWEEN NIGER AND NIGERIA IN THE FOOD SECURITY-DEPRIVED SAHEL REGION OF WEST AFRICA

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Abstract

Niger Republic and Nigeria are two neighboring countries in the Sahel region of West Africa which have experienced similar forms of conflicts in the last 20 years (2005 to 2025). Though they both share the Sahelian landscape, tribes, religion, and culture, they are separated by artificial borders created by both the French and the British empires. While famine and security in West Africa have been widely studied, there remains a noticeable gap in comparative analyses that link conflict patterns in these two countries to their respective Integrated Food Security Phase Classification (IPC) levels of food insecurity. This study addresses that gap by examining whether a significant difference exists between the conflicts of both countries across their IPC phases. The study employs a qualitative descriptive approach, integrating data from ACLED, scholarly articles, and grey literature such as policy reports and media publications. The findings reveal that the difference in conflicts frequency between Niger and Nigeria during food-insecurity phases is not statistically significant. Furthermore, the analysis shows less than a 1 percent likelihood that the clustering patterns in both countries occurred randomly, indicating a deliberate or systematic spatial distribution of conflict incidents. The study also identifies substantial cross-border interactions of conflict within the shared Sahelian region.

Keywords: Sahel, Conflict; Food insecurity; Niger; Nigeria; West Africa; Integrated Phase Classification (IPC)

INTRODUCTION

Since the inception of independence of all the West African states between 1957 and 1960, there has been a consistent occurrence of conflicts intertwined with food insecurity in the geographical location to date. These conflicts were fueled by various tribes and or groups - state actors and non-state-actors seeking hegemony over others by seizing or attempting to seize control through coup d'états, civil

unrest, civil wars, religious conflicts, election fraud, etc. These scenarios have created food

insecurity and exacerbated drought in Sahelian Western Africa (Iacovino et al., 2023; Karim, 2023).

Part of the detestation of colonialism is the artificial boundaries drawn between tribes thereby creating separate countries out of communities that once shared unified social,

cultural, and ecological systems (KAMAU, 2019; MacArthur, 1985; Tasew, 2023). République du Niger and the Federal Republic of Nigeria are two such Sahelian West African countries that share boundaries and experience similar issues.

These two countries since their independence have faced various but similar conflict types such as battles, explosions, remote violence, protests, riots, strategic development, violence against civilians, and various actor types such as State Forces, Rebel Forces, Political Militias, Identity Militias, Rioters, Protesters, Civilians, and External/Other Forces (ACLED, 2025) from 2005 till date. These insecurities have led to the displacement of citizens of both countries especially at the height of Islamic insurgencies beginning from July 2009 ((ACLED, 2025; Hamadou & Yussoufou, 2020; Imasuen, 2015; Itumo & Nwobashi, 2016). Many professionals in farming or livestock rearing have either experienced violence or fled to safer grounds, leaving farmlands fallow and losing herds of cattle, goats, and sheep.

These agricultural disruptions significantly contribute to the varied IPC phases of food insecurity documented by the Famine Early Warning Systems Network (FEWS NET). The IPC phases—minimal, stressed, crisis, emergency, and famine—offer a structured lens for understanding how conflict undermines food access in these regions.

The similarities between Niger and Nigeria cannot be overstated. They share a 1,608-kilometers (999 miles) boundary (CIA, 2025), common tribes and languages such as Hausa, Fulani, Fulbe, Zarma, Kanuri, and minority groups, and are predominantly Sunni Muslim (Campbell, 2017; FRS, 2019; Kars de Bruijne & Gehrling, 2024). They are also both situated in the Sahel region of West Africa. Yet linguistic and colonial histories—Francophone Niger and Anglophone Nigeria—continue to shape political identities.

Even with overwhelming evidence of the cultural and environmental similarities between both states, this research treats them as independent countries, acknowledging their autonomous constitutions, politics, currencies, and official languages. This distinction helps maintain analytical clarity even though their lived realities often intersect across the artificial border.

Many researchers have discussed armed conflict within individual states, and some have explored conflict as a driver or consequence of food insecurity. Factors studied include climate and environmental pressures, armed conflict itself, socioeconomic grievances, religious unrest, tribal competition, and struggles for political power (Aremu, 2011; Evans & Munslow, 2021; Hendrix & Brinkman, 2013; McGuirk, 2021; Patrick, 2022; Rotter, 2021; Stewart, 2002).

