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AfricaGIS 2025

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UNITED NATIONS
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT

Geospatial Intelligence for Conflict Risk Resilience in Africa

Speaker: Arioluwa Aribisala
Authors: PeaceEye FlexCo

AfricaGIS 2025 and UN-GGIM: Africa XI Joint Conference

Harnessing Geospatial Intelligence for Africa's Sustainable and Resilient Future

17-21 November 2025, Alisa Hotel, Accra, Ghana

United Nations Economic Commission for Africa

EIS

FIG International Federation of Surveyors
Fédération Internationale des Géomètres
Internationale Vereinigung der Vermessungsingenieure

LANDS COMMISSION GHANA

UNIVERSITY OF GHANA

PeaceEye Integrated Geospatial Risk Analytics

PeaceEye FlexCo provides decision-makers with timely, **location-specific risk intelligence** by integrating **Earth observation data** with human, media, and **open-source intelligence**, enhanced by AI-driven analytics. This empowers more informed, decisive action that helps strengthen peace in volatile environments.

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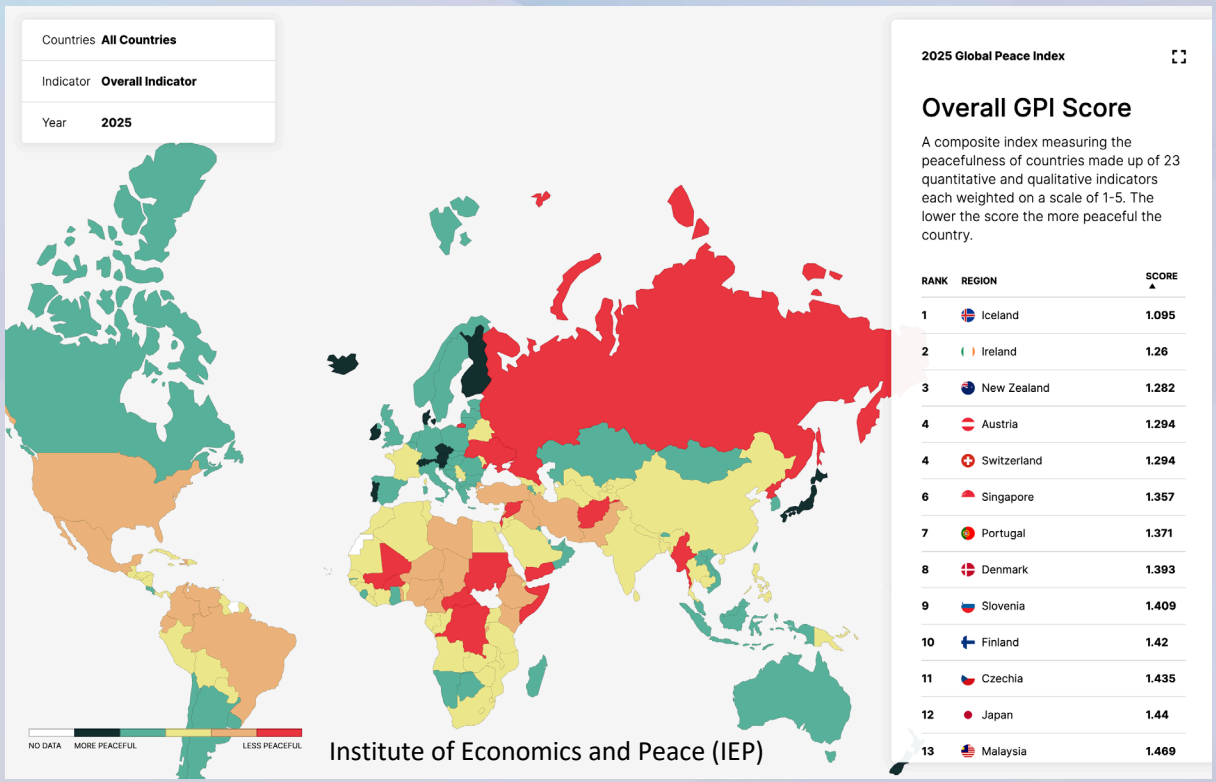
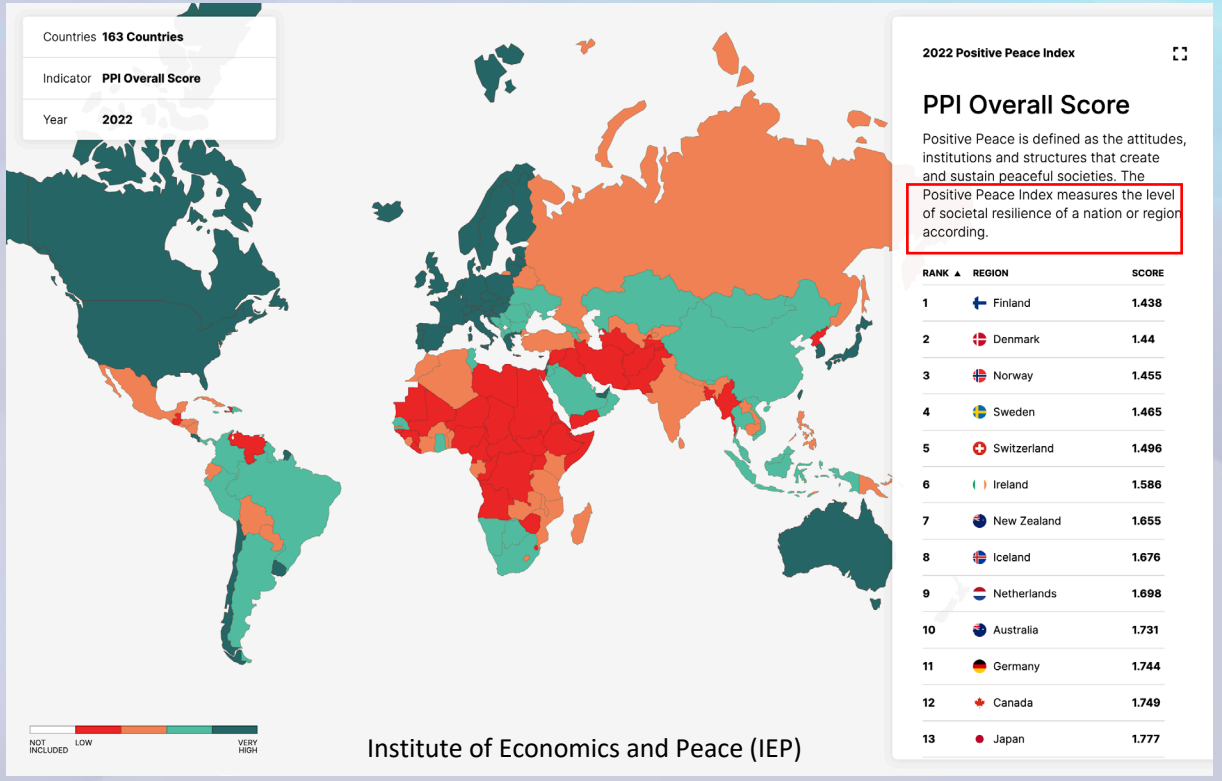
Peace in Africa



