

AWEIL EAST COUNTY - NORTHERN BAHR EL GHAZAL STATE



Map 0.1: Location of Aweil East county within South Sudan indicating payam boundaries and key settlements

AWEIL EAST - KEY FACTS

Estimated population: 344,884¹ (2022 OCHA estimates); 807,040² (2023 NBS and UNFPA estimates)

Note: Calculations using population figures in this county profile use the 2022 estimates.

- Area: 6,367 km²
- Population density: 54 persons per km²
- County capital: Wanyjok
- Payams: Baach, Madhol, Malual-bai, Mangar-tong I, Mangok, Wunlang, Yargot, and Mayom-wel

Aweil East county is situated in Northern Bahr el-Ghazal State, sharing its western borders with Aweil North county and Aweil West county. To the southwest, it is adjacent to Aweil Centre county, and to the south, it shares borders with Aweil South county. On its eastern side, Aweil East county is connected to Warrap State, specifically Gogrial West and Twic counties. Additionally, it has boundaries with Abyei to the north-east and Sudan to the north. The county is composed of 8 payams, encompassing an estimated population of 344,884³ people residing in an area spanning 6,367 square kilometers.⁴

The county faces recurring challenges related to flooding, and was identified as a high risk flooding zone in 2018.⁵ During the rainy season, lowland areas often become isolated from the rest of the county. In 2021, the county experienced flooding once again, with over 40,000⁶ individuals reportedly affected by the floods. Floods carried on to 2022 and as of August 2022, an estimated 135,030 people had been affected by floods.⁷

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1. CLIMATE AND ENVIRONMENT

AWEIL EAST COUNTY

Map 1.1. Elevation and natural features including wetland areas, rivers and water bodies in Aweil East county



As depicted in map 1.1, Aweil East county features a predominantly flat topography, characterized by an average elevation of 439 meters above sea level, and it exhibits a limited range of elevation. The highest elevations are located in the western part of the county, gradually diminishing as one moves eastward toward the Malual Bai payam and the neighboring Twic county.

The county falls under the "Northwestern flood plain sorghum and cattle" livelihoods zone,⁸ which is defined by extensive floodplains situated in the lowlands of the Greater Bahr el Ghazal area. The natural landscape features a diverse range of vegetation, ranging from "grasslands and swamps with papyrus reeds, to bush scrub and scattered patches of forests."⁹ In the southern part of the county, there are intermittent patches of wetlands situated adjacent to rivers Lol and Pongo, as depicted in map 1.1.

The county experiences a notable amount of rainfall, averaging a total of 817 mm per year as depicted in graph 1.1. August is typically the wettest month, while December is the driest. A comparative analysis of rainfall data from 2020, 2021, and 2022 indicates a consistent pattern over the three years, with only minor anomalies observed in 2022. Graph 4.2, illustrating the rainfall anomaly in 2022, shows a surge in rainfall above normal levels at the beginning of May, followed by a decline by the end of the month.





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2. LAND USE AND LAND COVER

AWEIL EAST COUNTY

Map 2.1. Land use and land cover map, Aweil East county¹⁴



Aweil East county unfolds across a diverse and expansive landscape, showcasing a tapestry of natural elements that define its geographical character. The preeminent feature of this county is the extensive stretches of grassland, which command 68% of the total land cover. Complementing the dominance of grassland, shrubland claims a substantial portion, constituting 30% of the overall land cover.¹²

Herbaceous wetlands, characterized by their unique flora and damp conditions, form a distinctive component covering less than 2% of the county's landscape. Furthermore, interspersed throughout the county are scattered pockets of trees, constituting about 1% of the total land cover.¹³

For a comprehensive understanding of the spatial distribution of these land cover features, map 2.1 visually encapsulates the topography of Aweil East county. Additionally, chart 2.1 offers a detailed breakdown of the percentage distribution of each land cover type in this county.