However, very few works specifically compare armed conflict between Niger and Nigeria within the Sahel—precisely the region where their ecological, cultural, and security systems converge. This gap is notable given how frequently conflict actors operate transnationally in this corridor

This study therefore investigates whether a significant difference exists in armed conflict across the IPC phases in Niger and Nigeria's Sahelian regions. In essence, the research asks whether the artificial border between both countries meaningfully separates how conflict manifests across food-insecurity conditions.

To guide the reader, this study proceeds as follows: Section 2 reviews literature on armed conflict and food insecurity in Niger and Nigeria. Section 3 introduces the study areas and describes the data collected. Section 3 also explains the methodology. Section 4 presents the results of the unpaired t-test and spatial analyses. Section 5 discusses the findings, and Section 6 summarizes, concludes, and outlines areas for future research.

Literature insight

République du Niger and the Federal Republic of Nigeria, which share a boundary, have in the last 20 years faced similar armed conflict situations influenced by the Sahel region's climate uncertainty, tribal dynamics, religious affiliations (mainly Islamic) and governance challenges. These drivers have been widely analyzed in prior studies (International Institute for Strategic Studies, 2022; Mach et al., 2020; Robin Mearns & Andrew Norton; Theisen et al., 2013). However, a large portion of this literature examines each country separately, creating a gap regarding how conflict behaves across the shared Sahelian space.

Ewi (2010) chronicled violent activities across West Africa and the trans-Sahel region—from the 1981 UTA flight bombing over the Ténéré Desert to militant sabotage of oil pipelines in Bayelsa State, Nigeria, in 2010. This long-standing pattern of instability reinforces Yoroms' (2014) argument that West Africa is a coup-prone and politically fragile region marked by economic hardship, authoritarian legacies, and cycles of unrest.

Both Niger and Nigeria have each recorded eight coups since independence, illustrating persistent instability, often compounded by terrorist networks that exploit porous borders (Duzor & Williamson, 2023; Ziso & Hamandishe, 2025). The cyclical nature of coups and insurgency demonstrates how political fragility interacts with regional insecurity rather than confined national issues.

After the 2010 Arab Spring and the collapse of Libya, extremist groups such as Boko Haram, ISIS-WA, al-Qaeda affiliates, and other armed factions expanded across the Sahel, exploiting ungoverned spaces (Bøås & Utas, 2020). This regional realignment made Niger and Nigeria vulnerable to similar insurgent tactics and cross-border movements of fighters, weapons, and displaced communities.

Ujunwa et al. (2019) argued that armed conflict is a significant predictor of food insecurity in West Africa. FAO (2017) echoed this link, stating that conflict disrupts agricultural production, markets, and nutrition systems. These studies strengthen the rationale for examining how IPC food-insecurity phases interact spatially with conflict incidents.

Charifi et al. (2022) emphasized micro-level conflicts in Niger's Maradi region—farmer–farmer, farmer–pastoralist, local leadership disputes, and community–forestry department tensions—highlighting livelihood strain from both environmental and social pressures. Fathima et al. (2023) expanded this to nontraditional security threats, including migration, climate change, resource scarcity, and transnational crime, noting how these interact to deepen instability.

Khora (2024) added that ethnic pluralism, weak national identity, and inequitable resource distribution further intensify fragility across the Sahel. Taken together, the literature establishes a mutually reinforcing cycle: conflict worsens food insecurity, and food insecurity amplifies the likelihood of conflict.

This study builds on these foundations to assess whether conflict patterns differ significantly across IPC phases between Niger and Nigeria, particularly along their shared Sahelian frontier.

MATERIALS AND METHODS

Study Area

République du Niger and the Federal Republic of Nigeria are two Sahelian West African countries sharing a long border. Niger, a former French colony, gained independence on August 3, 1960; Nigeria, colonized by Britain, gained independence on October 1, 1960. Their shared boundary stretches for 1,608 kilometers (999 miles) (CIA, 2025).