Institute of Economics and Peace (IEP)



Institute of Economics and Peace (IEP)

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Causes of conflict in Africa

- **Competition Over Natural Resources (Land, Water, Minerals)**
- Weak Governance and Political Marginalization
- Poverty and Economic Inequality
- Ethnic and Communal Tensions
- Armed Groups, Militias, and Extremism
- **Climate Change as a Threat Multiplier**

Conflict Risk Resilience

Conflict risk resilience refers to the capacity of a community, system, or institution to **anticipate**, **withstand**, adapt to, **prevent** and recover from factors that increase the likelihood of violent conflict.

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South Sudan : Unraveling Conflict Risk Drivers

Armed Conflict Location & Event Data

ACLED

EO data

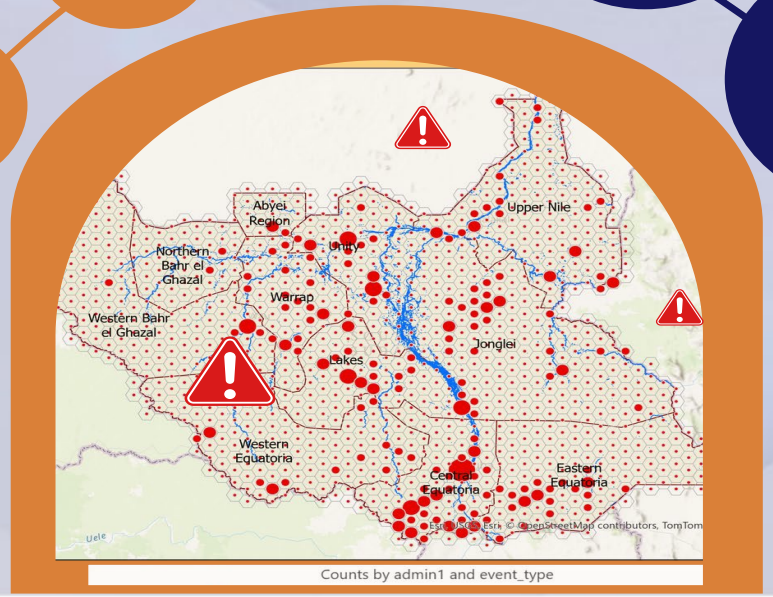
Opensource news

Geospatial data

conflict event prediction by Machine learning

Information extraction by NLP(Natural language processing)

Mapping and spatial analysis



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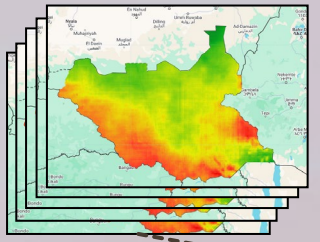
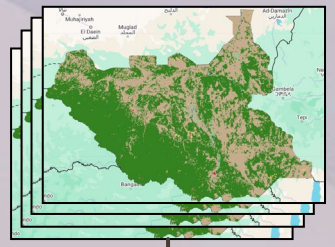
South Sudan : Unraveling Conflict Risk Drivers