235,135 identified buildings in Aweil East county¹⁵

Chart 2.1. Land cover as proportion of Aweil East county area





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3A. HYDROMETEOROLOGICAL HAZARDS - FLOODING

AWEIL EAST COUNTY





Graph 3.1. Rainfall from 2019 to 2022¹⁹



Graph 3.2. Maximum Flood extent from 2019 to 2022ⁱ



timated flood extent calculated based on analysis of UNOSAT, NOAA-20/VIIRS. Data is indicative only and has not been validated in the field.



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FLOODING

Aweil East county is at a high risk of flooding, based on flood risk analysis conducted by WFP.¹⁶ Persistent floods from 2020 continued to impact the county, leaving over 40,000 and 135,030 flood-affected individuals in 2021 and 2022, respectively.¹⁷ The county's poorly drained terrain, coupled with prolonged flooding, further exacerbated the flood impact in 2023.¹⁸ In the county, areas characterized by the lowest elevation, as shown in map 1.1, coupled with the existence of wetlands, witnessed more impacts from floods, as indicated in maps 3.1 and 3.3.

Map 3.1 offers a representation of areas impacted by floods over a span of four years, revealing that the southern part of the county bears the brunt of such incidents. This is likely attributed to the flat terrain and inadequate drainage in this area characterised by wetlands. Map 3.2 zooms in on the county's capital, Wanyjok, depicting the occurrence of flooding over a four-year period. Unlike the southern part of the county, the capital is situated on an elevated area, which likely contributes to its lower susceptibility to flooding.

Graph 3.1 illustrates a consistent distribution of rainfall since 2018, maintaining a steady range between 721 mm/year and 895 mm/year, with July and August receiving the highest amounts of rainfall. Precipitation levels remained consistently above 810 mm/year, except for 2020, when it dropped to 721 mm/year. In 2021, there was a surge in flooding compared to previous years, with the county experiencing an extended duration of 8 months. The increased rainfall, rising from an average of 721 mm in 2020 to 838 mm in 2021, was a contributing factor to the heightened flood occurrence. This is in line with the analysis from previous years, highlighting the correlation between rainfall and flooding in the county.

Map 3.2. Estimated maximum annual flood extent (2019-22), Wanyjok Town & its environs





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3B. HYDROMETEOROLOGICAL HAZARDS - FLOODING IN 2022

AWEIL EAST COUNTY

Map 3.3. Estimated maximum annual flood extent in 2022, affected settlements and key infrastructure



FLOODING 2022

In 2022, the southern regions of Aweil East county experienced substantial flooding, with Mayom Wel payam emerging as the most severely affected area, as highlighted in map 3.3. The heavily impacted areas coincide with those identified as wetlands, as illustrated in map 1.1.

The Inter-Agency Rapid Needs Assessment (IRNA),²⁰ conducted in October 2022, reported that an estimated 22,505 households, totaling approximately 135,030 individuals, were affected by floods. This represented 39% of the population at that time and was an increase from 12% compared to 2021.²¹ Out of the individuals affected by floods in 2022, 66,858 people were displaced. Additionally, 45,010 feddans of crops were damaged, further straining the food security and market prices in the county.²² According to the IRNA, most of the displaced people were staying with relatives or in school buildings. Families who were hosting displaced relatives faced serious challenges of over-crowding within their households.²³

Infrastructure was also heavily affected, with tertiary roads to health facilities being flooded and impeding access to services. In areas assessed by the IRNA, classes and boreholes in at least three schools were completely flooded, thus disrupting education, while at the community level, at least 80 boreholes broke down.²⁴



Map 3.4. Estimated maximum flood extent in 2022, Wanyjok Town and its neighboring payams







4. HYDROMETEOROLOGICAL HAZARDS - DROUGHT AND DRY SPELLS

AWEIL EAST COUNTY



Map 4.1. Vegetation condition index (VCI), indicator of drought severity, in July to September 2022, no drought

Graph 4.1. VCI (2000-2022) - drought index



i. Vegetation condition index calculated in Google Earth Engine based on MODIS EVI data



DROUGHT

in 1998.²⁵ However, dry conditions are occasionally witnessed, characterized by delayed rainfall. Between May and July 2020, the county faced such conditions, marked by precipitation levels below the long-term average. Importantly, these dry conditions typically prompt a shift in the planting and harvesting schedules to later in the calendar year to align with delayed rains.²⁶ In 2020, these conditions concluded by the end of July, only to be followed by unusually high levels of flooding in August.²⁷ As depicted in map 4.1, the county does not encounter any drought conditions.