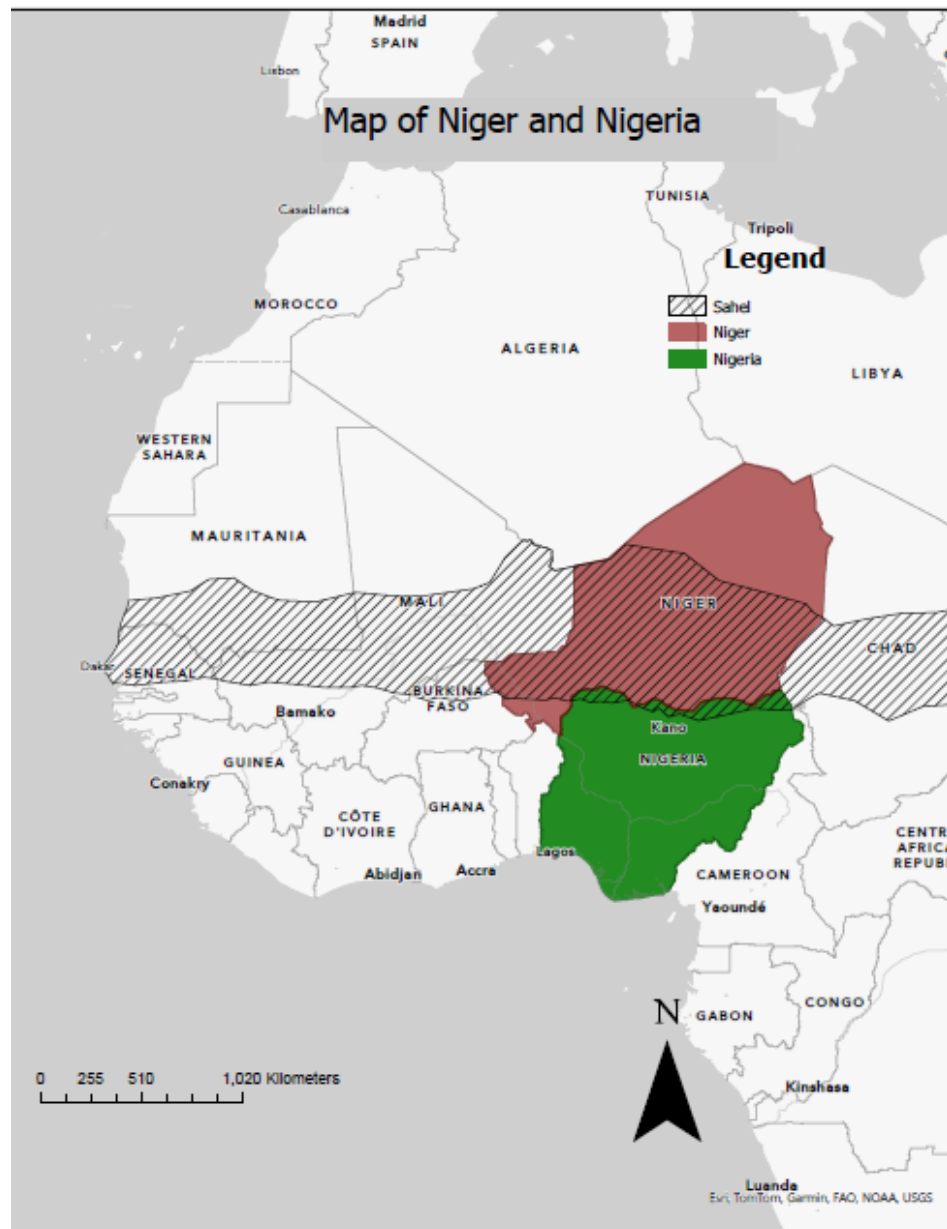


Figure 1. Study Area: Map of Niger and Nigeria States in the Sahel Region

Source: Global Administrative Areas Database (GADM) (2023) boundaries; Esri basemap.

They share major ethnic groups—Hausa, Fulani, Fulbe, Zarma, Kanuri—and are predominantly Sunni Muslim (Campbell, 2017; FRS, 2019; Kars de Bruijne & Gehrling, 2024). They also share similar Sahelian ecological characteristics, particularly in their northern regions.

Niger is a landlocked country bordered by Algeria and Libya to the north, Mali and Burkina Faso to the west, Nigeria and Benin to the south, and Chad to the east. With an area of

1,270,000 km², over 80% of its land lies in the Sahara Desert, while the remaining 20% lies in the Sahel. The country relies heavily on neighboring states like Nigeria for maritime trade because it lacks direct access to the ocean.

Nigeria, with 923,769 km² and a population exceeding 230 million (World Bank, 2025a), also experiences Sahelian conditions in its far northern states. As one moves southward, the geography transitions into savannah, rainforest, and coastal zones. Despite its ecological

diversity, the northern states experience similar climatic pressures and conflict dynamics as Niger.

Both nations suffer from Islamic insurgency. Groups such as Boko Haram, ISWAP, and other extremist factions have used the porous borders as operational corridors, creating widespread insecurity (Brottem et al., 2022; Odoh & Chilaka, 2012).

Recent political developments have strained cooperation. Niger was suspended by the AU and ECOWAS after the July 2023 coup, later joining the Alliance of Sahel States (ASADU) alongside Mali and Burkina Faso. Nigeria remains an active ECOWAS member. This political divergence complicates bilateral security partnerships, despite the fact that insurgents rarely recognize or respect the same borders.