EO data

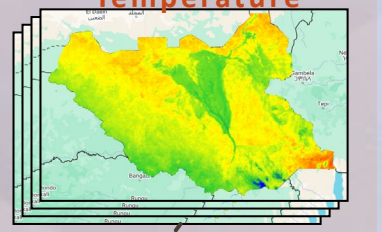
Precipitation
CHIRPS Pentad



LULC
Sentinel-2



MODIS
Terra Land Surface Temperature



Geospatial data

Acled data
Population

Prediction conflict events

Feature importance extraction

- Urban area
- Precipitation/water,
- Population

\+

Public news

Bi grams

Identify the most common pairs of words that are often found together in conflicts.

conflict mapping

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South Sudan : Unraveling Conflict Risk Drivers

Relevant factors: Water, precipitation, population, built-up area

Water issue

food water

burnt village

children abducted

armed men

shot civilians

people wounded

drinking water

cattle camp

people displaced

water point

water medicine

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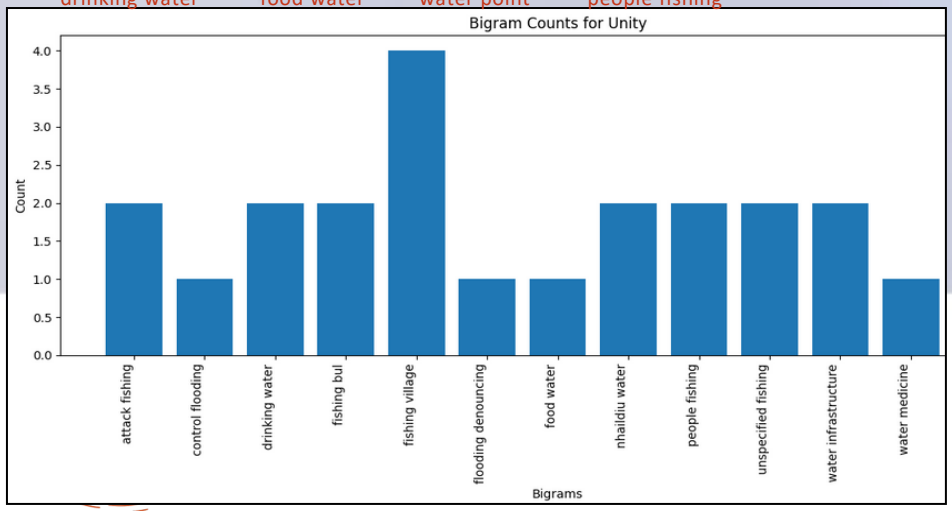
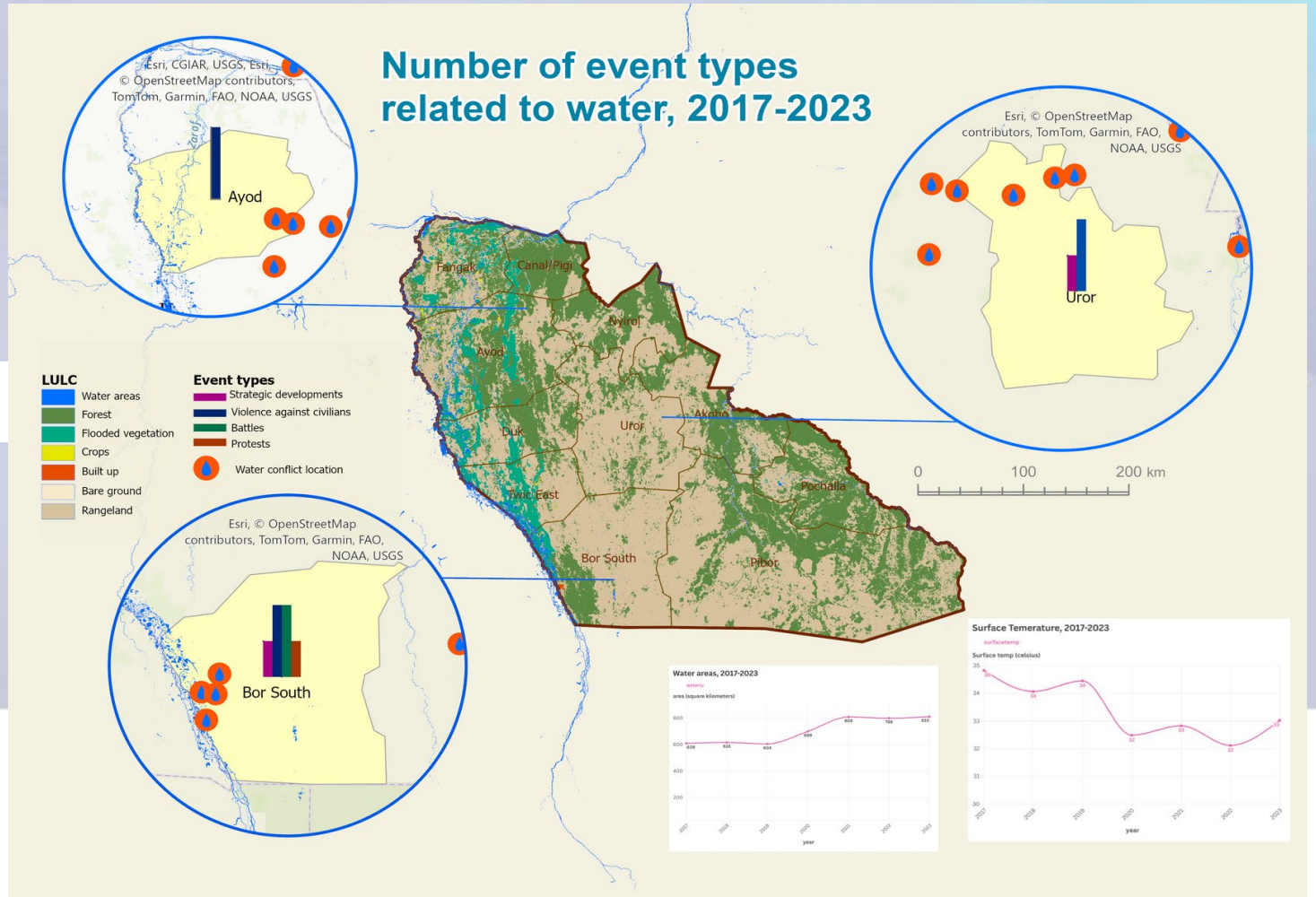
South Sudan : Unraveling Conflict Risk Drivers