Drought is a rare occurrence in the county, with the most severe dry spell recorded

When comparing the wet season to the dry season, the analysis of the Vegetation Condition Index (VCI) reveals that the poorest vegetation health is reached in January, and the highest in August. A low VCI signifies poor vegetation health, while a high VCI indicates good vegetation health. According to graph 4.1, spanning from 2000 onwards, vegetation health conditions have consistently been higher during the wet season and lower in the dry season. The county had a superior VCI in 2020, evident in both the dry and wet seasons, compared to other years. This improvement can be linked to lower precipitation levels and reduced instances of flooding during that specific year.

Graph 4.2 shows rainfall anomaly in 2022, indicating that April and May experienced higher amounts of rainfall than usual, while the other months remained more or less within the normal range. Graph 4.3 highlights long-term climatic trends, showing steadier precipitation and temperature levels in recent years. Notably, the precipitation levels have also slightly dipped in recent years, while temperatures have risen slightly.

Graph 4.3. Long-term climatic trends (1981-2022), Aweil East county²⁸



Projected climatic trends by 2060 based on SSP3-7.0 scenario," N. Bahr el Ghazal State

Projected change in precipitation in	Projected change in max temperature in
wettest month by 2060	warmest month by 2060
+5.2mm	+1.76°C

iii. 2060 projected climatic trends from 1995 - 2014 baseline with high green house gas emissions scenorio based on Share Socio-economic Pathways (SSP) 3-7.0



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140

100

4(

20

norma 120

from 80

%) Variation 60

6

Jul Αυα Sen

2022

–Normal line –3 Month Anomaly

Graph 4.2. Percentage rainfall anomaly in 2022^{ii 29}

Apr

ii. 100% is defined as the average value for the same month between 1981 and 2023

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5. LIVELIHOODS AND SOCIOECONOMIC CONDITIONS

AWEIL EAST COUNTY

Map 5.1. Livelihood zones in Aweil East county







2015 2016 2017 2018 2019 2020 2021 2022

PHASE 4 Sept - Nov 2023

PHASE 4

Acute malnutrition



Aweil East is located within the "Northwestern flood plain sorghum and cattle" livelihoods zone, 30 which features a mixed, agro-pastoral production system. This means that households within this zone practice a mixture of crop farming and pastoralism. The two activities play a crucial role in fulfilling food and cash income needs for households in the zone. These agricultural activities are complemented by fishing, hunting, and the collection of uncultivated native products and plants.31

Cropping is rain-fed, with sorghum being the primary crop and serving as a key cash crop. alongside groundnuts and sesame. Other crops such as maize, pearl millet, legumes, and vegetables are also cultivated, in descending order of importance. Livestock, including cattle, goats, sheep, and poultry, are pivotal assets. On the other hand, fishing becomes a widespread practice for households during the rainy season when the lands are flooded. This diverse combination of agricultural and supplementary activities underscores the multifaceted approach households take to sustain their livelihoods.

Graph 5.1 depicts fluctuations in net cereal production, highlighting a positive trend in four out of the last seven years within the county. The peak in net cereal production occurred in 2020, followed by a slight decline in 2021 and a massive decrease in 2022. This decline in production may be attributed to prolonged and intense flooding observed between 2020 and 2023.

The graph provides a visual representation of the variations in net cereal production, emphasizing the impact of environmental factors such as flooding on agricultural outcomes in the county. Notably, the 2022 flooding had severe consequences for food production, with 45,010 feddans cultivated by farmers being destroyed.³² This underscores the negative impact of floods on agricultural activities and food production in the county. Moreover, Aweil East has been identified as one of the counties facing a substantial cereal deficit, with an estimated gap of 25,000 tonnes in 2023.33 This highlights a challenge in meeting the local demand for cereals within the county.