Table 1 Country, Capital, Population

State	Capital	Population
Niger Republic	Niamey	27,275,000
Nigeria	Abuja	238,000,000

Source: World Bank (2024), World Development Indicators —Population, total (Niger and Nigeria)

These geopolitical and demographic contexts frame the need for a comparative conflict analysis grounded in spatial and food-security dimensions.

METHODS






Data Collection

This study investigated the comparative pattern of conflict in Niger and Nigeria using the Integrated Food Security Phase Classification (IPC) framework to understand how violence corresponds with food-insecurity levels. Conflict data from 2005 to 2025 were obtained from the Armed Conflict Location & Event Data Project (ACLED) and

cross-referenced with FEWS NET famine-phase maps.

ACLED (2025) provides disaggregated data including event dates, actors, fatalities, and conflict types. The dataset includes all event types and actors for both countries during the study period. The data were downloaded as Excel files, converted into CSV format, and later transformed into GIS-compatible shapefiles. FEWS NET food-insecurity maps were downloaded and interpreted according to the coded IPC phases, categorized as shown in Table 2. These two datasets formed the core of the comparative analysis, allowing conflict counts to be paired with specific food-security classifications across both countries.

Table 2. Famine Classification Phase

Number Phase	Famine Classification Phase	Color
1.	Minimal	
2.	Stressed	
3.	Crisis	
4.	Emergency	
5.	Famine	

Source: FEWS NET (2025). West Africa Acute Food Insecurity (February 2, 2025)