Identify the most common pairs of words that are often found together in conflicts.

Display the most common bigrams by state

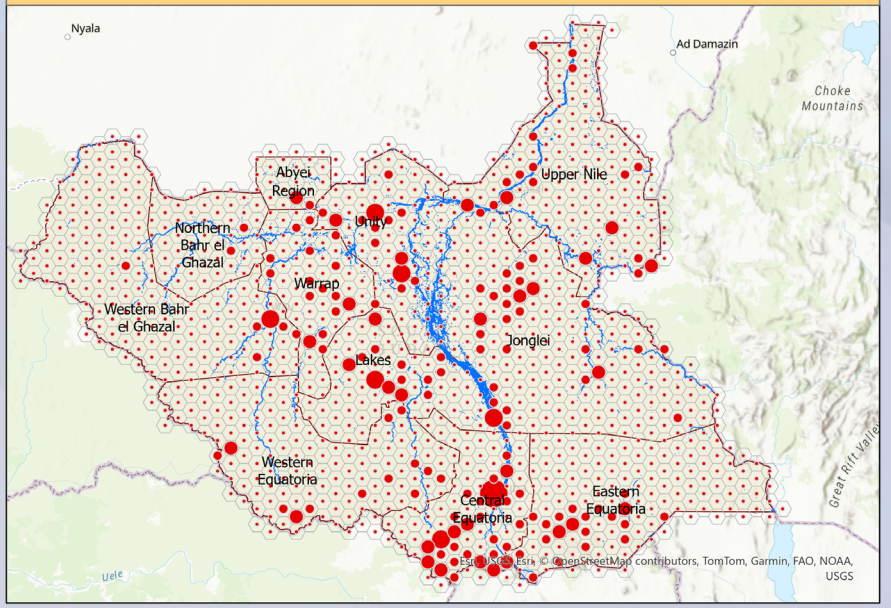
drinking water food water water point people fishing