Figure 5.1. Cultivation calendar for livelihood zone SS07³⁵





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6. POPULATION AND DISPLACEMENT

AWEIL EAST COUNTY

Map 6.1. Population density across Aweil East county (2023)⁴¹





Map 6.2. Population movements in Aweil East over a five year period (2018-22)42 43

Table 6.1. Est. numbe	r of displace	d persons by	/ payam (2023)⁴	0

Payam	IDPs	Returnees	Relocated	Total
Baach	565	1,410	167	2,142
Madhol	240	5,510	240	5,990
Malual Bai	13,820	4,677	893	19,390
Mangar Tong 1	1,960	5,087	1,960	9,007
Mangok	-	7,034	983	8,017
Wunlang	225	2,048	110	2,383
Yargot	-	6,084	237	6,321
County total	16,810	31,850	4,590	53,250

The population in the county is characterized by sparse distribution, with higher population density observed in areas surrounding towns, notably Wanyjok (refer to map 6.1). The northeastern part of the county, adjacent to Abyei administrative area, stands out as the least populated area.

Regarding displacement and its impact on the population, as of September 2023, the county recorded a total of 16,810 internally displaced persons (IDPs), 31,850 returnees, and 4,590 individuals who had relocated (as presented in Table 6.1). Out of the total number of IDPs in the county, a majority (82%) were situated in Malual Bai payam. Some of the factors causing displacement in the county include conflicts and floods. An IRNA³⁷ assessment in 2022 indicated that 22,505 households had been affected by the flooding and 11,143 relocated as a result. Another IRNA,³⁸ focused on the effects of conflict in the county, indicated that 2,620 households had been displaced due to conflicts in 2022.

In contrast to the distribution of IDPs, returnees were distributed more evenly across the payams, with the highest proportion (22%) residing in Mangok payam.³⁹ Most of the population that relocated were in Mangar Tong 1 payam (43%).





7. COMMUNITY INFRASTRUCTURE AND SERVICES

AWEIL EAST COUNTY

Map 7.1. Key infrastructure in Aweil East county^{44 45}



Map 7.2. Community infrastructure in Wanyjok Town and its environs



EDUCATION AND HEALTH INFRASTRUCTURE

Aweil East county has 185 primary schools and 11 secondary schools, but lacks early childhood development centers.⁴⁶ An IRNA report in 2022 indicated floods disrupted education, forcing the closure of some schools and affecting 5,171 pupils in the 7 assessed payams. The fear of drowning also increased absenteeism.⁴⁷ According to the 2023 ISNA, 64% of school-aged children (5 to 17 years old) were not enrolled or registered during the 2022-2023 school year, citing barriers such as inadequate infrastructure and teacher shortages.⁴⁸

In terms of healthcare, the county reportedly has 56 health facilities, with 51 operational in 2022. While 44 were Primary Health Care Units and 7 were Primary Health Care Centers, there were no functional hospitals.⁴⁹ In 2023, 30% of households were reportedly unable to access health services. Floods exacerbated the distance to health facilities, exceeding 20 kilometers for some households.⁵⁰

WASH indicators⁵¹

56% of households take <30 minutes to fetch drinking water



9



44% of households practice open defecation

8. SETTLEMENT

AWEIL EAST COUNTY

Figure 8.1. Satellite images showing change in built-up area in Wanyjok town and its environs between 2011 and 2022.