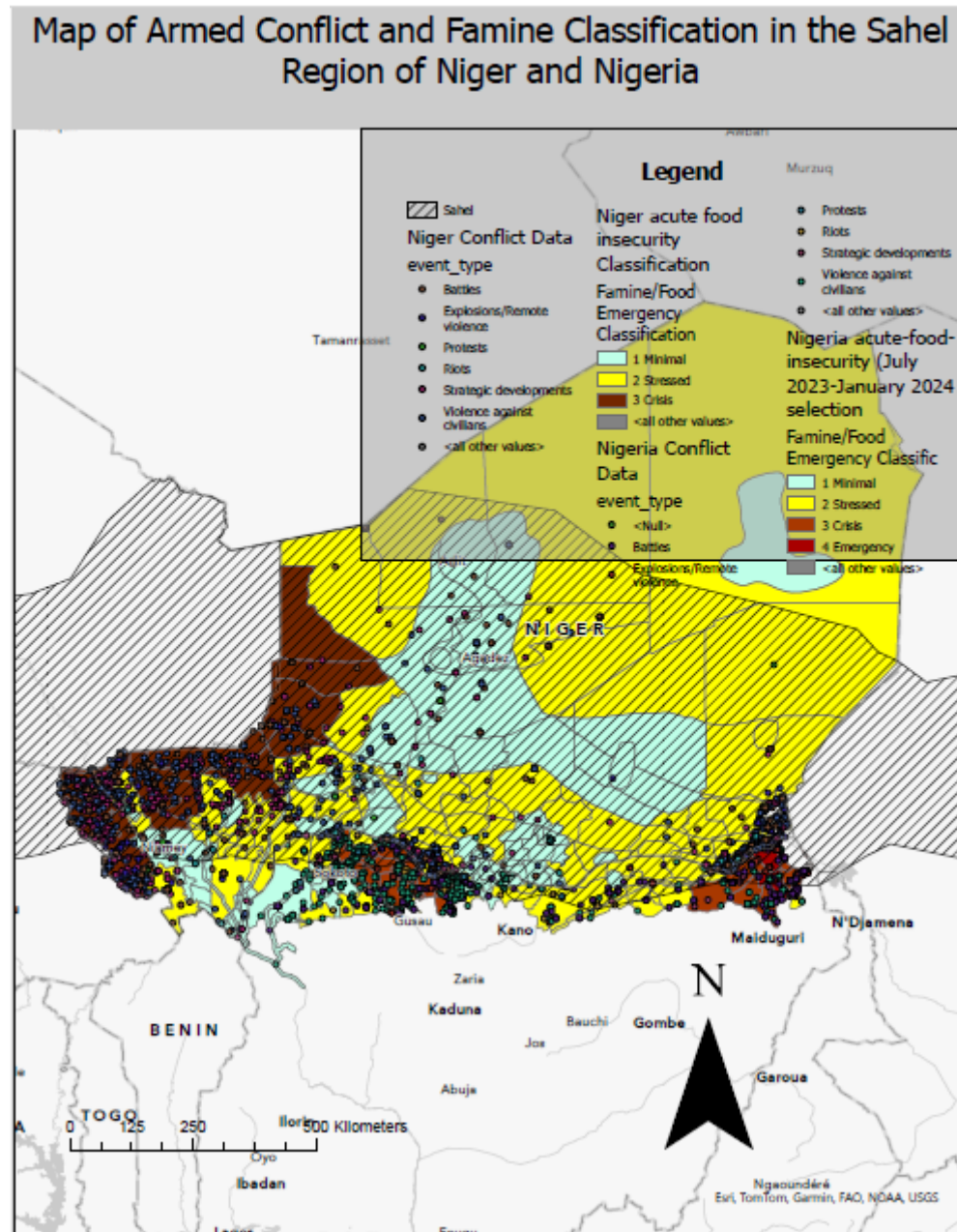


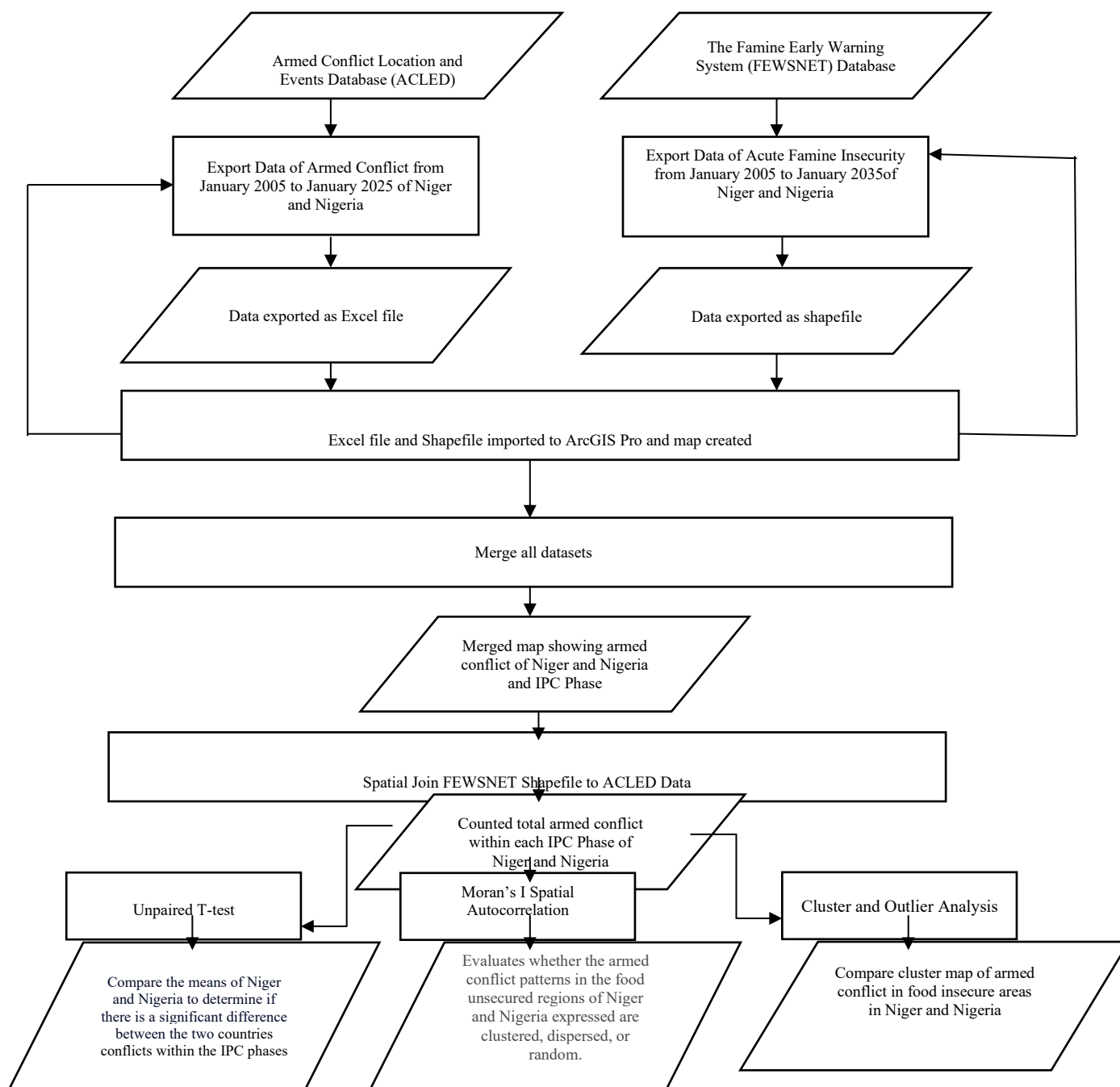
Figure 2. Map of Armed Conflict and IPC Phases in the Sahelian Regions of Niger and Nigeria (2005–2025)

Source: GADM (2023); ACLED (2025); FEWS-NET (2024); Esri basemap
Research Design

Quantitative tools including the Unpaired T-Test, Spatial Autocorrelation (Global Moran's I), and Cluster and Outlier Analysis

(Local Moran's I) were used. Figure 3 illustrates the workflow of the study.