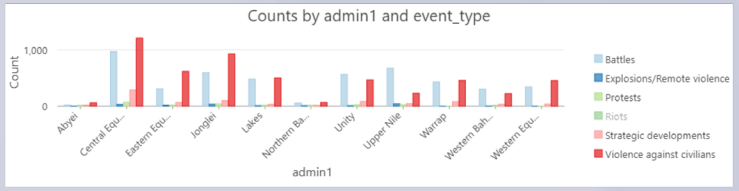




South Sudan : Unraveling Conflict Risk Drivers

Aggregation of conflict events from 2017 - 2023, South Sudan





water

administrative area

Count of Conflict Points

- 0 - 17
- 18 - 65
- 66 - 169
- 170 - 386
- 387 - 632

0 175 350 km

Spatial Reference
Name: GCS WGS 1984
GCS: GCS WGS 1984
Datum: WGS 1984

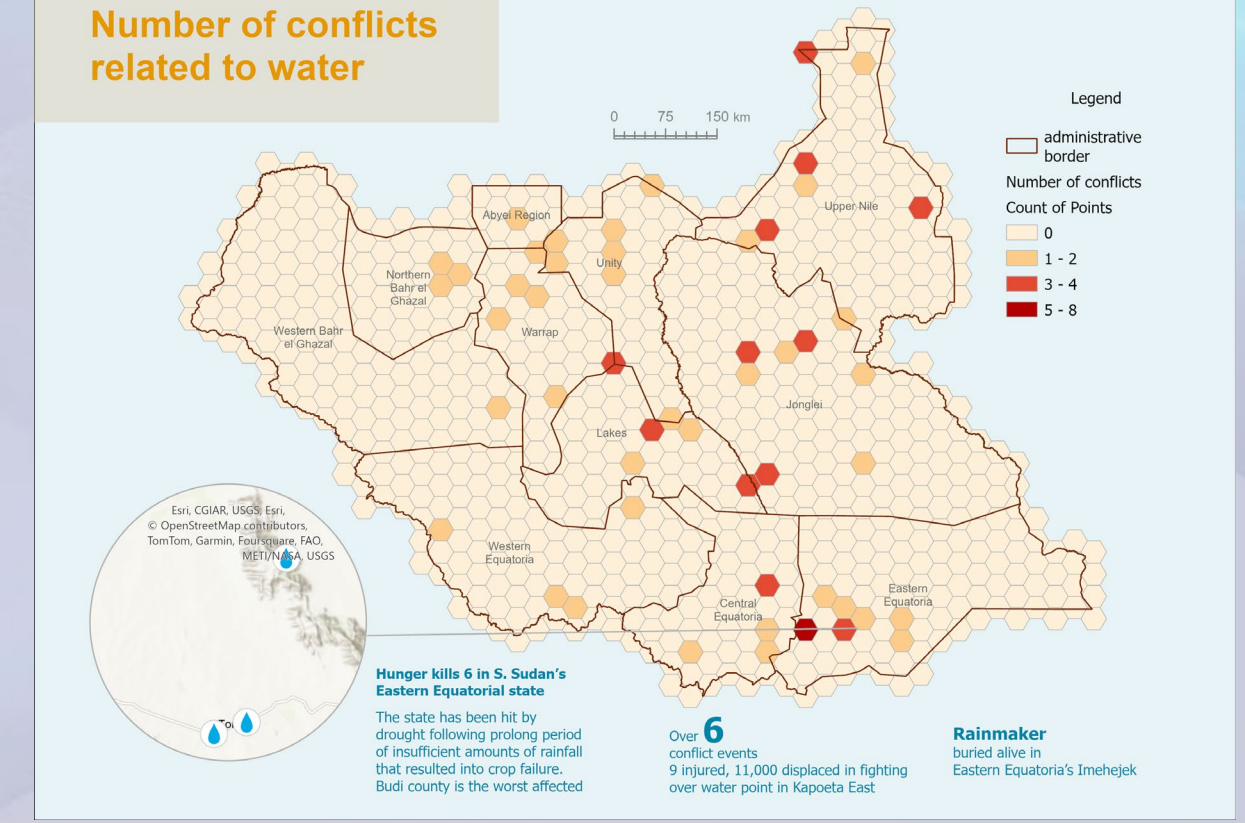
Data source: ACLED

This chart highlights the prevalence of conflict event types across regions in South Sudan.

Key Trends:
Violence against civilians (red) appears prominently across multiple regions.
Battles (light blue) are also widespread.
Other event types like protests, riots, and strategic developments have relatively lower occurrences.

Central Equatoria has the highest counts of violence against civilians and Battles.

Number of conflicts related to water



Hunger kills 6 in S. Sudan's Eastern Equatorial state

The state has been hit by drought following prolong period of insufficient amounts of rainfall that resulted into crop failure. Budi county is the worst affected

Over **6** conflict events
9 injured, 11,000 displaced in fighting over water point in Kapoeta East