Wanyjok town, February 2011 (Google Earth Image)

Wanyjok town, June 2022 (Google Earth Image)



SETTLEMENT STRUCTURE

The county capital is Wanyjok Town, which is also in close proximity to the state capital, Aweil town on the southern county border. Wanyjok town is located in Mangar Tong 1 payam, which also had the highest number of relocated populations.⁵²

According to 2023 ISNA data,⁵³ tukuls and rakoobas stand out as the predominant types of shelters in the county, with 54% and 44% of the population respectively relying on them. Communal shelters, shared by households, were utilized by only 1% of the population. In terms of structural integrity, 40% of shelters were reported as partially damaged, indicating some structural risk but still considered habitable. Furthermore, 29% of shelters were noted to be completely damaged. The primary causes of damage to these shelters were varied, with 38% attributed to floods and rain, 12% to storms/lightning, 8% to conflicts, and 3% to fire.⁵⁴

SETTLEMENT CHANGE

As depicted in figure 8.1, in the span of 11 years there has been an increase in the area covered and density of Wanyjok Town Center. This can be seen when juxtaposing the 2011 satellite imagery with imagery from 2022, where an increase in the number of buildings with corrugated iron sheets is visible. Increase in the population could be attributed to flooding in the lower southern part of the county (see sections 3A and 3B), or due to conflict in other parts of the county or neighbouring counties.



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9. MARKETS, TRANSPORT AND ACCESSIBILITY

AWEIL EAST COUNTY

Map 9.1 Markets in Aweil East county, indicating supply routes



23% lower than South Sudan median

MSSMEB price (Sep 2023)

21% lower than South Sudan median

MARKETS

Key markets that cater to the county are located in Malualkon, Akuem, Malualbaai, Warawar, and Wanyjok. According to Joint Market Monitoring Initiative (JMMI) data,⁵⁵ the primary markets in the county are Wanyjok and Warawar, and as of October 2023, both markets were reported to be fully operational. A comparison reveals that these markets were functioning at a reduced capacity in September 2021, coinciding with the period of the county's highest level of flooding. Furthermore, the markets were operating at limited capacity in May 2023, a situation attributed to the outbreak of the conflict in Sudan in April 2023.

As of September 2023, the cost of 1 kilogram of sorghum in the county was comparatively lower than the national median. Similarly, the Multi-Sectoral Survival Minimum Expenditure Basket (MSSMEB) was slightly lower than the national median during the same period. This indicates that, at that particular time, sorghum prices and the MSSMEB in the county were more favorable compared to the national averages. This lower pricing trend can be attributed to local sorghum production within the county, as well as contributions from surrounding counties.

TRANSPORT

Aweil East has two primary roads and one secondary road, complemented by a network of numerous tertiary roads, forming a comprehensive road infrastructure. The primary roads connect the county to Twic county in the east, passing through Malual Bai payam before merging in Wanyjok, the county capital. Subsequently, the roads diverge, with one leading to Aweil North in the west and the other extending to Aweil town, the state capital. Additionally, a recognized secondary road runs from the county capital all the way to the Sudan border in the north. This road was assessed as passable by the Logistics Cluster in both the rainy season of 2022 and the dry season of 2023.56

Graph 9.1. Market price trends for sorghum and Multi-Sector Survival Minimum Expenditure Food Basket (MSSMEB)





Wanyjok

Warwar

From Aweil Town (by Road)

From Wanyjok (by Road)



ENDNOTES

AWEIL EAST COUNTY

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5	WEP. South Sudan Integrated Context Analysis, 2018	39
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7	IRNA Report on flood affected communities: Aweil East County, Northern Bhar el Ghazal State, South Sudan.2022	41
3	Famine Early Warning Systems Network (FEWSNET). Livelihood Zone Map and Descriptions for the Republic of South Sudan Issued August 2018.	42 43
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33	FAO/WFP. Crop and Food Security Assessment Mission (CFSAM) to South Sudan. 2023.	

34 FAO/WFP. 2021 Crop and Food Security Assessment Mission (CFSAM) to the Republic of South Sudan. June 2022.

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38	IRNA Report on flood affected communities: Aweil East county, Northern Bhar el Ghazal State, South Sudan. 2022
39	IOM. DTM Baseline dataset. 2023.
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16	CSRF. Aweil East County profile. 2023
47	IRNA Report on flood affected communities: Aweil East county. Northern Bhar el Ghazal State, South Sudan. 2022
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