Figure 3. Workflow Chart for Data Analysis and Integration



Source: Author-generated workflow chart

A spatial join operation was performed to link IPC phase polygons with ACLED event points. Conflicts within each IPC phase were tallied to create comparable statistics between Niger and Nigeria. The **unpaired t-test** helped

determine whether the mean difference in conflict incidents was statistically significant (Heeren & D'Agostino, 1987).

This method was chosen because it fits situations where two independent groups—in this case, the two countries—are compared

based on continuous variables such as conflict counts.

Spatial autocorrelation measured the degree of clustering or dispersion in conflict events. When the p-value is less than 0.05 with a positive z-score, it indicates significant clustering (ESRI, 2025).

Finally, Local Moran's I identified hotspots (high-high clusters), cold spots (low-low clusters), and spatial outliers. These patterns

help illuminate how conflict interacts with food insecurity not only within each country but along shared borders.

Results

Conflicts to IPC Phases Tabulation

Table 3 summarizes the total conflict counts in the Sahelian regions of both countries across the IPC phases. Niger recorded 3,372 conflict events, while Nigeria recorded 2,179

Table 3. Number of Conflicts within Each IPC Phase

	Total conflict in IPC classified Area	
	Niger	Nigeria
IPC Phase		
Minimal	668	92
Stressed	1615	452
Crisis	1089	1260
Emergency		375
Famine		
Total	3372	2179

Source: Author's Analysis

A notable observation is that Niger experienced a significantly larger number of conflicts during the “minimal” and “stressed” phases, while Nigeria recorded more during the “crisis” and “emergency” phases. This pattern may reflect displacement dynamics, underreporting, or differences in governance responses.

The results of the unpaired t-test are summarized in Table 4. Because the p-value exceeds 0.05, the difference is not statistically significant, indicating that conflict patterns across IPC phases are broadly similar in both countries.

Table 4. Unpaired T-Test Results for Conflict Frequency

Group	Niger	Nigeria	Difference	Confidence interval
				95% confidence interval of this difference: From -22.63 to 1.01
Mean	18.64	29.45	-10.81	
Standard Deviation	44.36	42.39	1.97	
SEM	3.29	4.81	1.52	
N	182	74		
t = 1.8012	df = 254	standard error of difference = 6.001	The two-tailed P value equals 0.0729	

Source: Author-conducted unpaired t-test performed in ArcGIS Pro

Cluster and Outlier Analysis

Cluster and Outlier Analysis revealed spatial patterns of conflict that were consistent in both countries. The high-high clusters (conflict hotspots) mainly appeared along border regions.

The coexistence of food pressure and conflict within these clusters demonstrates spatial reinforcement of vulnerability.

The presence of low-high and high-low patterns suggests transitional zones where localized conflict intensity does not always correspond neatly with surrounding food-insecurity conditions