Rainmaker
buried alive in Eastern Equatoria's Imehejek

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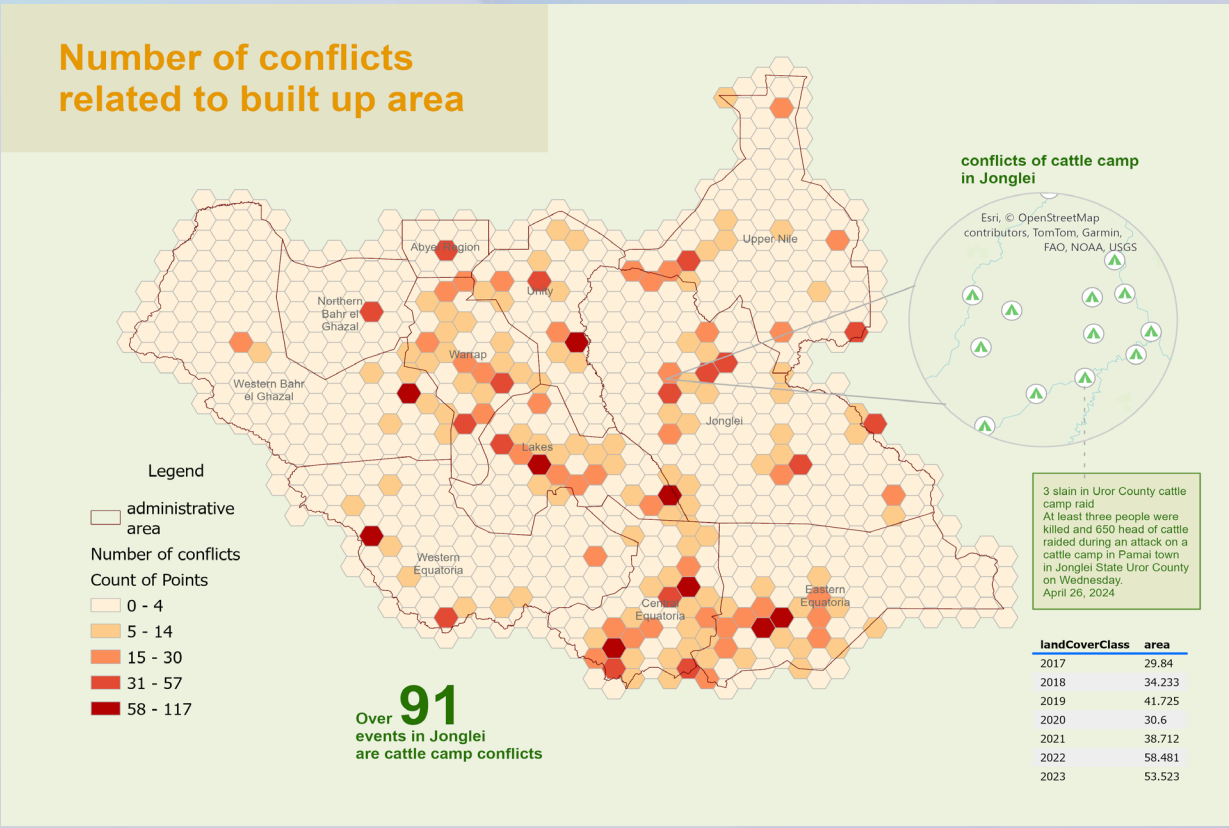
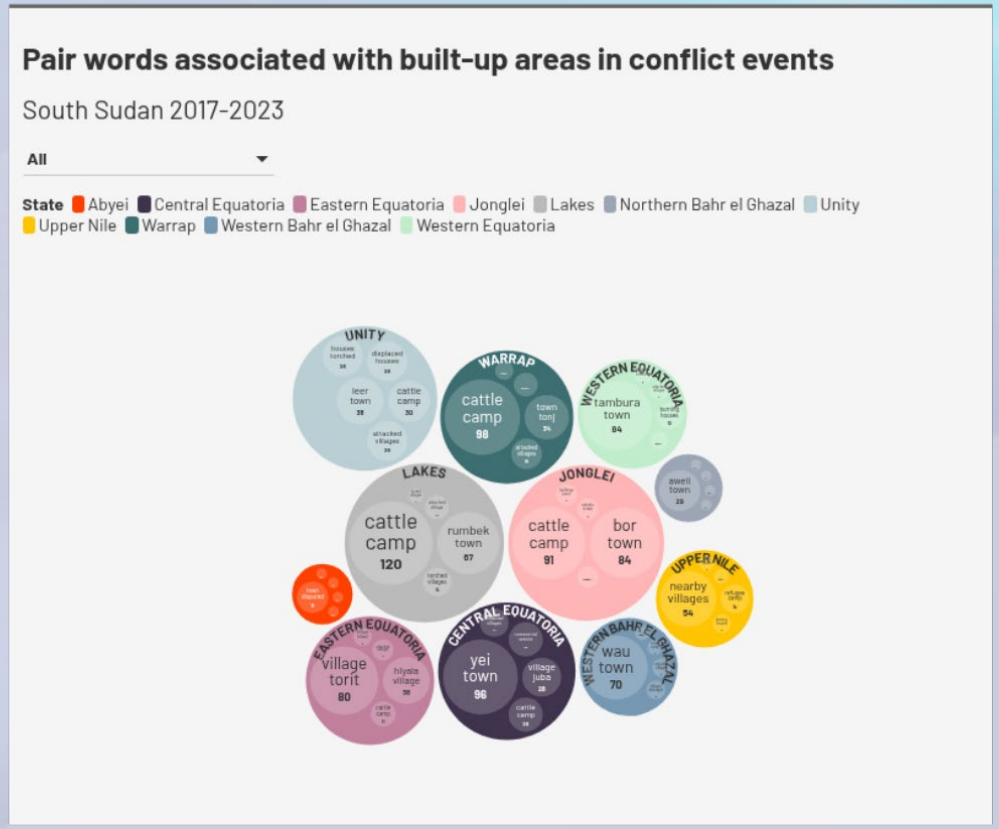
South Sudan : Unraveling Conflict Risk Drivers