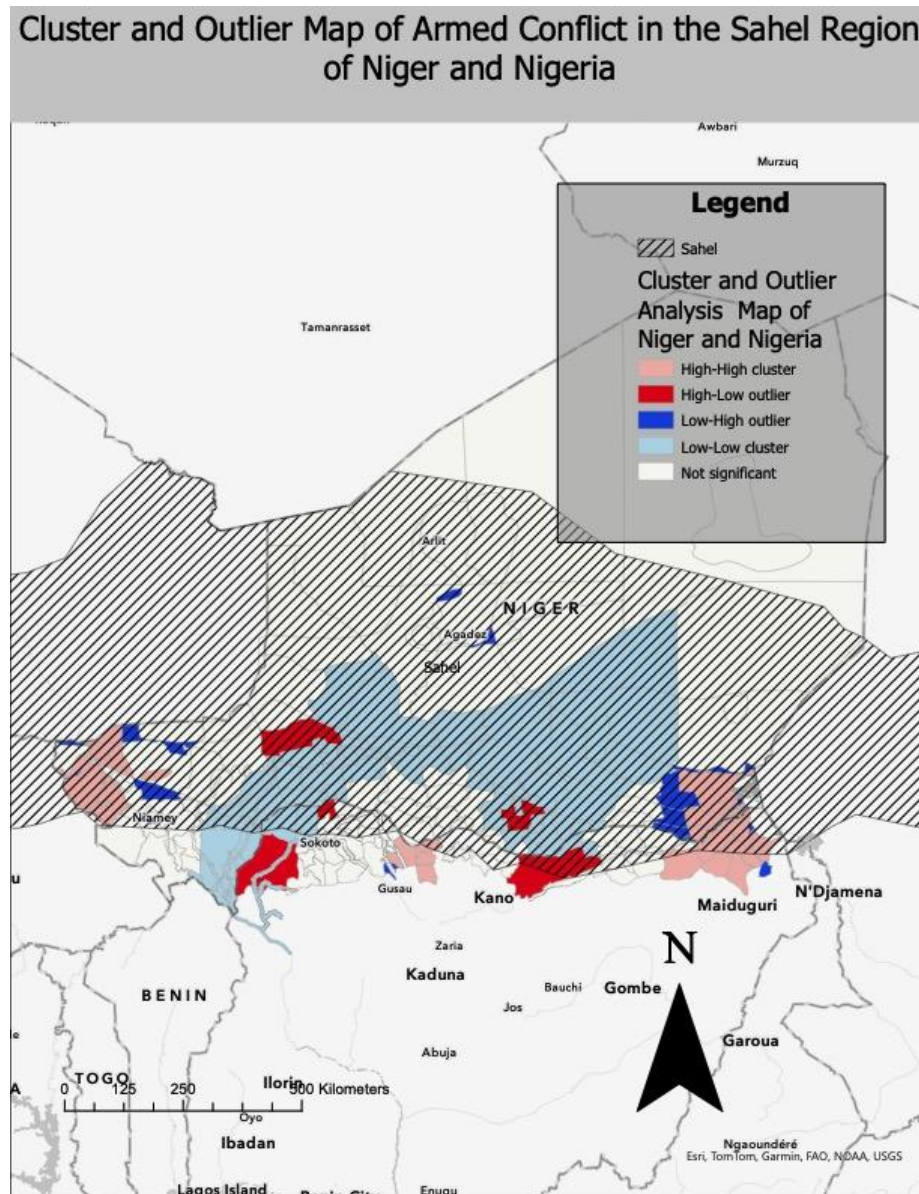


Figure 4. Cluster and Outlier Map of Armed Conflict and Famine Classification in the Sahelian Regions of Niger and Nigeria.

Source Author-generated figure from ArcGIS Pro Cluster and Outlier Analysis

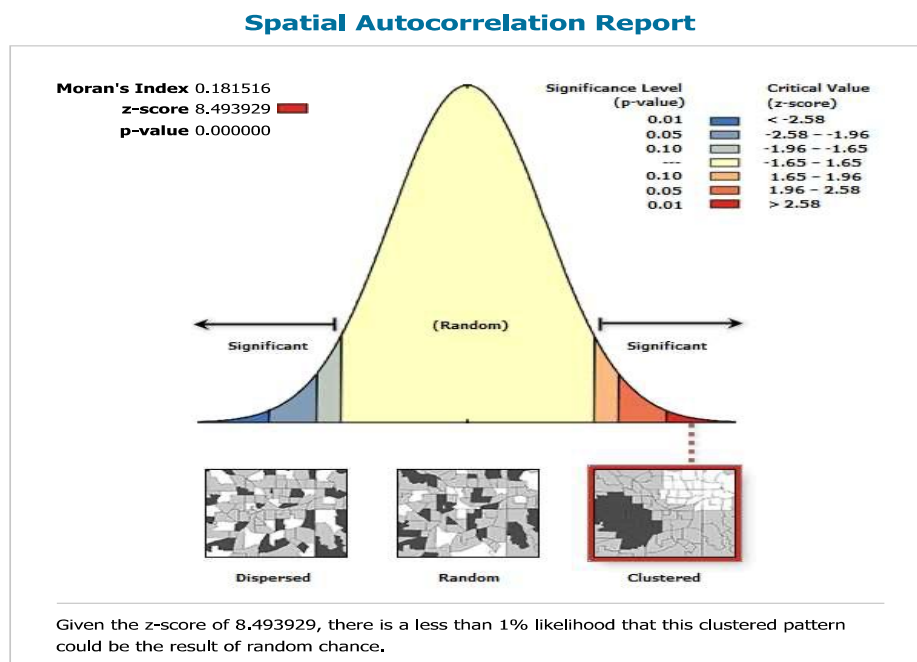
Spatial Autocorrelation (Global Moran's I)

The spatial autocorrelation report presented in Figure 5 confirms the cluster and outlier finding. The report shows that the conflicts in these countries were not random with the

Moran's Index being 0.181516, the Z-score value being 8.493929, the expected index being -0.004082, a variance was 0.000477 and the p-value at 0. Figure 6 shows the spatial autocorrelation report for the two countries.

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Spatial Autocorrelation Report



Global Moran's I Summary

Moran's Index	0.181516
Expected Index	-0.004082
Variance	0.000477
z-score	8.493929
p-value	0.000000

Dataset Information

Input Feature Class:	Niger-Nigeria Spatial Joint
Input Field:	JOIN_COUNT
Conceptualization:	INVERSE_DISTANCE
Distance Method:	EUCLIDEAN

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Figure 5. Spatial Autocorrelation of Conflicts between Niger and Nigeria.

Source: Author-generated figure from ArcGIS Pro Spatial Autocorrelation Analysis

DISCUSSION

République du Niger and the Federal Republic of Nigeria, two neighboring Sahelian countries, have experienced various forms of conflict since gaining independence in 1960. The Sahel portions of both countries have rotated through IPC phases ranging from “minimal” to “emergency,” grappling with heightened food insecurity (see Figure 2).

Though Niger recorded a higher number of total conflicts (3,372) than Nigeria (2,179), the statistical results show that the difference is not

significant ($p = 0.0729$). This suggests that, despite different political histories and institutional structures, the two countries endure comparable levels of conflict stress across food-insecurity phases.

The Sahel is inherently transboundary—its ecological, cultural, and livelihood systems do not conform neatly to colonial borders. The persistence of insurgent movements such as Boko Haram and ISWAP underscores how porous borders and shared territorial challenges

shape conflict dynamics across both states (Bere, 2022; Boukhars, 2020).

Table 3 shows that the majority of conflicts occurred during the **crisis** and **stressed** IPC phases, periods generally associated with livelihood depletion, reduced market access, and heightened humanitarian pressure. This relationship suggests that food insecurity and conflict often reinforce each other, creating cycles of vulnerability that persist over long periods.

The spatial autocorrelation results (Moran's $I = 0.181516$, $p < 0.01$) confirm significant clustering, not random distribution. These clusters reflect targeted areas where insurgent groups take advantage of weak governance, food scarcity, and the strategic value of border corridors.

Conflict clusters along the eastern and central borders of both countries, as well as along the Burkina Faso tri-border zone, reveal transnational systems of violence. High-high clusters align with LGAs experiencing both severe conflict and aggravated food insecurity, suggesting hotspots where humanitarian response is most urgent.

In contrast, low-low clusters—particularly in parts of western Niger and northwestern Nigeria—demonstrate that stability is possible even under environmental strain, likely due to localized cooperation, stronger governance, or cultural resilience.

Recent geopolitical changes complicate regional peacebuilding. Niger's withdrawal from ECOWAS and suspension from AU after the 2023 coup—while Nigeria remains within ECOWAS—creates gaps in coordinated border management (ASADU, 2025; Ewokor, 2025). Without strong regional frameworks, the risk of amplified insecurity grows across shared borders.

CONCLUSION

This study compared conflict activities between Niger and Nigeria across the Sahel region from 2005 to 2025 using spatial

autocorrelation, unpaired t-tests, and cluster-outlier analysis. The central goal was to examine whether a statistically significant difference existed between the two countries across IPC food-insecurity phases and to understand spatial relationships between conflict and famine pressures.

The results indicate no significant difference in conflict frequency between Niger and Nigeria across IPC phases. This suggests that their conflict patterns are shaped more by shared regional dynamics than by national distinctions.

Spatial analyses further revealed substantial clustering of conflict incidents, particularly along the Niger–Nigeria border and tri-border zones. These clusters highlight interdependent systems of insecurity where food scarcity and violence reinforce each other.

Recommendations

1. Enhance cross-border cooperation among Sahelian local governments to identify early-warning signs and prevent escalation.
2. Strengthen regional alliances, either through re-engagement with ECOWAS or alternative frameworks—to mitigate insecurity and improve humanitarian coordination.
3. Integrate IPC and conflict data into unified early-warning models to better anticipate hotspots of food insecurity and violence.

Ultimately, durable peace in the Sahel requires recognizing that the insecurity of Niger and Nigeria is deeply intertwined. Addressing one without the other perpetuates a cycle of conflict and food scarcity.

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