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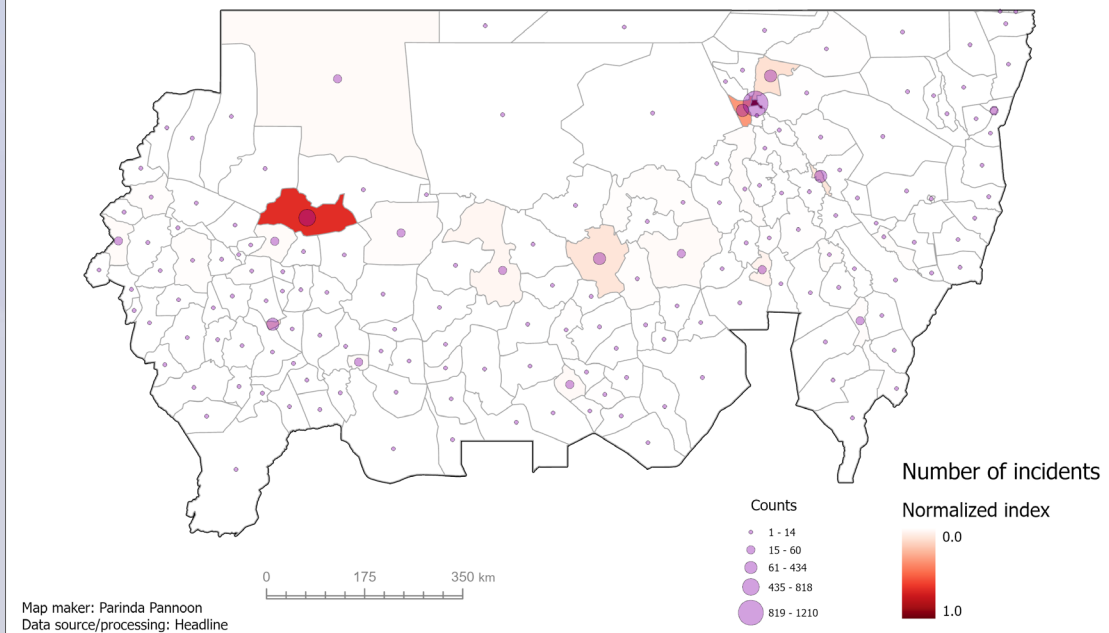
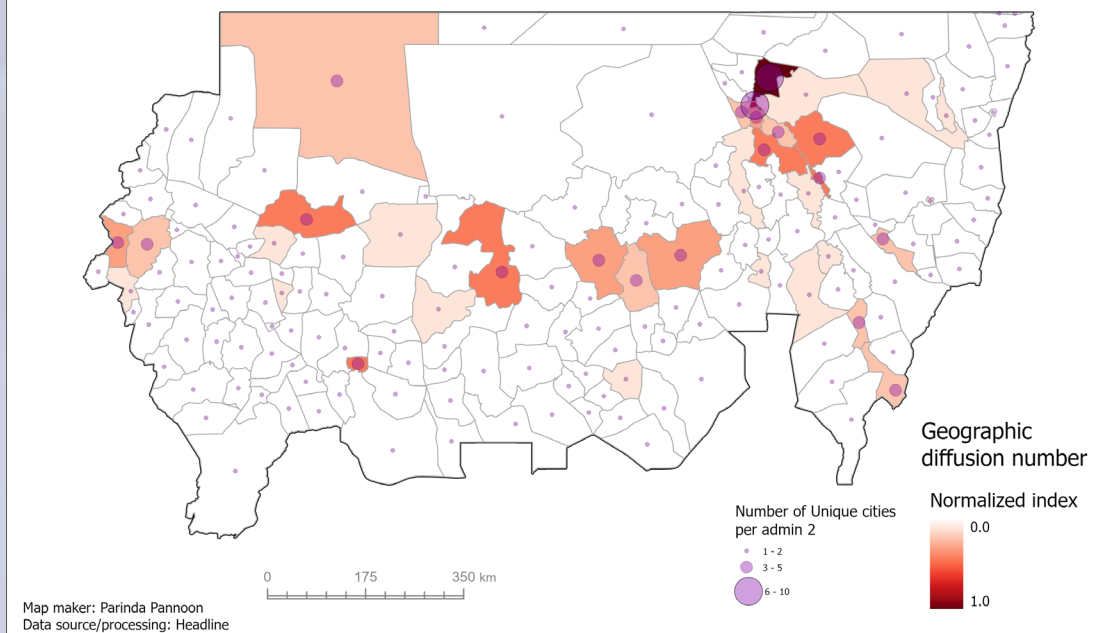
Sudan : Conflict, as a factor for Food Security

Number of incidents, January - May 2025, Sudan



Geographic Diffusion, January - May 2025, Sudan



ESA Smart Connect Project for UNICEF on Food Severity Index in Sudan

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Nigeria : Election Risk

- PeaceEye is also currently working on providing conflict event data (similar to ACLED DATA) tailored towards election risk in Nigeria.
- Using Open-Source Insights (OSINT): News Media, etc., in partnership with Headline Hunters GmbH.
- Conflict event data extraction, categorization, georeferencing, and mapping, leveraging NLP, LLMs.
- An Emergency Insights tool is also in the works, applicable to the Election Use Case

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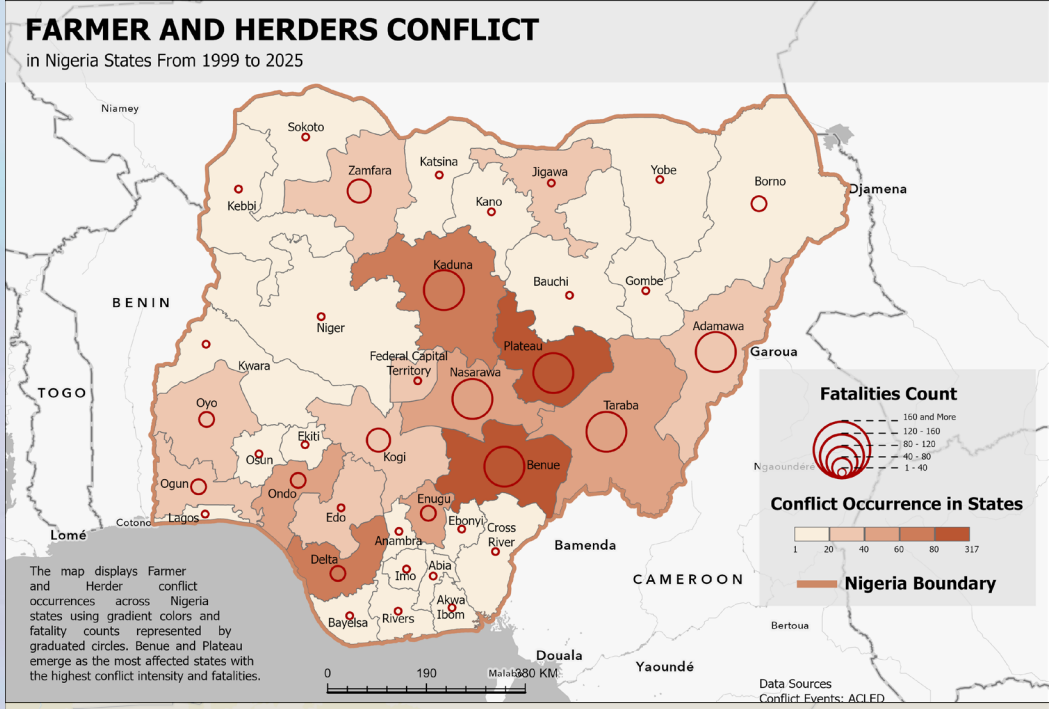
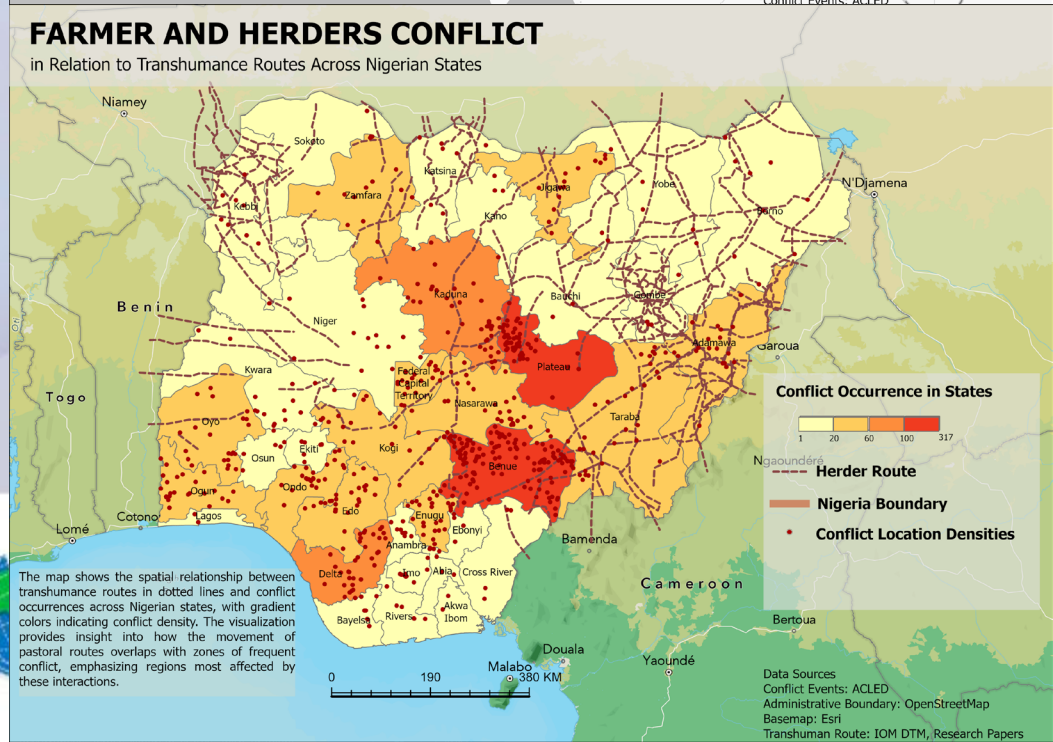
Nigeria: Herders-Farmers Conflict





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In conclusion

Geospatial Intelligence shows us not just where risks are, but where hope lives.

Together, we can map a safer, more conflict resilient future for Africa

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Thank You for listening